

JYU DISSERTATIONS 541

Aku Nikander

Adolescent Student-Athletes' Dual Career Adaptability

The Role Individual and Environmental Factors



UNIVERSITY OF JYVÄSKYLÄ
FACULTY OF EDUCATION AND
PSYCHOLOGY

JYU DISSERTATIONS 541

Aku Nikander

**Adolescent Student-Athletes'
Dual Career Adaptability**
The Role Individual and Environmental Factors

Esitetään Jyväskylän yliopiston kasvatustieteiden ja psykologian tiedekunnan suostumuksella
julkisesti tarkastettavaksi yliopiston Liikunta-rakennuksen salissa L304
elokuun 19. päivänä 2022 kello 12.

Academic dissertation to be publicly discussed, by permission of
the Faculty of Education and Psychology of the University of Jyväskylä,
in building Liikunta, auditorium L304, on August 19, 2022 at 12 o'clock noon.



JYVÄSKYLÄN YLIOPISTO
UNIVERSITY OF JYVÄSKYLÄ

JYVÄSKYLÄ 2022

Editors

Noona Kiuru

Department of Psychology, University of Jyväskylä

Ville Korkiakangas

Open Science Centre, University of Jyväskylä

Copyright © 2022, by University of Jyväskylä

ISBN 978-951-39-9341-2 (PDF)

URN:ISBN:978-951-39-9341-2

ISSN 2489-9003

Permanent link to the online version of this publication: <http://urn.fi/URN:ISBN:978-951-39-9341-2>

ABSTRACT

Nikander, Aku

Adolescent student-athletes' dual career adaptability: The role individual and environmental factors

Jyväskylä: University of Jyväskylä, 2022, 60 p.

(JYU Dissertations

ISSN 2489-9003; 541)

ISBN 978-951-39-9341-2 (PDF)

Career development has been observed to continue over the lifespan, but the formation of career-related choices is especially important during adolescence. Some youth athletes may prioritize athletic career development over education and postpone their vocational career construction, while others are better prepared for their future. Career adaptability, which denotes an individual's psychosocial resources, may help to achieve vocational developmental tasks and overcome challenges related to career development, leading to enhanced well-being and career success. The aim of the present research was to examine adolescent athletes' dual career construction in terms of dual career adaptability across the high school years. Furthermore, the individual- and environment-related predictors of dual career adaptability were examined. The present research was part of the Longitudinal Finnish Dual Career study, which followed student-athletes ($N = 391$ – 331 , depending on the measurement point) from six sports high schools across their high school years. Study 1 examined the development of dual career adaptability and self-esteem among adolescent student-athletes. The data were collected at four measurement points throughout high school. In Study 2, individual and parental success expectations in school and sport, in addition to gender, were investigated as predictors of dual career adaptability profiles. The data were collected at the beginning and at the end of the first year of high school from the student-athletes and from 260 mothers and 188 fathers of the participants. Finally, in Study 3, organizational culture and its potential impact on student-athletes' dual career development was examined. The data were collected using on-site observations (58 hours) and semi-structured interviews ($N = 14$) from student-athletes, coaches, teachers, and leaders in one of the six sports high schools. To analyse the data, both person- and variable-oriented approaches were used, in addition to a case study approach in Study 3. The results showed, first, that dual career adaptability was relatively stable during the transition phase to as well as during sports high school. Second, student-athletes' dual career adaptability and self-esteem were positively associated with each other. Third, males demonstrated higher levels of dual career adaptability and self-esteem compared to females. Fourth, student-athletes' high success expectations in sport and school, and mothers' high success expectations in school, increased the probability of student-athletes demonstrating higher adaptability profiles. Finally, the organizational culture of the environment impacted youths' career-related thoughts and decisions in a way that they prioritized athletic development over education. Based on the findings, it can be suggested that support for career-related activities should be individually targeted early during a dual career. Furthermore, gender differences should be considered and females may benefit from self-care and empowerment rather than career-related activities per se. These findings could be used, for example, to develop career resources and holistic development support services for youth athletes.

Keywords: dual career, youth athletes, career construction, career adaptability

TIIVISTELMÄ (ABSTRACT IN FINNISH)

Nikander, Aku

Urheilulukiolaisten kaksoisuran urasopeutuvuustaidot lukion aikana: yksilöllisten- ja ympäristötekijöiden tarkastelu

Jyväskylä: University of Jyväskylä, 2022, 60 p.

(JYU Dissertations

ISSN 2489-9003; 541)

ISBN 978-951-39-9341-2 (PDF)

Urakehityksen on osoitettu jatkuvan läpi elämän, mutta erityisesti nuoruus on tärkeää aikaa uraan liittyvien päätösten muodostumisessa. Osa nuorista urheilijoista saattaa priorisoida urheilu-uraan ja lykätä ammatilliseen uraan liittyvää pohdintaa, kun taas osa nuorista urheilijoista on paremmin valmistautunut tulevaisuuteensa. Urasopeutuvuustaidot, joilla tarkoitetaan yksilön psykososiaalisia resursseja, saattavat auttaa uraan liittyvien kehitystehtävien täyttämässä ja urakehitykseen liittyvien haasteiden selvittämisessä lisäten hyvinvointia sekä menestystä ammatillisella uralla. Tutkimuksen tavoitteena oli tutkia urheilulukiolaisten uramuodostusta urasopeutuvuustaitojen avulla lukion aikana. Lisäksi sekä yksilöllisiä että ympäristöön liittyviä tekijöitä arvioitiin urasopeutuvuustaitojen ennustajina. Tämä tutkimus on osa laajempaa suomalaista kaksoisuran pitkittäistutkimushanketta. Tutkimuksen aineisto koostui urheilulukiolaisista (n = 391-331 riippuen mittauspisteestä) kuudesta eri suomalaisesta urheilulukiossa. Osatutkimuksessa 1 selvitettiin kaksoisuran urasopeutuvuustaitojen ja itsetunnon kehitystä lukion aikana. Nuoret täyttivät kyselyn neljä kertaa. Osatutkimuksessa 2 tutkittiin nuorten ja heidän vanhempien urheiluun ja kouluun liittyvien menestysodotusten sekä sukupuolen vaikutusta urasopeutuvuusprofiileihin. Nuoret ja heidän isänsä (n = 188) ja äitinsä (n = 260) täyttivät kyselyn lukion alussa ja ensimmäisen kouluvuoden lopussa. Osatutkimuksessa 3 selvitettiin kaksoisuraympäristön organisaatiokulttuurin vaikutusta nuorten urakehitykseen. Tutkimuksessa haastateltiin (n = 14) ja seurattiin (58h) urheilijoita, valmentajia, opettajia sekä kaksoisuran kehitysympäristön johtajia yhdessä suomalaisessa urheilulukiossa. Tämän väitöskirjan tutkimuksissa käytettiin henkilö- ja muuttujakeskeistä lähestymistapaa (Tutkimus 1 ja 2) sekä laadullista tutkimusotetta tutkimuksessa 3. Tulokset osoittivat, että urheilulukiolaisten urasopeutuvuustaidot olivat suhteellisen pysyviä siirtymävaiheessa urheilulukioon ja urheilulukion aikana. Itsetunto sekä urasopeutuvuustaidot olivat positiivisesti yhteydessä toisiinsa. Miehillä oli korkeammat tasot niin itsetunnossa kuin urasopeutuvuustaidoissa naisiin verrattuna. Urheilulukiolaisten korkeat menestysodotukset niin koulussa kuin urheilussa sekä äitien nuortaan koskevat korkeat menestysodotukset koulussa, olivat yhteydessä korkeampiin urasopeutuvuustaitoihin. Lisäksi ympäristön organisaatiokulttuuri sosialisoi urheilulukiolaiset huippu-urheilun olettamuksiin vaikuttaen heidän uraan liittyviin asenteisiinsa ja valintoihinsa siten, että he priorisoivat urheilun yli koulutuksen. Tutkimustulokset osoittivat, että urheilulukiolaisten urasopeutuvuustaitoja pitäisi tukea yksilöllisesti jo kaksoisuran alussa. Sukupuolierot pitäisi huomioida urheilulukiolaisten kehityksen tukemisessa ja erityisesti naiset voisivat hyötyä itsetuntoa ja autonomiaa tukevasta lähestymistavasta. Tuloksia voidaan hyödyntää urheilulukiolaisten urahallinnan ja kokonaisvaltaisen kehityksen tukipalveluiden suunnittelussa.

Avainsanat: kaksoisura, urasopeutuvuus, uramuodostus, nuoret urheilijat

Author

Aku Nikander
Department of Psychology
University of Jyväskylä
jaakosni@jyu.fi

Supervisors

Docent Tatiana V. Ryba
Department of Psychology
University of Jyväskylä

Professor Kaisa Aunola
Department of Psychology
University of Jyväskylä

Assistant Professor Noora Ronkainen
Institute of Sport Science
University of Bern

Reviewers

Associate Professor Louise Storm
Institute of Sport Science and Clinical
Biomechanics
University of Southern Denmark

Professor Chris Harwood
School of Sport, Exercise and Health Sciences
Loughborough University

Opponent

Associate Professor Louise Storm
Institute of Sport Science and Clinical
Biomechanics
University of Southern Denmark

ACKNOWLEDGEMENTS

First, I want to thank my main supervisor and our project leader Tatiana Ryba for her wisdom and kindness, as well for challenging me to develop and aim higher on my research path. Tatiana has taught me what it means to conduct high-quality research, and I have been inspired by her enthusiasm and expertise in qualitative research methods. It has truly been a privilege and my good fortune to be a part of her research group.

I also want to express my gratitude to my second supervisor Kaisa Aunola for her endless positivity and encouragement, and also for her expertise and guidance in quantitative research methods. Kaisa has taught me the confidence to approach issues and overcome obstacles. I also want to thank my third supervisor Noora Ronkainen for providing valuable comments on my research drafts. The conversations with Noora have provided me with a whole new lens to approach the field of sport. Noora's work has inspired me as a young researcher and served as an example of a career path.

I also want to thank Asko Tolvanen, who has offered his knowledge and wisdom in methodological and statistical issues. Furthermore, I would like to thank our research group for providing their insights and valuable comments throughout my PhD journey. In addition, I would like to thank colleagues at KIHU, who were flexible and supportive of my research ambitions. Finally, I want to express gratitude to my coaching colleagues and to the athletes who have contributed their ideas about and practical experiences of a dual career.

I want to thank my family for their encouragement along my academic path and their support during this process. Special thanks to my life partner Miia Riihimäki – my true life inspiration – for her endless support, love, and encouragement that anything is possible. Thank you for everything.

Jyväskylä, May, 2022

Aku Nikander

LIST OF ORIGINAL PUBLICATIONS

- I. Nikander, A., Aunola, K., Tolvanen, A., & Ryba T.V. (2022). Associations between student-athletes' self-esteem and career adaptability across the high school years. *Scandinavian Journal of Medicine and Science in Sport*, 32(4), 789–797.
- II. Nikander, A., Tolvanen, A., Aunola, K., & Ryba, T.V. (2021). The role of individual and parental expectations in student-athletes' career adaptability profiles. *Psychology of Sport and Exercise*, 59(3).
- III. Nikander, J.A.O., Ronkainen, N., 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.

Taking into account the comments and instructions given by the co-authors, the author of the present dissertation wrote the original research plan, conducted the analyses in collaboration with the co-authors and wrote the reports of the three publications.

FIGURE

FIGURE 1 The overall conceptual model14

TABLE

TABLE 1 Overview of the original studies.....31

CONTENTS

ABSTRACT	
TIIVISTELMÄ (ABSTRACT IN FINNISH)	
ACKNOWLEDGEMENTS	
LIST OF ORIGINAL PUBLICATIONS	
FIGURES AND TABLES	
CONTENTS	

1	INTRODUCTION	11
1.1	Dual career development of athletes in adolescence.....	14
1.2	Career construction	15
1.3	Career adaptability	17
1.4	Individual factors associated with career adaptability	18
1.4.1	Achievements	18
1.4.2	Gender	19
1.4.3	Self-esteem.....	20
1.4.4	Individual success expectations	20
1.5	Parental roles in dual career.....	21
1.6	Organizational culture of a dual career development environment	22
1.7	Aims of the empirical studies	23
2	METHODOLOGY	25
2.1	Participants	26
2.2	Procedures	26
2.3	Measurements	27
2.3.1	Career adaptability	27
2.3.2	Self-esteem.....	27
2.3.3	Success expectations in school	27
2.3.4	Success expectations in sport.....	28
2.3.5	Parental success expectations in school	28
2.3.6	Parental success expectations in sport	28
2.3.7	Background variables	28
2.3.8	Interviews, observations, and supplementary material	29
2.3.9	Analysis strategy for the three studies.....	29
3	OVERVIEW OF THE ORIGINAL STUDIES	32
3.1	Study 1.....	32
3.2	Study 2.....	33
3.3	Study 3.....	34
4	DISCUSSION	36
4.1	The development of dual career construction during high school ...	37
4.2	Predictors of career adaptability.....	38

4.3	Organizational culture of a dual career development environemnt	41
4.4	Practical implications	42
4.5	Limitations and future suggestions	45
4.6	Concluding remarks	47
YHTEENVETO (SUMMARY).....		49
REFERENCES.....		52
ORIGINAL PAPERS		

1 INTRODUCTION

Adolescent years are a time for individuals to explore future career options, increase internal and external resources to adapt to several changes and transitions, and subsequently commit to a career choice (Staff et al., 2009), which is also one of adolescents' most important developmental tasks (Super et al., 1996). Based on their characteristics, assumptions, interests, and competencies as well as their needs, young people select available and compatible environments and activities in their lives when constructing a career (Savickas, 2013). One possible career goal to pursue in adolescence is an elite athletic career. While future working life has become more insecure and unstable, now including more transitions and self-created jobs (e.g., Briscoe, 2015; Guest & Rodrigues, 2015), elite sport is perhaps becoming more systematic and providing more normative pathways than ever before. For example, athletic talent development starts at an early age and more structure (career stages and transitions) and institutionalization is built around the young athlete's path (Stambulova & Wylleman, 2015). Furthermore, athletic career development is facilitated by the modernist logic of competitive sport and the cultural narratives that present complete commitment to the athletic career as the only way to achieve success (Douglas, 2014). According to Ronkainen et al. (2022), the dominant stories that portray other pathways as a failure and achieving the level of elite sport as success, could hinder youth athletes from engaging in important career-related activities outside of sports. The young athlete constructing a non-athletic career may live in a dual world of ambiguity and face contradicting demands from society and others around them. Therefore, career construction and related skills might be particularly important nowadays for young athletes' holistic development (e.g., Briscoe, 2015; Guest & Rodrigues, 2013).

Many young athletes devote a significant amount hours and effort to achieve an elite athletic career, even at the expense of their academic pursuits and in to development tasks, which would have provided better prerequisites for a career after sports (Christensen & Sörensen, 2009; Cosh & Tully, 2014;). Furthermore, adolescent athletes tend to postpone their future vocational decisions and

have difficulties envisioning their future life trajectories outside of the sports domain (Ronkainen & Ryba, 2018; Ryba et al., 2016). However, findings by Schmid et al. (2022) recently demonstrated that involvement in elite sport (i.e., Olympic level) may also facilitate a successful vocational career. On the other hand, dual career (i.e., a combination of sports and education) is increasingly becoming a normative discourse, with young athletes (especially women), expecting to do well also in education (Harrison et al., 2020; Ryba et al., 2021). Youth athletes in a dual career have been shown to do better in academics compared to the non-athletic population (Aunola et al., 2018; Storm & Eske, 2021) and are more likely planning to enter higher education (Aunola et al., 2018). The expectations to excel and successfully perform in education could be assumed to facilitate young athletes' career construction and achievement of developmental tasks. Therefore, an important question is how do adolescent student-athletes' athletic endeavours impact their possibilities to be involved in development tasks and prepare for a meaningful subjective career in and outside sports?

Dual careers have been suggested as a key to nurturing talented athletes' sustainable and responsible career development (e.g., achieving development tasks), and growth (European Commission, 2012; Stambulova & Wylleman, 2019). The benefits of dual careers have been shown, for example, enabling continuity in education and training, providing a balanced life, preparing athletes for a career after sports, and supporting well-being (Stambulova & Wylleman, 2019). However, simultaneous pursuits in two time-demanding domains may also cause challenges (e.g., lack of time, limited possibilities for recovery, several transitions) for adolescent athletes during their dual career paths (Brown et al., 2015; Harrison et al., 2020; Stambulova et al., 2015). To manage both domains successfully athletes need to develop and possess multiple skills including, for example, time management skills, social competencies, and emotional regulation competencies (De Brandt et al., 2018). In addition to individual factors, adolescents' career development may be influenced by actors in their lives (parents, coaches, peers), who provide feedback that influences their career trajectories and choices. For example, 71% of Finnish student-athletes' mothers expected their child to obtain a higher education degree (Ryba et al., 2016). There is recently also a growing focus on the environments youths are embedded in (i.e., school domain, sports domain). To integrate the different domains of youth athletes' lives and to facilitate a balanced life, dual career development environments, as purposefully developed systems combining athletic and school domains, are recommended for young athletes (Morris et al., 2020; Stambulova & Wylleman, 2019). Although the literature concerning athletes' dual careers is comprehensive, very few scholars have studied how adolescent student-athletes' sporting career aspirations, simultaneous educational pursuits, and environmental factors are associated with their career construction and the abilities to prepare for their careers.

To investigate the role of psychological (individual) and social (environment) factors in adolescents' career development, this dissertation has been developed in line with the theoretical background of career construction and career

adaptability (Savickas, 2013). According to career construction theory, youths' career goals and perceived abilities give direction to the career tracks they choose, and these experiences provide feedback that influences educational and vocational trajectories (Savickas, 2013). Therefore, it is assumed that there is a transactional relationship between an individual student-athlete and the environment in which the athlete is embedded. To construct a career, an individual athlete needs to solve obscure and complex challenges caused by development tasks (i.e., committing to a career choice), transitions (i.e., from lower secondary school to high school), and traumas (e.g., dropout, de-selection) related to their career path (Savickas, 2013). Additionally, young athletes may face contradictory expectations and messages related to their career decisions. Parents, for example, may expect education to be the priority but coaches may expect sports to be so (Skrubbeltrang et al., 2018). Career adaptability, which signifies a person's psychosocial resources, has been suggested as a key to solving these challenges (Savickas, 1997). Therefore, it is crucial to consider the influences of youth athletes' environment to prepare and engage meaningfully in career construction in sports but also outside of their sport.

The purpose of the present thesis was to investigate adolescent athletes' dual career construction with a focus on dual career adaptability. In the present study, both person- and variable-oriented approaches were applied, in addition to a case study approach. Both person- and variable-oriented approaches use quantitative data, but there are certain methodological and theoretical differences (Mäkikangas & Kinnunen, 2016). The variable-oriented approach focuses on the associations of the variables and assumes homogeneity concerning the phenomenon (Hirschi & Valero, 2015). In this research, the variable-oriented research approach was used to examine the development of dual career adaptability across time and the relationship between self-esteem and dual career adaptability. The person-oriented approach, on the other hand, assumes heterogeneity concerning the mean levels and changes of the phenomena and takes into consideration, for example, those individuals who demonstrate different combinations of dual career adaptability (Hirschi & Valero, 2015; Mäkikangas & Kinnunen, 2016). Subsequently, a person-oriented research approach was implemented to identify the development of distinct dual career adaptability profiles in the transition phase to high school. Furthermore, a case study design was used to explore one of the sports high schools with the aim of examining the potential impact of organizational culture on youth athletes' dual career development. The case study design provides a real-life context from multiple perspectives and develops a deep understanding of holistic and meaningful characteristic (Hodge & Sharp, 2016). More precisely, a qualitatively oriented case (Stake, 2005) was used to gain insight into how organizational culture impacts student-athletes' dual career development. The thesis had three main aims. The first aim was to explore the development of dual career adaptability among adolescent student-athletes in the transition phase across the first year of high school (Study 2), as well as throughout high school years (Study 1). The second aim was to examine the in-

dividual and environmental predictors of career adaptability among student-athletes (Study 1 and 2). The third aim of the study was to examine how the organizational culture of a dual-career development environment impacts student-athletes' dual career construction and related resources (Study 3). Figure 1 presents the overall conceptual model for this research.

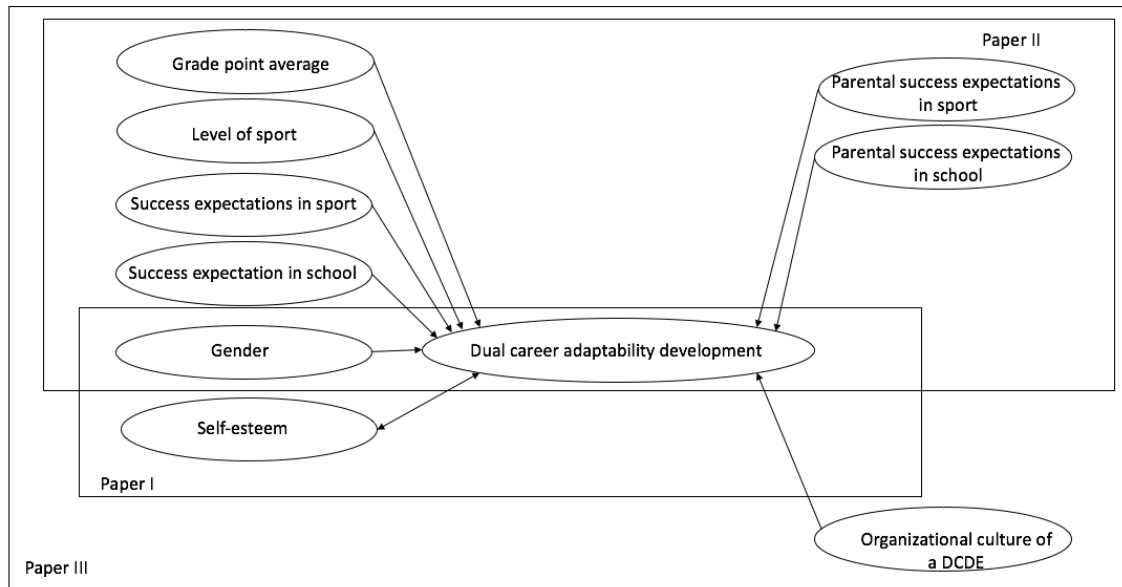


FIGURE 1 The overall conceptual model for this research

1.1 Dual career development of athletes in adolescence

The training to become an elite athlete and the goal for an athletic career starts during early adolescence when youth athletes start training more systematically towards their athletic goals. This is also considered the beginning of the dual career as youth athletes simultaneously attend compulsory education (Ryba et al., 2016; Wylleman et al., 2013). Especially late adolescence, known as the mastery stage in athletic development, is considered to be the period when youth athletes transition into elite sport (i.e., 18–19 years on average) (Wylleman & Lavallee, 2004). As the holistic career development model proposes, this stage of athletic development overlaps with individuals' physical, psychological, and social development (Ryba et al., 2016). All these development stages are in dynamic interaction and changes in one area influence other areas of development (Wylleman et al., 2013), which may impact youth athletes career construction. Cartigny et al. (2019) found in their study of dual career experiences across the athletic lifespan that student-athletes showed three distinct pathways of career construction: (a) educational pathway (prioritization of education), (b) a dual career pathway (focus on both athletic and vocational career), and (c) athletic pathway (prioritization of sports). This is further supported by Ryba, Stambulova et al.'s (2017) study

of adolescent athletes' prospective career narratives in which similar career styles were identified. They identified a contrapuntal style (a sport and education as a harmonically related life-theme), monophonic style (a prominent athletic life-theme), and dissonant style (separation of sports and education life-theme). Additionally, Ryba et al.'s (2021) longitudinal study across the high school years showed that athletes' construction of a particular career style is associated with certain narrative resources. These would indicate that student-athletes have different aims they pursue, and therefore, how they prioritize different career prospects in their lives may influence other stages of development.

In dual career pathways, adolescents may face multiple challenges that can affect their career development and subjective experience of the particular career path. A particular risk associated with adolescent athletes' dual career development are transitions, which can cause substantial challenges (Stambulova et al., 2019). It also needs to be considered that the demands of the dual career increase while the athletes progress in their educational levels (Cartigny et al., 2019; Stambulova et al., 2015). Stambulova et al. (2015) found that youth athletes' perceived demands increased and their resources dropped during the first year of sports high school. Consequently, athletes re-evaluated their possibilities for a simultaneous pursuit of their goals in education and sports. Furthermore, in Finland, first-year student-athletes have been shown to be at risk of burnout (Sorkkila et al., 2018), which can alter their perceived abilities and subsequently their future career goals. It is also known that a number of athletes opt out from sports by the end of high school (Moazami-Goodarzi et al., 2019; Stambulova et al., 2019). Furthermore, a number of studies have suggested that athletes' social environment is occupied with athletic events and people (Lavallee & Robinson, 2007; Petitpas et al., 2013; Verkooijen et al., 2012), and they may lack role experimentation and experiences outside of the sports context, which may influence their career behaviour and well-being (Ryba et al., 2016). As other factors related to the environment (e.g., societal factors and feedback from significant others) may impact career development (Lent, 2013), it is crucial to provide support in completing vocational developmental tasks as well as to overcome various challenges related to career development (Koivisto et al., 2011).

1.2 Career construction

The development of an individual career is a dynamic career-long process and especially the adolescent years are a relevant and active time for the construction of important career-related choices (Lent & Brown, 2013). During this period individuals begin attempting to understand their job-related motivations, endeavours, and competencies (Vondracek et al., 2019). Preparing for a career is positively associated with variables of well-being such as self-esteem (Skorikov, 2007), effective functioning (Savickas, 2002), life satisfaction (Kim et al., 2016), individual future orientations (Savickas, 2002) and success beliefs (Janeiro & Marques, 2010). During adolescence, individuals explore available activities and

environments, reflecting on their assumptions, characteristics, beliefs, and abilities. After finding a compatible environment for the self, the selected environment then facilitates continued socialization and further decisions (Savickas, 2013). Especially young athletes are susceptible to neoliberal assumptions of competitive sport and they may prioritize sports over the other domains of life (Christensen & Sørensen, 2009). Career construction has several benefits for adolescent development, yet, for example in the GEES project (Gold in Education and Elite Sport) (De Brandt et al., 2018), career planning was rated the lowest in perceived importance and perceived possession of dual career competencies among student-athletes.

Career construction theory accounts for processes (both interpretive and interpersonal) which include the construction of self that guides behavior and creates meaning in individuals' careers (Savickas, 2013). Self-construction evolves through interpersonal processes, that is, "self-denotes an emergent awareness that is culturally shaped, socially constituted and linguistically narrated" (Savickas, 2013, p. 148), and differs during different developmental stages. Individuals initiate the construction of self as actors (childhood), and later they become goal-oriented agents (adolescence), and finally develop into authors explaining the action (adulthood). Central to career construction theory is that individuals need to construct a meaningful subjective career that guides their occupational behavior. A subjective career refers to a person's experiences of the progressing career (Savickas, 2005) and "provides ways to think about living uniquely in complex ways" (Ryba et al., 2015, p. 47). Through an agency, an individual extends the self into the wider environment (Savickas, 2013). This self-extension includes goal setting, projects to achieve these goals, and finally the accomplishment of a career. Youth athletes may put themselves in the mode of an athletic career, although at the athletic development stage they are still in a mastery stage (Wylleman & Lavallee, 2004). They may construct a life trajectory within an athletic context, independent of their vocational pathways (Ryba et al., 2015). They may understand that education is important, but perceive that there is a limited time to make it as an athlete (Korhonen et al., 2020; Ryba, Stambulova et al., 2017).

The self must adapt to transitions and the importance of agency is highlighted when the occupational plan is lost. Adaptation to changing and challenging situations can facilitate learning and development. For example, vocational development tasks that are related to age-graded normative transitions are identified as a source of change. It could be assumed that transition to high school would facilitate career-related behaviours, which is the case in sports. This transition indeed facilitates sporting behaviours that are consistent with a subjective athletic career (Ryba et al., 2015). Although athletes are especially susceptible to more frequent transitions, such as those in sports and education (Wylleman et al. 2013), sport traditionally provided a clear structure due to, for example, age-specific expectations for performance and talent development pathways. Additionally, (some) sports cultures might not support planning and exploration beyond sporting goals (at least traditionally). Those youths who have high competencies

to cope with and are prepared for vocational tasks have demonstrated higher commitment and adjustment in higher education, which has further been related to success in vocational career paths (Germeijs & Verschueren, 2007). For example, Park et al. (2013) found that college athletes who had not planned their lives after sports had an elevated risk of psychological distress, especially following involuntary athletic career termination. Although a number of competencies for success in a dual career have been recognized, including social competence, time management, emotional regulation (De Brandt et al, 2018; Linner et al., 2019), these competencies are related to solving acute problems instead of facilitating the construction of a meaningful subjective career or the formation of a career story when challenges arise. For adolescent student-athletes to manage transitions, and to solve a range of challenges in the course of their life trajectories, support should be provided for their career construction behavior and resources, such as career adaptability.

1.3 Career adaptability

Savickas (2013) stated that “individuals can adapt more effectively if they meet changing conditions with growing awareness and information seeking, followed by decision making, trial behaviours leading to a stable commitment projected forward for a certain period and active role management, and forward-looking disengagement” (Savickas, 2013, p. 156), known as the construct of career adaptability. Career adaptability is an important construct within career construction theory. The word adapt means: “bringing inner needs and outer opportunities into harmony indicating success, satisfaction, and well-being” (Savickas, 2013, p.157). The foundations of career construction theory proposed that adaptation is achieved as a result of the distinct constructs of adaptivity, adaptability, and adapting. Individuals differ in career-related behaviors; some are better prepared for a change than others (adaptivity), have more or fewer resources to manage change (adaptability), and show more or less actual change when needed (adapting). Career adaptability enables adolescents to regulate their strategies along the four dimensions: *Career concern* refers to the extent to which the individual is conscious of, and prepares for, vocational developmental tasks and transitions in the near and distant future; *career control* means that a person takes responsibility for constructing their career and chooses their approach to vocational development tasks; *career curiosity* refers to information-seeking behaviors, openness to new experiences, exploration, and reflection on the match between the individual’s abilities and the demands of a particular career; and *career confidence* refers to self-efficacy in pursuing a self-determined occupation and successfully coping with career stressors. Additionally, Ryba, Zhang et al. (2017) introduced a *dual career concern* subscale for student-athletes in an athletic context which refers to the extent to which an individual is aware of the challenges of integrating athletic and academic pursuits and prepares for their dual career pathway.

It has been shown that career adaptability contributes to positive transitions and personal functioning in adolescents, predicting an increased sense of control and life satisfaction (Johnston, 2018). Overall, career adaptabilities assist individuals in achieving vocational developmental tasks. It has been suggested that some individuals are better prepared for their careers than others are depending on their ability to adapt to different situations and utilize their resources efficiently (Savickas, 2013). Lack of career adaptabilities may cause challenges to planning a meaningful career, making career-related decisions, exploring careers, and possessing occupational self-efficacy (Johnston, 2018). As career adaptability is proposed to facilitate also individuals' ability to integrate discontinuous experiences (e.g., injury, de-selection), a person with high career adaptability has the readiness and resources to adapt to the changing situation and reorient their personal career story. It is suggested that career adaptability and thoughts concerning vocational careers become evident early in secondary education (Aunola et al., 2018; Timonen et al., 2016). Especially transitions are suggested to increase the pressure to deal with goals relevant to the developmental tasks (Salmela-Aro et al., 2007). However, as youth athletes tend to have difficulty envisioning their lives after sports and engaging in self-exploration during their sporting careers (Ryba et al., 2015; Ryba, Stambulova et al., 2017), it may be that they do not develop their resources for career construction, or they do not utilize their related resources efficiently. Subsequently, student-athletes with low dual career adaptability may confront multiple challenges, which causes a threat to their well-being and pursuit of a meaningful subjective career. Hence, investigating dual career adaptability development during adolescence would give important information on how to support student-athletes' career development. Furthermore, as career adaptability denotes an individuals' psychosocial resources, in addition to internal resources (e.g., self-esteem), these resources can be externally derived from the environment (e.g., parental support, a culture of an environment), highlighting the importance to examine both individual and environmental factors in the development of dual career adaptability.

1.4 Individual factors associated with career adaptability

1.4.1 Achievements

It has been suggested that students who perform well and achieve good results (e.g., a high GPA) may demonstrate higher orientation and preparation for future careers and subsequently manage their career better than their peers do (Tian & Fan, 2014). Indeed, academic achievements have been shown to be related to career adaptability (Negru-Subtricia & Pop, 2016; Rudolph et al., 2016). Conversely, poor academic results are associated with more limited career possibilities and individuals need to adjust their plans if their initial educational goals are not achieved. Hence, low educational results may also limit adolescents' preparation for a career which can further cause lower self-efficacy in decision

making and higher career insecurity (Negru-Subtricia & Pop, 2016). Because student-athletes are high achieving individuals (Storm & Eske, 2021) possessing multiple skills (e.g., motivation, coping skills, social skills, goal setting) that are associated with career adaptability (Johnston, 2018), it could be assumed that they would also possess high career adaptabilities. However, these skills may not transfer to career-related exploration (Ronkainen et al., 2022). Furthermore, as those who compete at a high level may prioritize sports over education, required skills may not be enough if youth lack the willingness to use them (Savickas, 2013). The present research investigated the role of academic achievements (i.e., GPA) and sports level, in the development of dual career adaptability (Study 2).

1.4.2 Gender

According to career construction theory, interests and involvement in different career-related activities are culturally saturated (Savickas, 2013): society places different expectations on young men and women, highlighting the assumptions and beliefs that men and women differ in their competencies, which are differently valued (Wigfield, 2006). For example, in sport, men may confront expectations and attitudes that they should aim for a professional sports career instead of a dual career, whereas women's limited professional career opportunities may lead to expectations to pursue dual careers (Ryba et al., 2021). Overall, the field of sports has been shown to be male-dominated (e.g., Kirk, 2005; Skrubbeltrang et al., 2018; Wright et al., 2003). Sport has a more open opportunity structure for men compared to women (Cooky et al., 2013). For example, a report by the International Federation of Professional Footballers (FIFPro) (2017) on female players in football showed that elite sport is not an actual career path on its own, but instead needs to be combined with a vocational career, which may impact young athletes' career construction.

Patton and Creed (2011) found that during adolescence females may engage earlier than males in career-related activities (e.g., career exploration, role experiment). This is also evident in the athletic population as dual careers have been shown to be gendered (Ryba et al., 2021): female elite athletes value more education and invest more in vocational careers (Ryba et al., 2016) and have higher aspirations for education than males do (Tekav et al., 2015). Furthermore, Skrubbeltrang et al. (2018) found that young females have less motivation towards athletic careers. Additionally, it has been shown that adolescent women demonstrate better academic results compared to adolescent men (Kiuru et al., 2007; Marcenaro-Gutierrez et al., 2017). All these findings suggest that females would also possess higher career adaptability. However, Hirschi (2009) found that adolescent men demonstrate higher career adaptability compared to adolescent women, although no developmental differences were found among young students. As Rudolph et al. (2017) found that personality traits contribute to the prediction of career adaptability, which suggests that personality-related factors play a role in adaptability, it may be that differences in the development of career are explained by the individual rather than by gender. An interesting question is, therefore, despite the different career-related behaviors, do females and males

differ in their career adaptabilities. In Study 1 and 2, the role of gender in the development of career adaptability was investigated.

1.4.3 Self-esteem

Self-esteem has also been found to be associated with career adaptability in adolescents (Atac et al., 2018). Global self-esteem has been defined as a “positive or negative attitude toward a particular object, namely, the self” (Rosenberg, 1965). High global self-esteem demonstrates a positive self-evaluation that one has worth (i.e., is good enough) and feels like a valued person. Global self-esteem is associated with the enhanced initiative and career success. For example, Erol and Orth (2011) showed that increased self-esteem was related to a sense of career control, which was likely to translate into greater career opportunities. Global self-esteem may also have a role in how youth face and manage challenges. Huang (2010) suggested that during adolescence global self-esteem is influenced by life changes, including maturation and environmental-related changes, and hence athletes with high self-esteem may be better prepared for career-related transitions and challenges. Successfully confronting these challenges may increase an individual’s global self-esteem and career adaptability. In Study 1, we investigated the development and developmental association of career adaptability and self-esteem across high school.

1.4.4 Individual success expectations

It has been shown that adolescents’ self-efficacy beliefs and outcome expectations are influenced by previous experiences and social observations (Staff et al., 2009), which have further been found to predict career adaptability (Yon et al., 2012). These beliefs and outcome expectations impact career development, for example, how individuals build their career interests, how educational and vocational aims are chosen, and how successful they are in their pursuits. Individuals possessing high self-efficacy to make career choices have been shown to be active in career exploration, (Brown & Lent, 2016; Creed et al., 2007), are persistent in their career (Choi et al., 2012), make more career-related choices, and demonstrate higher performance (Brown & Lent, 2016).

Individual expectations of success in sports or education have been conceptualized as the extent to which individuals believe that they have the abilities to be successful in sports or school and are not distressed about the likelihood of failure (Nurmi et al., 1995; Sorkkila et al., 2017). Outcome expectations may predict educational goals (Lent et al., 2005). Indeed, youth athletes have demonstrated better academic results compared to the non-athletic population and were more likely planning to enter higher education (Aunola, Selänne et al., 2018). However, athletes have also been shown to be overoptimistic about their future possibilities (Ryba et al., 2021). As identity has been shown to be related to career development (Hughes, 2011), youth athletes possessing athletic identity and having only athletic-related goals maybe be isolated from career-related activities. Furthermore, it may be that high success expectations in sport may be channelled

into the athletic career development, which leads to a question of to what extent do high beliefs in one's own abilities transfer to the high beliefs in career opportunities. Sorkkila et al. (2017) suggested that high success expectations may be related to confidence, and as career adaptabilities are evaluated as perceived abilities, student-athletes having higher confidence, either in sport or education, may demonstrate higher dual career adaptability.

1.5 Parental role in dual career

Besides various individual-related factors, parents may also play a role in young athletes' career construction and career adaptability. Indeed, career construction occurs within the frames of interpersonal relationships that are the crucial source of emotional support and career guidance (Savickas, 2013). Parents may have a dialogue with their offspring regarding their occupational competencies and endeavours (Guan et al., 2016), provide guidance and assistance in setting career-related goals, and facilitate planning and decision-making by those goals (Bryant, 2006; Hargrove, 2002; Hirschi et al., 2011). While in sports, the role of parents includes assisting athletes in multiple ways (e.g., from emotional support to providing financial resources) during and after their sporting career (Harwood & Knight, 2015), Condello et al.'s (2019) survey showed that parents are also important supporters in a successful dual career. Parental attitudes and beliefs toward dual career are considered influential factors that guide student-athletes' choices (Guidotti et al., 2015), and high parental involvement has been identified as a resource for successful career transitions (Wuerth et al., 2004). Recently, Kramers et al. (2022) suggested that parents can facilitate young athletes' psychosocial development by supporting their commitment to school.

Tessitore et al. (2020) provided a qualitative analysis of parental experiences as social agents in athletes' dual careers. The analysis highlighted that fathers and mothers are involved differently in student-athletes lives as supporters. Fathers were less involved in the academic domain, which was explained by fathers' experiences of not being as responsible for the daily schedules of the child the mothers were. This is further supported by the adolescent development literature showing that adolescents share more often feelings with their mothers and overall, spend more time with them (Steinberg & Silk, 2020). However, Korhonen et al. (2020) showed that fathers are also involved in the academic domain, suggesting that the involvement depends rather on the individual relationship with the parent. This could be also explained by cultural context since Nordic countries are more gender-equal and expectations for fathers' involvement are higher. In addition to differentiated involvement by parents, parents may create gendered expectations. Wigfield et al. (2006) studied parental influences on their offspring's self-efficacy and competence beliefs and found that gender differences exist in education and occupation achievements during adolescence.

A study conducted by Frome and Eccles (1998) showed that parents' attitudes predict more youth individuals' achievement-related interests and decisions than assessed competencies, indicating that parents' beliefs, perceptions, and career expectations impact how they prepare their children for the future. Johnston (2018) found that a positive relationship with parents predicts career adaptability. Parental success expectations can be seen as demonstrating trust in a child's ability and competence to obtain success (Aunola et al., 2002; Ommundsen et al., 2006). Parental expectations of success in sport or education have been conceptualized as the extent to which parents believe that their child has the abilities to be successful in school or sport (Sorkkila et al., 2017). Sorkkila et al. (2017) were the first to examine parental expectations in adolescent student-athletes' dual careers. They found that athletes' and mothers' success expectations for sport and school, and fathers' success expectations for school, protected against student-athlete burnout in the same domain at the beginning of sports high school. This could indicate that resources provided by parents in the form of beliefs in their offspring's abilities assists student-athletes to face challenges related to the transition to high school. In Study 2, we investigated how parental success expectations predict student-athletes' career adaptability profiles across the first year of high school.

1.6 Organizational culture of a dual career development environment

While individual qualities and interpersonal relationships play an important role, it is also crucial to consider how the culture surrounding youth athletes impact their dual career development. The Holistic Ecological Approach (Bronfenbrenner, 1979) in athletic talent development (Henriksen et al., 2010) aimed to extend the understanding of athlete development from the individual level to the environmental level. Subsequently, based on the HEA, dual career development environments were developed on the blocks of talent development environments (ECO-DC, 2017; Morris et al., 2020), shifting the athlete development towards more purposeful and holistic structural arrangements (Storm, Henriksen et al., 2021). Furthermore, as Savickas (2009) called to explain the meanings of the cultural context related to career construction, we chose to examine a dual career development environment and how organizational culture impact student-athletes' career development. In Schein's model (1990), organizational culture consists of three levels: artifacts, espoused values, and basic assumptions. Artifacts are the physical manifestations of the environment, including visible organizational structures and processes. Espoused values are explanations of what the environment aims for (goals, strategies, and philosophies). Underneath the artifacts and espoused values are the unconscious actions, and resistance to change values, known as basic assumptions. Schein (1990, p. 111) defined organizational culture as follows:

A pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid, and therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to these problems.

It has been shown that adolescents' interpretations and constructed meanings of the events in the environment mediate the interaction between the environment and adolescents' feelings, beliefs and behavior (Savickas, 2013). According to Schein (1990) culture is taught to members by the leading figures and role models. Moreover, Kuettel et al. (2018) noted that values, understanding, and beliefs of young athletes' career development might be influenced by the macro-level created by sports federations, or societal expectations. For example, the narrative context that the globalizing sports industry creates is intrinsically linked to everyday discourse practices generating a set of "ready-made and preconstituted experiences" (Hall, 1977, p. 322, as cited in Ryba et al., 2015, p. 50) for how athletes should live and derive meaning from their sport participation (Ryba et al., 2015). Moreover, athletes are socialized into elite sport culture, which means that youth athletes become nurtured into a specific context through interaction with others and the environment and eventually develop into elite athletes (Storm et al., 2015; Storm, Ronglan et al., 2021). Although the benefits of the dual career to career development have been recognized, recent research on the development environments have also shown that some of the environments use education as an instrumental tool to recruit talented athletes (Thomsen & Nördgaard, 2018), which may create a contradictory message for adolescents. Additionally, research concerning sports high school student-athletes from Finland (Ryba et al., 2016) and Sweden (Stambulova et al., 2015) shows that young athletes may prioritize sports over education, indicating that the student-athletes in sports high school environments are socialized to the elite sport narrative (Douglas, 2014). Combining this, for example, with the recent shift in the educational policy in Finland that emphasizes high school grades and course selection in tertiary education admission (Opintopolku, 2020), career adaptability may have an important role in adolescents' development and well-being.

1.7 Aims of the empirical studies

The purpose of the present research was to investigate adolescent athletes' dual career adaptability across high school. In the present study, both person- and variable oriented approaches in addition to case-study design were applied to gain an extensive picture of the development. Different individual and environmental factors of the development of dual career adaptability were examined. The individual predictors included self-esteem (Study 1), individuals' expectations of success in sport and school (Study 2), and gender (study 1 and 2). Environmental predictors included parental success expectation in school and sport (Study 2) and the organizational culture of an environment.

Study 1 explored the developmental associations between self-esteem and career adaptability among adolescent athletes across high school years and investigated the role of gender in the development of these trajectories. The following research questions were examined:

- 1) To what extent do individual differences in (a) career adaptability (both in terms of the five dimensions and regarding the overall common level of career adaptability) and (b) self-esteem remain stable across the high school years, and to what extent is there rather time-specific fluctuation in these at different phases of high school?
- 2) To what extent are career adaptability and self-esteem associated across high school years?
- 3) What is the role of gender in the development of career adaptability and self-esteem?

Study 2 examined career adaptability profiles among youth athletes across the first year of sports high school and success expectations in school and sport, and corresponding parental success expectations. The following research questions were investigated:

- 1) What kinds of distinct career adaptability profiles in terms of concern, dual career concern, control, curiosity, and confidence can be identified among youth athletes during their first year of sports high school?
- 2) How do student-athletes' sport and school success expectations, and corresponding parental expectations, relate to their career adaptability profiles?

Study 3 evaluated whether and how a talent development environment for youth athletes in Finland has transformed from an athletic talent development to a dual career development environment by exploring the environment's success factors and organizational culture. Additionally, the study examined how the organizational culture of the environment impact student-athletes' dual career construction and related resources. The following research questions were addressed:

- 1) What is the organizational culture of the Finnish sports academy?
- 2) How is dual career development organized in this academy?
- 3) What are the academy's success factors?

2 METHODOLOGY

Studies within the present thesis are part of the Longitudinal Finnish Dual Career project (Winning in the Long Run; Ryba et al., 2016) in which adolescent Finnish student-athletes were followed throughout their time in sports high school. The project focused on risk and resilience factors related to dual career construction. Specifically, Study 1 and Study 2 are based on quantitative data from the project. Study 3 within the present thesis is based on data from the Ecology of Dual Career project (ECO-DC, 2017) and the Optimizing Youth Wellbeing, Learning, and Elite Development in Dual Career Environments project (WeLive DC; Ryba, 2017), which focused on dual career development environments.

Methodologically, the Winning in the Long Run project's key theoretical assumption was that processes of psychology are folded with sociocultural ontogenetic historicity (Heft, 2013). Considering this, career construction is seen as both a transactional process and an outcome of reciprocal action with the socializing context (Sameroff, 2009). Ryba et al. (2016) reasoned that since the combination of quantitative and qualitative methods include epistemological tensions, the overall project was positioned in a critical realism. Ontological realism subscribes to an assumption that objective assessment of "fixed reality" at a certain time point can be obtained. Epistemological constructivism, on the other hand, is deemed important for understanding individuals' experiences and development. According to constructivism, subjective experiences are ongoing, integral to a sociocultural and particular history. Hence the position of this research is that the longitudinal quantitative data represents cultural-laden psychological processes, and concurrent qualitative data assisted in understanding how Finnish adolescent student-athletes construct their careers and clarify personal meanings in the narrative context of sports culture. The studies comprising the current thesis examine dual career construction in terms of dual career adaptability across high school. The participants of the studies, procedures, and assessments of the studies are presented below. More information concerning the validity and reliability of the scales and analyses are described in the original studies.

2.1 Participants

At the beginning of sports high school (T1; autumn 2015) the participants ($n = 391$) were student-athletes (49% male; 51% female). The participants' average age at the beginning was 16 ($SD = 0.17$). The sample was collected from six different Finnish sports high schools. It also included 260 mothers and 188 fathers. The level of the student-athletes varied from regionals to the junior world championships. At the first assessment, the participants reported a GPA of 8.85 (possible range of 4–10, $SD = 0.62$). The distribution of individual and team sports was equal: 50% played individual sports (e.g., cross-country skiing, athletics), and 50% played team sports (e.g., football, ice hockey). On average, the athletes reported that they had been involved in competitive sport for seven years ($SD = 2.41$) and on a weekly basis they were involved in their sport for an average of 25 hours ($SD = 8.99$). The majority of athletes expected to obtain a master's degree (68%) in the future and compete at the highest level in their sports (world championships or Olympic Games; 60%).

2.2 Procedures

The study was approved by the ethics board of the University of Jyväskylä before data collection commenced. The participants from the sports high schools in the quantitative studies were contacted through the National Network of Sport Academies. The participants signed an informed consent form before participating in the study. The data were collected using an online questionnaire or via completion of an identical paper questionnaire. The participants filled in the questionnaires during class. The data applied in the quantitative studies were collected at the baseline, that is, at the beginning of the first year of high school (T1; September), and after that, once at the end of each year (March), that is, at the end of the first year (T2), at the end of the second year (T3), and at the end of the third year (T4). In the qualitative study, we used an information-oriented case selection method – that is, we chose an environment that had been established before DC policies were implemented – in order to study how the environment had transformed from an athletic talent development environment to a DCDE and how the organizational culture influenced student-athletes' career construction. The participants included coaches, teachers, student-athletes, the principal of the school, a school counsellor, a mental trainer, a dormitory attendant, and the head of the sports academy. In Finland, permission or informed consent from a parent or guardian is not mandatory from participants over 15 years of age.

2.3 Measurements

2.3.1 Career adaptability

Career adaptability was measured using the Career Adapt-Abilities Scale–Dual Career form (CAAS-DC) (Ryba & Aunola, 2015). The dual career form was developed by adding an additional subscale (dual career concern) to the original CAAS (Savickas & Porfeli, 2012) and furthermore validated (Ryba et al., 2017). The CAAS-DC contains a total of 27 items measuring five dimensions of career adaptability: concern (four items; e.g., *Thinking about what my future will be like*), control (six items; e.g., *Making decisions by myself*), curiosity (six items; e.g., *Observing different ways of doing things*), confidence (six items; e.g., *Learning new skills*), and dual career concern (five items; e.g., *Concerned about my athletic career*). Earlier research demonstrated that the CAAS-DC had factorial and concurrent validity in a Finnish sports high school sample (Ryba et al., 2017). All items were rated on a five-point Likert scale (1 = *not one of my strongest abilities*; 5 = *one of my strongest abilities*). A mean variable for each subscale was created which indicated competence in that dimension. The higher scores indicated that individuals had more adaptability resources for constructing a career. Cronbach's alphas for the different subscales at the two time points (T1 and T2) in the present study varied between .82 and .91.

2.3.2 Self-esteem

Self-esteem was measured with five items (e.g., *I feel like a person who has a number of good qualities*; *I wish I could have more respect for myself*) taken from the Rosenberg Self-Esteem Scale (Rosenberg, 1965). The measure included two negatively worded items and three positively worded items. All items were rated on a five-point Likert scale (1 = *Strongly disagree* to 5 = *Strongly agree*). Since the survey in the overall project (Winning in the Long Run) included several scales, to maintain the response rate, we used the abbreviated version of the self-esteem scale. The measure has been used in previous studies in Finland carried out among adolescents and it has been shown to demonstrate good validity and reliability. Cronbach's alphas in the current sample at different time points ranged between 0.77 and 0.82.

2.3.3 Success expectations in school

The success expectations of athletes in school were assessed using the Success Expectations scale (subscale of the Strategy and Attribution Questionnaire, Nurmi et al., 1995). The scale consists of five items (e.g., *When I start a school assignment, I usually expect that I will succeed*) and was rated on a 4-point scale (1 = *completely disagree*; 4 = *completely agree*). The Cronbach's alphas for scale in school were .77 at T1 and .76 at T2.

2.3.4 Success expectations in sport

The expectations of success in sport were assessed similarly as school expectations were using the Success Expectation Scale (Nurmi et al., 1995). The scale was modified for a sports context. The scale consists of five items (e.g., *When I go to training, I usually expect that I will succeed; When I go into sport competitions, I usually expect to do well*) measuring an individual's success expectations in a task without being overly apprehensive of failure. Individuals rated the items on a 4-point scale (1 = completely disagree; 4 = completely agree). The Cronbach's alphas for scale in sport were .63 at T1 and .66 at T2.

2.3.5 Parental success expectations in school

The Parental Belief questionnaire (Frome & Eccless, 1998) was used to assess parental success expectations for school. The scale consists of four items measuring skill-specific school beliefs focusing on different school subjects (two items for math and foreign languages; e.g., *How well do you think your child is doing in math/foreign language at the moment in school?*), and two items measuring general school beliefs (e.g., *In general, how well do you think your child is doing at the moment in school?*). The items were assessed on a 4-point Likert scale (1 = not very well; 4 = very well). Finally, the sum score of the skill-specific and general beliefs was calculated to reference parent's expectations in school. The Cronbach's alpha was .90 for general school belief and .79 for specific school beliefs.

2.3.6 Parental success expectations in sport

Similar to the way success expectation in school was measured, parents' sport success expectations were assessed using the Parental Beliefs questionnaire (Frome & Eccless, 1998). The scale was modified for the sport. The scale consists of three items (*How well do you think your child is doing at the moment in sport?, How well do you think your child will do at sport later on?, and How well do you think your child is doing in sport compared to peers?*). The items were rated on a 4-point scale (1 = not very well; 4 = very well). The Cronbach's alpha for parental success expectations in sport was .80.

2.3.7 Background variables

The background variables included gender (male or female), grade point average (GPA; possible range 4-10) and the highest level the student-athletes had competed at (ranging from regional to Olympics level), which were controlled for in the studies.

2.3.8 Interviews, observations, and supplementary material

Semi-structured interviews were used to gather data on key items in the environment. The interview guides were created by the ECO-DC consortium. The interviews covered the thematic areas of the culture of the environment, for example, how would you describe the values and attitudes regarding the DC in this environment. Additionally, participant observations were employed to achieve contextual sensitivity (Spradley, 1980). For the observations, a total of 11 hours were spent at school, 5 days at competitions, 6 hours at practice and 1 hour at the dorms. These hours consisted of informal talks with student-athletes, coaches, and teachers as well as observations of interactions between the actors in different situations. Notes were taken after observations and were used as data items in the thematic analysis. Archives and documents (e.g., the environment's social media accounts, websites, competition results, summary of the statistics of DCDEs in Finland) were also employed as substantial data source and were juxtaposed with interviews and observations in order to understand the essential features of the environment.

2.3.9 Analysis strategy for the three studies

Quantitative analyses were carried out with the M-plus package (Study 1 and 2 Muthen & Muthen, 1999–2017), in addition to the qualitative approach in Study 3.

Study 1 aimed to investigate the developmental associations between self-esteem and career adaptability among adolescent athletes across high school years, and the role of gender in the development of these trajectories. To investigate the developmental stability and within-person fluctuation of career adaptability and self-esteem during the high school years, as well as these constructs' developmental associations, random intercept cross-lagged path analysis in the structural equation modelling framework was employed. First, to explore between-individual variation in the overall levels of the five career adaptability dimensions and self-esteem across four measurement points, six first-order factors describing these overall levels were specified. Additionally, a second-order factor for the five first-order level factors of career adaptability was specified to model the overall level of career adaptability across time. Second, time-specific factors capturing common variation between career adaptability dimensions at a particular time point were specified separately for each time point. Similarly, time-specific factors were estimated for self-esteem at each time point. Third, regression paths between time-specific factors capturing the lagged effects of career adaptability and self-esteem were allowed for successive measurement points. Finally, a gender variable was added to the model to predict the overall levels of career adaptability and self-esteem across time, and the mean differences between genders in other specified factors were examined and estimated with the help of modification indices.

Study 2 aimed to examine what kind of distinct profiles based on career adaptabilities can be identified among student-athletes in the beginning of upper

secondary school and how individual and parental success expectations in sport and school would predict the likelihood of a certain profile. We first estimated latent class solutions starting from the one-class solution and ending with the six-class solution based on the scores of the five subscales. We used Bayesian information criteria (BIC) to select the best fitting model from the estimated 1-6 class models. Additionally, the Akaike information criterion (AIC), Vuong-Lo-Mendell-Rubin likelihood ratio (VLMR), and Lo-Mendell-Rubin adjusted likelihood ratio (LMR) were used to find the best fitted model. Second, to test differences between classes in athletes' and parents' sport- and school-related expectations (i.e., in auxiliary variables), the Bolck-Croon-Hagenaars (BCH) method was used. In this method, the BCH weights of career adaptabilities were saved to a data file in the first step; in the second step, these weights were used to specify the model when testing differences between the latent classes in auxiliary variables. Finally, covariates – gender, GPA, and the level of competition in sport – were added to the model to evaluate their impact.

The purpose of Study 3 was to evaluate whether and how a talent development environment for youth athletes in Finland has transformed from an athletic talent development environment to a dual career development environment by exploring the environment's success factors and organizational culture. The data were analysed as outlined by Wiltshire and Ronkainen (2021) using thematic analysis at the latent level. Thematic analysis was connected to the data-driven and theory-driven processes. This approach was chosen to understand participants' experiences and find out whether these experiences could be understood according to the theoretical framework. In line with the critical realist approach, the generation of themes was influenced by three levels of ontology (i.e., empirical level, actual level, and real level) (Bhaskar, 1989). In the data-driven coding, the data was sorted into codes. At this stage, demi-regularities were looked for and similar excerpts found in the transcripts were segmented into themes. In the critical realist approach, these themes can be described as experiential themes that attempt to describe participants' feelings, intentions, and beliefs as they are evident in the data. Next, experiential themes were developed into inferential themes, referring to inferences and conceptual redescriptions. Finally, the experiential themes and inferential themes were categorized into the empirical model. Table 1 presents a summary of the methods for the four studies.

TABLE 1 Overview of the original studies

Study	Measurement points	Approach/ orientation	Variables	Data analysis methods
Study 1 Association of student-athletes' self-esteem, career adaptability, and coaching climates across high school years	Time 1 ($N = 391$)	Quantitative/ Variable oriented	Self-esteem Career adaptability Gender	Structural equation modelling, random intercept cross-lagged path analysis.
Study 2 The role of individual and parental expectations in student-athletes' career adaptability profiles.	Time 1 ($N = 391$ athletes, 260 mothers, 188 fathers)	Quantitative/ Person oriented	Career adaptability Individual success expectations in sport Individual success expectations in school Parental success expectation in sport Parental success expectations in school Competition level School achievement Gender	Structural equation modelling, latent profile analysis
Study 3 From athletic talent development to dual career development? A case study in a Finnish high performance sports environment	$N = 14$	Qualitative/ Case study	Organizational culture	Thematic analysis

3 OVERVIEW OF THE ORIGINAL STUDIES

3.1 Study 1

Association of student-athletes' self-esteem and career adaptability across the high school years

Study 1 investigated the development and developmental associations between self-esteem and career adaptability among adolescent athletes across high school years, and the role of gender in the development of these trajectories. First, the results showed that career adaptability and self-esteem were relatively stable across individual differences in high schoolers' overall levels of each construct over time, which explained most of the variation. In addition, the levels of the different adaptability dimensions were relatively stable across high school; approximately half of the variation in different dimensions at different measurement points (T1-T4) was caused by the overall individual level of particular adaptability dimensions. Similar results were found for self-esteem, which was relatively stable across the high school years. Second, the results revealed that the individual differences in the overall level of career adaptability across the high school years were positively associated with individual differences in the overall level of self-esteem. Further, one specific association was found indicating that the individual overall level of control was positively associated with the individual overall level of self-esteem. In addition to these associations between the overall level of adaptability and self-esteem, time-specific positive association between the construct were found at each measurement point, and the correlations became stronger toward the end of high school. Finally, gender was associated with the overall levels of career adaptability and self-esteem, with males showing higher levels of both compared to females.

The results suggest that support for career-related activities should be individually targeted early on during a dual career. Given that the individual level explained most of the variation in career adaptability, it is important to recognize individuals with low levels of career adaptability (and identify the reasons for

that) and support the development of adaptabilities starting at the beginning of high school (or even earlier). The association between career adaptability and self-esteem across high school suggest that both are complementary resources for positive development. Further, as the individual overall level of control was positively associated with the individual overall level of self-esteem, student-athletes who feel that they are in control of their future may develop not only career adaptability, but also high self-esteem. Student-athletes with high self-esteem and career adaptability might have more resources to explore other plans and pursue endeavours outside of sports in the future. Finally, as males showed higher levels of both self-esteem and career adaptability, gender differences should be considered when providing support for student-athletes' dual career development and well-being.

3.2 Study 2

The role of individual and parental expectations in student-athletes' career adaptability profiles.

Study 2 examined what kind of distinct career adaptability profiles in terms of concern, dual career concern, control, curiosity, and confidence can be identified among student-athletes at the beginning of upper secondary school and how individual and parental success expectations in sport and school relate their career adaptability profiles. Five distinct adaptability profiles were found. The five profiles were labelled according to the mean standardized profiles scores as (1) stable very low adaptabilities, (2) stable low adaptabilities, (3) stable moderate adaptabilities, (4) stable high adaptabilities, and (5) increased adaptabilities. The stable moderate adaptabilities were the largest profile (37%), whereas the increased adaptabilities profile was the smallest (8%). Moreover, 28% of the participants belong to the stable low adaptabilities profile, 16% to the stable high adaptabilities profile, and 11% to the stable very low adaptabilities profile. Adolescent women had a greater chance of demonstrating lower adaptability profiles, while adolescent men demonstrated higher adaptability profiles. Furthermore, the results showed that students representing different profiles differed from each other in terms of sport and school success expectations and mother success expectations. The higher success expectations the athletes reported for sport and school, the more likely they were to demonstrate higher adaptabilities profiles. Furthermore, the results showed that the associations of individual success expectations with career adaptability profiles remained the same after the covariates (GPA, gender, and sport achievement) were added to the model. The results of mothers' and fathers' success expectations as predictors of adaptability profiles showed that the higher success expectations in school reported by the mother, the more likely the student-athlete was to demonstrate a higher adaptability profile. Mothers' sport success expectations, fathers' sports or school success expectations were not associated with adaptability profiles.

Overall, the results of Study 2 suggest that the profiles of career adaptability differ mainly in the general level of adaptabilities rather than at the level of any specific adaptability, or in the pattern of change across the first school year, suggesting that support for career-related activities should be individually targeted at dual careers early in the year. Moreover, not only students' high school expectations, but also high sports expectations, were shown to be related to career adaptability, indicating that student-athletes' career related skills are not only facilitated by education-related beliefs, but also by sports beliefs. Similarly, mothers' high expectations concerning student athletes' school success constitute an important factor in supporting student-athletes' dual careers. Finally, gender differences should be considered when supporting student athletes by supporting female student-athletes' belief in their abilities and future possibilities, in school as well as in sports.

3.3 Study 3

From athletic talent development to dual career development? A case study in a Finnish high-performance sports environment

Study 3 evaluated whether and how a talent development environment for youth athletes in Finland has transformed from an athletic development to dual career development environment by exploring the environment's organizational culture. The results indicated that the organizational culture was incoherent across the different cultural levels observed (artifacts, espoused values, and basic assumptions), and subsequently, the environment was identified as an athletic talent development environment rather than a dual career development environment. The themes related to espoused values included creating a balance between the student-athletes' sport and academic development, a holistic approach, an everyone-will-graduate attitude, and an everyone-can-become-an elite athlete attitude. Observations revealed that the artifacts contradicted the espoused values. The artefacts of the environment included the separation of school and sport, the close proximity of the coach, the valuation of sports over education, and a focus on results. The formal events arranged in the environment showed that sports were valued over education. Finally, themes inferred by the researchers, such as "we are a business", "we make (athletic) stars", "the school interferes with the sports and the sports interfere with the school", helped to understand the basic assumptions and the discrepancy between the cultural levels of the espoused values and artifacts.

Overall, the results of Study 3 suggest that the culture of the environment impacted student-athletes' career construction by encouraging them to become elite athletes after high school. The basic assumptions highlighted the sport-focused culture and that education and preparation for a vocational career were considered a plan B. The adolescent student-athletes were encouraged to develop as athletes, not necessarily as students and they were not encouraged to engage

in career-related behaviors and activities. The societal expectation set by higher policy (i.e., National Olympic Committee) was evident in the environment and coaches and student-athletes adopted the “sports comes first” and “sports-as-an-occupation” ideology. Overall, the findings of the present study suggest that the Finnish sports academy had adapted to the recommendations to provide sustainable routes for athletes to reach the elite level by integrating a dual career culture rhetorically. Considering that a dual career provides the resources for student-athletes to develop a balanced life and the prerequisites to attain academic/vocational dreams, our findings suggest that the basic assumptions of the gatekeepers, the integration of the efforts between the different domains, the education of the stakeholders, and the development of a support system in the environment are crucial factors to facilitate career construction among adolescent student-athletes.

4 DISCUSSION

This research investigated career construction in terms of dual career adaptability development among student-athletes across high school. Furthermore, the roles of individual and environmental factors were investigated as predictors of dual career adaptability. First, dual career adaptability development was examined across the high school using the variable-oriented approach. Subsequently, the present research investigated dual career adaptability profiles during the transition phase to high school. Second, individual factors including the development of self-esteem across high school, individual success expectations in school and sport, and gender, were examined as predictors of dual career adaptability. Third, environmental factors including parental success expectations in sport and school were investigated as predictors of dual career adaptability. Finally, the organizational culture of a talent development environment was examined using a qualitative approach to understand more broadly the influence of the environment on student-athletes' dual career construction.

The results of the present research showed that dual career adaptability is relatively stable across high school among student-athletes and individual levels explained most of the variation in career adaptability. This was further supported by the findings of Study 2 showing that during the transition phase to high school, student-athletes demonstrated distinct and stable profiles. However, we found one profile in which student-athletes demonstrated an increase in career adaptabilities, indicating that dual career adaptability can be enhanced. Considering the individual predictors, higher individual success expectations both in school and sport were associated with higher dual career adaptability profiles. Furthermore, individual levels of self-esteem were associated with the level of dual career adaptability across high school indicating that belief in one's abilities and sense of own worth is related to dual career adaptability. Moreover, gender differences were evident, with males demonstrating higher dual career adaptability compared to females. The results of environmental factors showed that mothers' success expectations in school predicted dual career adaptability. The higher the mothers' success expectations in school, the higher probability for their child to demonstrate higher career adaptabilities. Finally, the case study

showed that basic assumptions underpinning the talent development environment were linked to “sports-come-first” development, and student-athletes had been socialized into the elite sport narratives.

4.1 The development of dual career adaptability during high school

The first aim of the present research was to explore the development of dual career adaptability among adolescent athletes during the transition phase to sports high school, on the one hand, and across high sport school years, on the other.

The results showed that, over time, dual career adaptability remained stable and individual variation explained differences in adaptabilities rather than time-specific variation. This indicates that some student-athletes show higher dual career adaptabilities than others across the high school. In the transition phase to high school, dual career adaptability profiles were distinct and stable supporting the findings of Study 1. These findings are in line with the career construction theory, which suggests that individuals differ in their career adaptabilities and some may be better prepared for career management and demonstrate more readiness for transitions than others (Savickas, 2013). The stability of career adaptability could be explained by the findings from Rudolph and colleagues (2017) study showing that personality traits contribute to the prediction of career adaptability, suggesting that personality-related factors play a role in career adaptability. However, it should be critically evaluated whether there are other reasons for the stability of the dual career adaptabilities among student-athletes, especially, since student-athletes will face multiple transitions (i.e., both athletic and educational) during adolescence (Stambulova & Wylleman, 2015).

It is suggested that career adaptability and thoughts concerning adaptability become evident early in secondary education (Aunola et al., 2018; Timonen et al., 2016). This could be explained by the fact that as an individual considers future transitions (e.g., transition to high school) and developmental tasks (i.e., commitment to a career path), the pressure to deal with goals relevant to those transitions increases (Salmela-Aro et al., 2007). For example, in Finland at the beginning of high school, individuals need to decide which subjects to study, which will later impact admission to tertiary education and possibilities for a certain career path (Opintopolku, 2020). Furthermore, towards the end of high school, student-athletes need to choose in which educational program to apply. A number of studies (Aunola, Selänne et al., 2018; Kiuru et al., 2021; Ryba et al., 2017; Super et al., 1996; Timonen et al., 2016) concerning adolescents’ vocational development have provided recommendations that focus should be facilitating career construction at this age. In the light of the above, it could be assumed that student-athletes in high school would demonstrate change in their dual career adaptabilities. However, in the present research, dual career adaptabilities showed stability also at the end of high school. Furthermore, the development

of subscales of dual career adaptability did not differ from the development of the total construct, indicating, for example, that student-athletes' athletic career concern show similar trajectories as their vocational career concern.

One explanation for the stability of dual career adaptability among student-athletes could be that student-athletes do not engage in career-related behaviors. Because of the dedication and high devotion of time to sporting careers, they may lack role experimentation and life experiences outside of sports context (Lally & Kerr, 2005; Ryba et al., 2015; Ryba et al., 2021), which all are related to the development of career adaptabilities. Furthermore, Ryba et al. (2016) found that adolescent athletes tend to postpone their future vocational decisions and have difficulties envisioning their future life trajectories outside of sports domain. However, in Study 2, we found one group of student-athletes enhancing their career adaptabilities, which may be explained by their shift from sport prioritization to emphasis on education-related goals. Furthermore, the previous findings of the different career construction styles (Cartigny et al., 2019; Ryba, Stambulova et al., 2017) among adolescent student-athletes support the results of the present research. Student-athletes may demonstrate distinct and stable adaptabilities according to their career construction style. For example, those youths who approach sport and education in a harmonious manner, may be better prepared for and cope with the transitions and challenges in dual careers compared to those who experience sport and education incompatible.

As career adaptability is psychosocial in its nature and individuals construct their careers in interaction with experiences in their environment, it may be that also environmental experiences and existing career narratives cause the stability of dual career adaptabilities among young athletes. For example, numerous studies have suggested that athletes' social relationships are closely linked to sports (Lavalley & Robinson, 2007; Petitpas et al., 2013; Verkooijen et al., 2012). To combine this with the normative stages of athletic career development (Stambulova et al., 2019), lack of time during high school (Ryba et al., 2016), and modernist logic of sport on how to behave and act (Ryba et al., 2015), student-athletes may not have a chance to experience different social situations, have role experiment or collect knowledge of different vocational possibilities that all could facilitate the career construction outside of elite athlete context. This was also evident in Study 3, showing that the basic assumptions of the environment emphasized athletic development, and the aim to nurture elite athletes, socialized student-athletes into the elite athlete narrative.

4.2 Predictors of career adaptability

The second aim was to investigate the individual and environmental predictors of dual career adaptability among student-athletes. Individual predictors included self-esteem (Study 1), success expectations in sport and school (Study 2), and gender (Studies 1 and 2). Environmental predictors included parental success expectations in school and sport (Study 2).

The results of Study 1 showed that student-athletes' self-esteem was associated with career adaptability across high school and the association was higher at the end of high school. One explanation could be that dual career adaptability and self-esteem has a transactional relationship explaining their development, which is supported by the fact that self-esteem has been shown to be associated with career adaptability in a number of studies (Johnston, 2018; Rudolph et al., 2016; Ryba, Zhang et al., 2017). In Study 1, the individual level of self-esteem was associated with a level of subscale control. The associations between dual career adaptability, and especially control, and self-esteem, across high school, suggest that both are complementary resources for positive development. Student-athletes with high self-esteem (i.e., a higher sense of self-worth) and dual career adaptability might have more resources to explore other plans and pursue endeavours outside of sports in their future. This indicates that student-athletes who self-assess as having a plan assume an active role in their career development and feel they are in control of their future may develop not only high dual career adaptability but also high self-esteem. The transactional relationship would also indicate that student-athletes demonstrating high self-esteem might feel in control of their careers.

The results of Study 2 showed that the higher success expectations in school and sport that student-athletes reported, the higher dual career adaptability they would demonstrate. The fact that sports high school student-athletes' dual career adaptability is already associated with their success expectations (in both school and sport) at the beginning of sports high school may have consequences for decisions later in their lives (persistence in dual career, course enrolment, and persistence in school). This is further supported by Aunola et al.'s (2018) study, suggesting that task value patterns, for example, valuing sports or education, are relatively stable and predict student-athletes' educational and athletic aspirations. Furthermore, this also supports the interpretation that the extent to which individuals manage to cope successfully with various challenges in their career, is influenced by their ways of thinking in related situations (Savickas, 2013). However, these findings can also be explained by the fact that athletes tend to imagine their future options overly optimistically (Ryba et al., 2021), which was also evident in Study 3, where student-athletes stated that education was rather a plan B if a career in sports fails.

Results concerning gender showed that adolescent women athletes demonstrated lower levels of self-esteem along with a higher probability to belong to lower career adaptability profiles. As adolescent women have been shown to be more engaged with career-related behaviors (Patton & Creed, 2011), performing academically better than adolescent men (Kiuru et al., 2007; Marcenaro-Gutierrez et al., 2017), and be engaged more for dual careers (Ryba et al., 2021), it could have been expected that at least their vocational career concern and dual career concern would be higher. However, their career adaptabilities overall seem to be lower compared to those of adolescent men. As the results of this research showed, it may be that individuals with high self-esteem and belief in one's abilities, may subsequently confront challenges and traumas with higher

confidence and self-efficacy experiencing higher control. Indeed, Hirvonen et al., (2019) showed that adolescent women are more prone to stress that arises from school compared to adolescent men, which may influence their self-esteem. Gender differences could be further explained by the fact that the construct of career adaptability evaluates perceived abilities and adolescent men have demonstrated higher belief in their abilities (Baldwin & Hoffman, 2002). Considering that career adaptability is related to multiple benefits of well-being and positive functioning in life, adolescent women may benefit from a self-worth and empowering approach (Ryba et al., 2021) rather than a career-oriented approach. It should also be considered that adolescent women and men may have different future career prospects. For example, in Finland, only 1.6% of professional athletes are women (KIHU, 2018), showing that men have significantly higher possibilities to pursue a professional athletic career, suggesting that males may be more confident of their future possibilities. This may also create a contradictory message for adolescent women: they should prioritize sports but lack real opportunities for a career in sports. This message complicates youth athletes' career construction.

It seems that youth athletes derive part of their dual career adaptability from their higher belief in their abilities. Additionally, high outcome expectations in sport may strengthen their idea of athletic career path, although the external results and achievements would not support this path, which was evident in Study 3. For example, the teachers in the athletic talent development environment stated that youth athletes pursue their athletic goals at the expense of their educational development, even though the results would not support their athletic career possibilities. Hence, it can be assumed that in sports, outcome expectations direct career development more than actual results do. Furthermore, in Study 2, GPA, and student-athletes' sports levels were controlled for; however, these did not affect the results, which highlights the fact that personality-related factors (e.g., self-esteem) and perceived belief play an important role in the development of dual career adaptability rather than their actual level of accomplishment. This was supported by the findings from Study 1 that showed that the subscales of the dual career adaptabilities remained stable, indicating that student-athletes may not distinguish between athletic career development and vocational career development. As athletic talent development starts at an early age and more structure (career stages and transitions) and institutionalization is built around the young athlete's path (Stambulova et al., 2019), youth athletes may not be involved in planning their athletic careers either. Moreover, it is important that student-athletes' external resources assist them in exploring their future possibilities inside and outside of the sports context.

The findings of the environmental factors are in line with the findings of the individual factors. By providing external resources for student-athletes in the form of school success expectations, mothers may assist their children in facing developmental tasks and challenges related to their offspring's dual careers. As parental attitudes and beliefs toward a dual career are considered influential factors that guide student-athletes' choices (Guidotti et al., 2015), mothers' beliefs in school may strengthen the continuation and persistence in a dual career path as

they convey a message that education is important. For example, Sorkkila et al. (2017) suggested that parental success expectations may contribute to the successful dual career by expressing confidence in their children's abilities to succeed in both academics and sport. On the other hand, Frome and Eccles (1998) showed that parents' attitudes predict youths' achievement-related interest and choices more than it does youths' measured abilities, indicating that parents' beliefs may have a greater impact on student-athletes' career construction and self-esteem than individual factors do. Additionally, as parents' beliefs in their child's abilities are suggested to enhance their self-worth and confidence (Aunola et al., 2002; Ommundsen, 2006), it may be that parental beliefs contribute to higher career adaptabilities through higher self-esteem, as Study 1 showed, or through higher beliefs for success, as Study 2 showed. Indeed, Atac et al. (2018) suggested that social support predicts career adaptabilities among young adults. Moreover, Super et al. (1996) stated that self-exploration is accompanied by distress, uncertainty, and indecision about career paths, meaning parental support may play a crucial role for youth athletes in dual careers. For example, high parental involvement has been identified as a resource for successful career transitions (Wuerth et al., 2004).

4.3 Organizational culture of a dual career development environment

The third aim of the research was to investigate how an organizational culture of a dual career development environment impact on student-athletes' dual career construction. The results suggest that the basic assumptions of the actors and top-down influences of the higher policy affected student-athletes' career construction. The basic assumptions followed the dominant discourses of elite sport on how athletes should live and which developmental stages to follow. Furthermore, the aim to become an elite athlete inhibited youth athletes' career-related activities, role experimentation and career planning outside of sports. The organizational culture socialized athletes on how to behave, which decisions to make, and how to think about a career outside of sports. The findings considering the organizational culture could also explain the findings of Study 1 that across high school student-athletes were not encouraged in or provided resources for career construction.

At the higher policy level, the Finnish Olympic Committee (2020), which provided education and support, had a top-down influence on the environment. They stated their support for introducing three different dual pathways: (a) sports as an occupation¹; (b) combining sports and education and; (c) combining sports and another job. As the actions in the environment were mostly related to

¹ The Finnish Olympic Committee (2020) presents sports as an occupation as one of the potential dual pathways. This is reasoned by the fact that the Finnish Olympic Committee's goal is that every adolescent athlete finishes their secondary education, and hence, they would have a degree to safeguard their future while the focus only on athletic career.

providing support to athletic development and the organizational culture of the environment emphasized sports as the core, the coaches and student-athletes adopted the “sports-as-an-occupation” ideology. However, according to Kalenius (2014), to find employment in Finland, one is typically required to possess a professional qualification or a master’s degree. This would indicate that to prepare for life after a sports career, one needs to have tertiary education.

In a broad Finnish study investigating children’s and adolescents’ physical activity behavior (LIITU study, Kokko et al., 2021) following over 5000 adolescents, it was found that 61% of males and 45% of females viewed international sport success as being important or very important. Compared to other societal values, for example, education, equality, and human rights, sport success was evaluated to be the lowest. This indicates that among adolescents sports is not considered to be as meaningful as the elite sport narratives assume. For student-athletes to create a meaningful subjective career, it would be important to challenge the created narrative of an elite athletic career path by creating pathways for self-discovery through engaging youth in meaningful conversations about their future (Ryba, Zhang et al., 2017) and providing role models and examples of different career paths (Ronkainen et al., 2019). Because cultural change is slow and includes resistance (Asch & Graeme, 2002), it would be especially important to educate actors in the athletes’ lives on how to support holistic development.

4.4 Practical implications

The findings of the present research provide important knowledge for both educational and sports policymakers. First, student-athletes’ ability to achieve development tasks, adapt to different situations, plan and take responsibility for their future during adolescence appear to remain stable across high school years. This may have either health-related and career-related costs or benefits, as career adaptability has been shown to predict well-being (Huang, 2010), personal functioning in life (Johnston, 2018), and later success in a career (Savickas, 2013). Consequently, the findings are also meaningful on a societal level since society expects adolescents to make career-related decisions already at the beginning of high school, which may determine their future occupation. Hence, the educational system should acknowledge the phenomenon and focus on facilitating the development of these skills among adolescent athletes so that they are prepared for the demands and expectations they face in their educational and career paths. Especially those student-athletes with low career adaptabilities should be offered interventions for career construction skills and management by career counseling specialists. Because career adaptabilities are skills, dual career programs and environments should integrate these topics to be trained across high school in order to enhance young athletes’ career development in both sport and education. Because career adaptabilities are often formed prior to high school, this kind of training should start already before high school.

Second, perceived ability, self-esteem, and success expectations in school and sport predicted dual career adaptability. Indeed, enhancing self-efficacy and outcome expectations has been recognized as one of the most beneficial aims in career interventions (Betz, 2007). It has been recently shown that females in Finnish high schools are vulnerable to stress (Hirvonen et al., 2019) and, overall, females demonstrate lower self-esteem across adolescence (Baldwin & Hoffman, 2002), it may also have consequences for career construction. Individuals with lower self-esteem and perceived ability may not have the confidence to pursue a self-determined occupation and may struggle to cope with career stressors. Aunola, Selänne et al. (2018) and Ryba et al. (2016) suggested that youth in high school should be encouraged for task-related goal setting and focus on individual learning in both school and sport. This can be as well facilitated by educating teachers and coaches and creating intervention tools. One example of an effective intervention tool is online-based Achievement and Commitment Therapy (ACT), which has been shown to improve the well-being of adolescents in a non-athletic population (Kiuru et al., 2021). Kiuru et al. (2021) showed that ACT is a promising approach for integrating a holistic approach to career development interventions and promoting adolescents' cognitive and emotional functioning in career planning.

Third, student-athletes in high school may be susceptible to social influences on how to approach their future careers, as was evident in our study. For this reason, those close to adolescents should make it a priority to support adolescents' self-esteem. For example, Atac et al. (2018) found that together with self-esteem, perceived social support predicts career adaptability. Appropriate support could include educating coaches on how to create an empowering motivational climate and parents on how to be affective, avoiding simultaneous normative evaluation and psychological control (Aunola et al., 2018). One example of a good practice is an educational platform such as the Erasmus+ project EMPATIA (Educational Model for Parents of Athletes in Academics), which aimed to provide comprehensive information and advice on the parental role in a dual career. Furthermore, Harwood et al. (2019) stated that parental involvement to facilitate the psychosocial development of their children is dependent upon the philosophy of the coach or organization. Therefore, Harwood et al. (2019) suggested that coach education should include themes of facilitating parent-coach relationships, and Kramer et al. (2022) recommended that communication between parents and coaches should be strengthened within sport programs. Student-athletes may be overoptimistic about their future career and they may not engage in career-related thinking (Ryba, Stambulova et al., 2017), which means that in addition to supporting individual well-being career-related behaviors and activities should be integrated into their education. Subsequently, what opportunities youth athletes have for a career in sport should be taken into account and then student-athletes and their parents should be provided clear paths and realistic information (European Commission, 2012). One of the goals of dual careers is that athletes reach their athletic potential (Stambulova & Wylleman, 2019) while progressing in their education. In their examination of adolescent athletes' career

trajectories, Kearney and Hayes (2018) showed that excelling at the youth level did not predict later success. Therefore, instead of making compromises, it is especially important that the youth athletes would have the required abilities to overcome challenges related to dual careers and pursue their athletic goals.

Fourth, the findings provide important knowledge on the micro- and macro-levels of sports high schools. Although the dual careers and dual career development environments are recommended for student-athletes, since they should provide athletes sustainable and safe routes to elite sport, elite athlete narratives and the global modernist logic of sport may direct youth athletes' behavior and thinking. Furthermore, in some environments, dual careers could be seen as a response to questions about the ethical sustainability of elite sport systems (Thomsen & Nørgaard, 2018). This was especially evident in Study 3 showing that although a dual career was provided, basic assumptions related to nurturing elite athletes inhibited young athletes' career construction outside of sports. Our findings link with oft-addressed problems of talent development and elite sport cultures, such as the cultural narratives that present complete commitment to the athletic career as the only way to achieve success (Douglas, 2014). The adolescent athletes also follow their idols through various social media accounts where athletes use social media as a tool for funding. This might lead to a picture that a professional athletic career is achievable without worrying about a future vocational career. At the same time, vocational careers are more unstable than ever before, highlighting the importance to prepare for such a career. Therefore, the code of conduct of holistic development for talent development environments and evaluation of environments is recommended. The basic assumptions of athletes and significant others should be recognized, as should what kind of language and narrative stories are used about sporting careers. For example, Ronkainen et al. (2022) findings demonstrated that the terms "drop out" or "not making it" can be misleading and undermine youth athletes' agency to choose life paths other than elite sport, even if they have possibilities to excel in sport. Instead using the term "opting out" (Pearson et al., 2020) would highlight the youth athlete's agency and the various reasons they have for leaving the sport. As the culture is taught to new members by the leading figures and role models (Schein, 1990) and actions implemented in the environment are dependent on the people in the leading positions, educating stakeholders and people in those positions would provide the best support for athletes. Finally, student-athletes should have opportunities for role experimentation and experimentation with different occupations. Moreover, versatile stories of different career paths in and outside of sports should be disseminated. For example, Schmid et al.'s (2022) findings recently demonstrated that involvement in high-performance sport may facilitate rather than hinder a successful vocational career. All of these acts would facilitate student-athletes' career construction in a way that they can make their own decisions and create meaningful subjective careers.

4.5 Limitations and future suggestions

Although the present thesis provided new and meaningful knowledge about dual career adaptability development among student-athletes, there were certain limitations. The person-oriented approach was applied only in two assessment points at the beginning of high school. Therefore, it was not possible to evaluate changes in the profiles and how different factors would be related to profiles across high school. Additionally, as career adaptabilities were stable across high school, it would be interesting to examine career adaptabilities already in the lower secondary school stage. As it was found that self-esteem and career adaptabilities may have a common factor explaining the mutual variation, there may be other factors explaining the development. Therefore, it is essential that more variables are evaluated which may predict and be associated with dual career adaptabilities among student-athletes across high school.

In Study 2, only standard deviations from the sample mean were used to determine high and low levels. Although we found that individuals differ in their dual career adaptabilities, there are no cut off scores that enable us to say what significant differences in these abilities are that may affect their future. However, as student-athletes' dual career adaptabilities have not been measured or investigated longitudinally before in Finland, these findings provide a basis for levels of dual career adaptability. Moreover, future research could focus on those individuals with higher dual career adaptabilities and how they differ from those with lower ones. Additionally, as career adaptabilities measure perceived abilities, part of the score may derive from being more confident than actually demonstrating higher dual career adaptabilities. Hence, together with self-reported assessments, observational and psychological assessments could be utilized to investigate how dual career adaptability predicts well-being and career development. Additionally, because career adaptability is related to and predicts future career success (Johnston, 2018), a career-long longitudinal follow-up study is needed and the results should be combined with career-related achievements. This would provide information on whether those who demonstrate higher career adaptability in high school are better prepared for their careers in sport and education in the long run.

In addition to longitudinal follow-up and measures of actual career outcomes, future studies could examine other phenomena that might be related to the findings. For example, could there be changes in the motivation towards school or sports in the group that demonstrated increased dual career adaptabilities, or are those who demonstrate low adaptabilities at risk of burn-out? Subsequently, it would be interesting to combine the data with other research topics in the Winning in the Long Run project to get a broader picture of the factors affecting student-athletes' dual career development. This could be done by, for example, using a person-oriented approach and investigating whether those who struggle or score low in different assessments show mutual trajectories in other assessments.

Study 3 was conducted as a thick description of an environment at a certain time point and the main purpose was to study dual career development in a dual career development environment, and not specifically dual career adaptabilities. Furthermore, the quantitative studies were conducted between the years 2015 and 2019, while the qualitative study was conducted in 2019, which creates certain limitations in comparing and combining the results of distinct studies. As the mixed method is defined as a multimethod approach in which qualitative and quantitative approaches are used in a single study (Fetter & Molina-Azorin, 2017), the time difference and different participants prohibited combining the data and the use of mixed methods in this dissertation. The author acknowledges that due to the set-up of this research and because the environments consisted of different actors, it is challenging to make any interpretation of causal powers or detect enduring social relations. However, as the overall project was positioned in critical realism, the longitudinal quantitative data, that could be generalized to the Finnish sports high school students, represents cultural-laden psychological processes, and concurrent qualitative data assisted in understanding how Finnish adolescent student-athletes construct their careers and clarify personal meanings in the narrative context of sports culture.

The main limitation of our research was that the construct of dual career adaptability does not take into account processes related to psychology or emotional functioning in career construction. For example, previous research in enhancing career preparedness (Lent & Brown, 2013) has been educational in nature and focused on enhancing competencies in seeking career-relevant information, clarifying vocational interest, and promoting the ability to make effective career choices. In addition to dual career adaptabilities, future research should map the role of processes related to cognitive and emotional functioning (Hoare et al., 2012) in career construction among student-athletes. In this way, youth athletes' career-related ambitions (i.e., Brown, 2007), social context (i.e., Schultheiss, 2003), and emotions (Kidd, 2008) could be better understood. Furthermore, in this way, we could understand more profoundly the barriers concerning emotional and cognitive processes (Hoare et al., 2012). Dual career adaptabilities do not include individual values, nor indicate whether student-athletes can carry out decisions based on their values and self-determined occupations. Finding meaning in life and developing adaptability are particularly relevant goals for ensuring that youth athletes can achieve successful careers (Eccles, 2004; Hill et al., 2013; Savickas, 2005). Hence, it would be important to combine dual career adaptability studies with qualitative studies to understand the career development and achievement of developmental tasks among student-athletes and provide related support to achieve holistic development.

It also needs to be considered that the studies describe only one cultural setting and therefore are recommended to be conducted in other cultural contexts. Although the educational systems in the Nordic countries share some similarities, the same study setting could result in different findings compared to the educational and dual career systems in the USA or Asian countries. Because of the limited possibilities for a professional career, youth athletes in the Finnish

system demonstrate high ambitions at school. For example, in Finland, there are no professional academies or scholarships, a circumstance which narrows the sports career options. It would also be interesting to conduct a cross-cultural comparison to investigate how career construction differs among student-athletes in different dual career development systems. This might develop the educational and athletic system of youth athletes globally in a more holistic direction.

It would be especially beneficial to plan and create intervention research where the findings could be applied in practice. This could be conducted already in lower secondary schools and aim to screen those who demonstrate low adaptabilities by using the CAAS-DC scale. Next, student-athletes could be provided an ACT online course, which could be completed during school. In a research setting the low adaptabilities group and the control group (i.e., those with high adaptabilities) could be compared. Finally, the change in the CAAS-DC score could be assessed. It would also be beneficial to create a course for parents on how to prepare their children for a dual career. Coaches could be offered education and workshops as well as tools to create more empowering motivational climates and encourage them to be more interested in the school domains of athletes. Such efforts may assist youth athletes in facing challenges and achieving developmental tasks, along with creating a meaningful subjective career.

Finally, despite the ethical approval, certain ethical reflections can be noted. First, the student-athletes filled out the assessment forms in class during school time. This could create a situation where social pressure may influence individuals' decision to withdraw from the study. Ethically, a better code of conduct would be that adolescents complete the questionnaires as an out-of-class activity. In the qualitative study, it may be that the actors' attitudes and feelings affected their answers. However, the interviews were semi-structured in nature and allowed additional questions. Furthermore, for some actors in the environment, the interviews could have been helpful as they created an opportunity and place to be heard and to impact the development of the environment.

4.6 Concluding remarks

This research examined adolescent athletes' career construction in terms of dual career adaptability across high school. Additionally, individual- and environment-related predictors were investigated. The main results showed that dual career adaptability was stable across the high school years, with males demonstrating higher adaptabilities than females did. The outcome expectations in sport and school and self-esteem were associated with dual career adaptability, indicating that self-worth, confidence, and control are important for career development among adolescents. This highlights that an empowering approach and setting task-related goals are important during high school for youth individuals. In addition, environmental factors, such as mothers' success expectations in school and the organizational culture of an environment, seem to play a

role in career construction. It may be beneficial to educate parents and other socializing agents in young athletes' lives in order to support the development of the athletes' resources which can prepare them for a career in sport and education. Interventions for dual career adaptabilities should be developed to support the achievement of development tasks and the holistic development of student-athletes.

YHTEENVETO (SUMMARY)

Urheilulukiolaisten kaksoisuran urasopeutuvuustaidot lukion aikana: yksilöllisten- ja ympäristötekijöiden tarkastelu

Tämän tutkimuksen tavoitteena oli tarkastella kaksoisuran urasopeutuvuustaitojen kehitystä urheilulukiolaisilla lukion aikana. Lisäksi tutkimuksessa tarkasteltiin mahdollisia ympäristöön ja yksilöön liittyviä kaksoisuran urasopeutuvuustaitojen selittäjiä. Urasopeutuvuustaidoilla tarkoitetaan yksilön psykososiaalisia resursseja saavuttaa uraan liittyviä kehitystehtäviä sekä ratkaista siirtymiin ja urahaasteisiin liittyviä ongelmia. Tutkimuksessa hyödynnettiin sekä henkilökeskeistä tutkimusotetta, jossa tarkasteltiin eri urasopeutuvuusprofiileja siirtymävaiheessa lukioon, että muuttujakeskeistä lähestymistapaa, jossa tarkasteltiin urasopeutuvuustaitojen ja itsetunnon kehitystä lukion aikana. Urasopeutuvuustaitojen kehitystä tarkasteltiin käyttämällä kaksoisuran urasopeutuvuustaitojen mittaria (*Career Adapt-Abilities Scale; CAAS-DC*). Lisäksi tutkimuksessa hyödynnettiin laadullista tutkimusta, jossa tarkasteltiin ympäristön organisatiokulttuurin vaikutusta nuoren urheilijan uraan valmistautumisessa sekä kaksoisurakehityksessä.

Tutkimus koostui kolmesta osatutkimuksesta. Kahdessa ensimmäisessä osatutkimuksessa käytettiin samaa kuudesta urheilulukioista kerättyä määrällistä aineistoa. Tutkimukseen osallistuneet täyttivät kyselylomakkeen neljä kertaa lukion aikana: lukion alussa ($n = 391$), lukion ensimmäisen vuoden lopussa, lukion toisen vuoden lopussa sekä lukion kolmannen vuoden lopussa. Kolmannessa osatutkimuksessa tarkasteltiin laadullisten menetelmien avulla yhden urheilulukion organisaatiokulttuuria.

Ensimmäisessä osatutkimuksessa tarkasteltiin urasopeutuvuustaitojen ja itsetunnon kehitystä lukion aikana. Tulokset osoittivat, että yksilölliset erot urheilulukiolaisten urasopeutuvuustaidoissa olivat suhteellisen pysyviä urheilulukion aikana. Toisin sanoen, osa nuorista osoitti korkeita urasopeutuvuustaitoja ja osa matalia ja nämä yksilöiden väliset erot urasopeutuvuustaidoissa säilyivät suhteellisen muuttumattomina lukion aikana. Niin ikään muutoksia yksilöiden välisissä eroissa ei nähty mittarin eri alaulottuvuuksien kehitystä tarkasteltaessa. Miehillä oli korkeammat tasot niin itsetunnossa kuin urasopeutuvuustaidoissa naisiin verrattuna. Itsetunto sekä urasopeutuvuustaidot olivat positiivisesti yhteydessä toisiinsa. Tulokset osoittavat, että itsetunto voi vaikuttaa uraan valmistautumisessa ja nuoret urheilulukiolaiset saattavat lykätä uraan liittyvää pohdintaa ja suunnittelua urheilulukion aikana.

Toisessa osatutkimuksessa tarkasteltiin erilaisten urasopeutuvuustaitoprofiilien ilmenemistä lukion ensimmäisen vuoden aikana. Lisäksi tutkittiin urheilulukiolaisten ja heidän vanhempiansa kouluun ja urheiluun liittyvien menestysodotusten yhteyttä urasopeutuvuustaitoprofiileihin. Urheilulukiolaisilla tunnistettiin viisi eri sopeutuvuusprofiilia. Suurin profiili oli 'kohtuulliset taidot' omaavien ryhmä (37 %), toiseksi suurin 'matalat taidot' omaava ryhmä (28 %),

kolmanneksi suurin oli 'korkeat taidot' omaavien ryhmä (16%), neljänneksi suurin 'erittäin matalan taidon' omaavien ryhmä (11 %) ja pienin ryhmä oli 'parantuneiden taitojen' ryhmä (8%). Urheilulukiolaisten korkeat menestysodotukset niin koulussa kuin urheilussa sekä äitien nuorensa liittämät korkeat menestysodotukset koulussa, olivat yhteydessä urheilulukiolaisten korkeampiin urasopeutuvuustaitoihin. Tulokset antavat viitteitä siitä, että urheilulukiolaisilla on tyypillisesti joko kohtuulliset tai matalat urasopeutuvuustaidot lukion ensimmäisenä vuonna. Lisäksi menestysodotukset sekä urheilussa ja koulussa ja erityisesti äitien tuki voivat tulosten pohjalta olla tukemassa nuoria uraan valmistautumisessa.

Kolmas osa-tutkimus oli laadullinen tutkimus, jossa tarkasteltiin organisaatiokulttuurin vaikutusta urheilulukiolaisten kaksoisuran kehitykseen. Tutkimukseen haastateltiin eri toimijoita kaksoisuran kehitysympäristössä (urheilijoita, valmentajia, opettajia, urheiluakatemian johtajaa ja rehtoria). Lisäksi ympäristöä havainnointiin yhteensä 58 tuntia. Tutkimuksen filosofinen pohja oli kriittisessä realismissa. Tulokset osoittivat, että ympäristön organisaatiokulttuuri sosialisoi urheilulukiolaiset huippu-urheilun kulttuurisiin olettamuksiin vaikuttaen heidän asenteisiinsa ja valintoihinsa siten, että he priorisoivat urheilun yli muiden elämän osa-alueiden. Niin ikään urheilulukiolaisten lähempien toimijoiden, kuten vertaisten ja valmentajien perusolettamukset korostivat urheilullista kehittymistä koulutuksen sekä uraan liittyvän suunnittelun kustannuksella. Tämä osoittaa, kuinka tärkeää urheiluympäristöissä on tunnistaa urheiluun liittyviä narratiiveja, tunnistaa ja tutkia yksilöllisiä polkuja sekä tukea urasuunnittelun taitoja ja autonomiaa kokonaisvaltaista lähestymistapaa korostaen.

Kokonaisuudessaan väitöskirjan osa-tutkimukset tukevat toisiaan ja antavat laajan kuvan urasopeutuvuustaitojen kehittymisestä urheilulukiossa. Tulokset osoittavat, että urasopeutuvuustaidot ovat kohtuullisen pysyviä lukion aikana ja urheilulukiolaisten koettu pätevyys sekä usko omaan kykyihin on yhteydessä taitojen esiintyvyyteen ja näin ollen uraan valmistautumiseen. Tutkimuksessa urasopeutuvuustaidot urheilulukiossa olivat naisilla matalammat kuin miehillä, mikä saattaa johtua naisopiskelijoiden matalammasta minä-pystyvyyden kokemuksesta ja itsetunnosta. Niin ikään vanhempien usko lapsen kykyihin tukee urasopeutuvuustaitojen kehittymistä. Lisäksi organisaatiokulttuuri, joka korostaa modernin urheilun logiikkaa, miten urheilijan pitää elää ja millaisia valintoja heidän pitää tehdä saavuttaakseen huipun, vaikuttaa nuorten urheilijoiden urapolkuihin. Tämä tieto on tärkeää suunniteltaessa nuorten tulevaisuuden suunnittelua tukevia toimenpiteitä. Urheilulukiolaisia olisi tärkeä kannustaa erilaisten uramahdollisuuksien tutkimiseen, omaehtoisten tavoitteiden asettamiseen sekä ymmärtämään urheiluun liittyviä perusolettamuksia.

Tutkimuksen rajoitteina voidaan pitää mitattujen muuttujien pientä määrää sekä sitä, että urasopeutuvuustaitoja mitattiin vain kyselyn avulla. Havaintoja haastattelututkimukset voisivat antaa lisätietoa siitä, miten nuoret valmistautuvat tulevaan urheilu- ja työuraan. Lisäksi urasopeutuvuustaidoille ei ole määritetty raja-arvoja, mikä on korkea tai matala taso ja miten ne konkreettisesti vai-

kuttavat urasopeutuvuuteen. Tulevissa tutkimuksissa olisikin hyvä selvittää, miten urasopeutuvuustaidot ovat yhteydessä nuorten urien menestykseen ja onnistumiseen koko elämän mittakaavassa. Lisäksi oleellista on tutkia, miten nuorten urasuunnittelu ja siihen liittyvät tekijät urheilussa ja koulussa eroavat toisistaan. Tutkimuksen tuloksia voidaan käyttää urheilulukiolaisten urasuunnittelun ja kehitystehtävien saavuttamisessa ja hyvinvoinnin lisäämisessä.

REFERENCES

- Asch, D., & Graeme, S. (2002). The challenge of change. *European Business Journal*, 14(3), 133–143.
- Asparouhov, T., & Muthén, B. (2015). Auxiliary variables in mixture modeling: Using the BCH method in Mplus to estimate a distal outcome model and arbitrary secondary model. *Mplus Web Notes*, 21.
- Atac, L.O., Dirik, D., & Tetik, H.T. (2018). Predicting career adaptability through self-esteem and social support: A research on young adults. *International Journal for Educational and Vocational Guidance*, 18, 45–61.
- Aunola, K., Nurmi, J. E., Niemi, P., Lerkkanen, M. K., & Rasku-Puttonen, H. (2002). Developmental dynamics of achievement strategies, reading performance, and parental beliefs. *Reading Research Quarterly*, 37(3), 310–327.
- Aunola, K., Sorkkila, M., Viljaranta, J., Tolvanen, A., & Ryba, T.V. (2018). The role of parental affection and psychological control in adolescent athletes' symptoms of school and sport burnout during the transition to upper secondary school. *Journal of Adolescence*, 69, 140–149.
- Aunola, K., Selänne, A., Selänne, H., & Ryba, T.V. (2018). The role of adolescent athletes' task value patterns in their educational and athletic career aspirations. *Learning and Individual Differences*, 63, 34–43.
- Baldwin, S., & Hoffman, J. (2002). The dynamics of self-esteem: A growth-curve analysis. *Journal of Youth and Adolescence*, 31(2), 101–113.
- Betz, N. E. (2007). Career self-efficacy: Exemplary recent research and emerging directions. *Journal of Career Assessment*, 15, 403–422.
- Bhaskar, R. (1989). *Reclaiming reality*. Verso.
- Brown, C., Glastetter-Fender, C., & Shelton, M. (2000). Psychosocial identity and career control in college student-athletes. *Journal of Vocational Behavior*, 56, 53–62.
- Brown, D. (2007). *Career information, career counseling, and career development* (9th ed.). Boston, MA: Pearson Allyn & Bacon.
- Bronfenbrenner, U. (1979). *The Ecology of human development*. Harvard University Press
- Briscoe, J. (2015). Educating students for sustainable careers: In the classroom and beyond. In A. De Vos, & B. Van Der Heijden (Eds.), *Handbook of sustainable careers* (pp. 415–432). UK: Elgar.
- Bryant, B. K., Zvonkovic, A. M., & Reynolds, P. (2006). Parenting in relation to child and adolescent vocational development. *Journal of Vocational Behavior*, 69, 149–175.
- Cartigny, E., Fletcher, D., Coupland, C., & Taylor, G. (2019). Mind the gap: A grounded theory of dual career pathways in sport. *Journal of Applied Sport Psychology*, 33(3), 1–22.
- Christensen, M.K., & Sørensen, J.K. (2009). Sport or school? Dreams and dilemmas for talented young Danish football players. *European Physical Education Review*, 15(1), 115–133.

- Cooky, C., Messner, M.A., Hextrum, R.H. (2013). Women play sport, but not on TV. *Communication & Sport* 1(3), 203–230.
- Cosh, S., & Tully, P.J. (2014). “All I have to do is pass”: A discursive analysis of student athletes' talk about prioritising sport to the detriment of education to overcome stressors encountered in combining elite sport and tertiary education. *Psychology of Sport and Exercise*, 15(2), 180–189.
- De Brandt, K., Wylleman, P., Torregrossa, M., Schipper-Van Veldhoven, N., Minelli, D., Defruyt, S., & De Knop, P. (2018). Exploring the factor structure of the dual career competency questionnaire for athletes in European pupil and student-athletes. *International Journal of Sport and Exercise Psychology*.
- Douglas, K. (2014). “Challenging Interpretive Privilege in Elite and Professional Sport: One [Athlete’s] Story, Revised, Reshaped and Reclaimed.” *Qualitative Research in Sport, Exercise and Health* 6 (2), 220–243.
- Eccles, J. S. (2004). Schools, academic motivation, and stage–environment t. In R. M. Lerner, & L. D. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed., pp. 125–153). Hoboken, NJ: John Wiley & Sons.
- Enders, C.K., & Tofighi, D. (2008). The impact of misspecifying class-specific residual variances in growth mixture models. *Structural Equation Modelling*, 15, 75–95.
- Erol, R.Y., & Orth, U. (2011). Self-esteem development from age 14 to 30 years: A longitudinal study. *Journal of Personal Psychology*, 101(3), 607–619.
- European Commission. (2012). Guidelines on dual careers of athletes recommended policy actions in support of dual careers in high-performance sport. http://ec.europa.eu/assets/eac/sport/library/documents/dual-career-guidelines-final_en.pdf
- European Commission. (2017). Ecology of dual career – exploring dual career development environments across Europe (ECO-DC). Sport+ ERASMUS.
- Frome, P. M., & Eccles, J. S. (1998). Parents’ influence on children’s achievement-related perceptions. *Journal of Personality and Social Psychology*, 74, 435–452.
- Germeijs, V., & Verschueren, K. (2007). High school students’ career decision-making process: Consequences for choice implementation in higher education. *Journal of Vocational Behavior*, 70, 223–241.
- Guan, P., Capezio, A., Restubog, S. L. D., Read, S., Lajom, J. A., & Li, M. (2016). The role of traditionality in the relationships among parental support, career decision-making self-efficacy and career adaptability. *Journal of Vocational Behavior*, 94, 114–123.
- Guest, D., & Rodrigues, R. (2015). Career control. In A. De Vos, & B. Van Der Heijden (Eds.), *Handbook of sustainable careers* (pp. 205–223). UK: Elgar.
- Guidotti, F., Cortis, C., & Capranica, L. (2015). Dual career of European student-athletes: A systematic literature review. *Kinesiologia Slovenica*, 21(3), 5–20.
- Fetters, M.D., & Molina-Azorin, J.F. (2017). The journal of mixed methods research starts a new decade: Perspectives of past editors on the current state of the field and future directions. *Journal of Mixed Methods Research*, 11(4), 423–432.

- FIFPro. (2017). <http://safp.ch/women/2017-fifpro-global-employment-report-working-conditions-professional-womens-football>
- Finnish Olympic Committee. (2020). Urheilijan kaksoisura – Dual Career. <https://www.olympiakomitea.fi/huippu-urheilu/urheiluakatemiaohjelma/kaksoisura/>
- Hall, S. (1977). Culture, media and the “ideological effect”. In J. Curran, M. Gurevitch, & J. Woollacott (Eds.), *Mass communication and society* (pp. 315–348). London: Edward Arnold.
- Hargrove, B. K., Creagh, M. G., & Burgess, B. L. (2002). Family interaction patterns as predictors of vocational identity and career decision-making self-efficacy. *Journal of Vocational Behavior*, 61(2), 185–201.
- Harrison, G. E., Vickers, E., Fletcher, D., & Taylor, G. (2020). Elite female soccer players’ dual career plans and the demands they encounter. *Journal of Applied Sport Psychology*, 34(1), 1–22.
- Harwood, C.G., & Knight, C.J. (2015). Parenting in youth sport: A position paper on parenting expertise. *Psychology of Sport and Exercise*, 16, 24–35.
- 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(6), 66–73.
- Haslerig, S. J., & Navarro, K. M. (2016). Aligning athletes’ career choices and graduate degree pathways: Implications for 21st- century career development professionals. *Journal of Career Development*, 43(3), 211–226.
- Hill, P. L., Burrow, A. L., & Sumner, R. (2013). Addressing important questions in the field of adolescent purpose. *Child Development Perspectives*, 7(4), 232–236.
- Hirschi, A. (2009). Career adaptability development in adolescence: Multiple predictors and effect on sense of power and life satisfaction. [Online magazine]. *Journal of Vocational Behavior*, 74(2), 145–155.
- Hirschi, A., & Valero, D. (2015). Career adaptability profiles and their relationship to adaptivity and adapting. *Journal of Vocational Behavior*, 88, 220–229.
- Hirvonen, R., Yli-Kivistö, L., Putwain, D. W., Ahonen, T., & Kiuru, N. (2019). School-related stress among sixth-grade students - Associations with academic buoyancy and temperament. *Learning and Individual Differences*, 70, 100–108.
- Henriksen, K., & Mortensen, J. (2014). Reality and dreams: A comparison of elite athletes’ lived career paths with young talented athletes’ imagined career paths. *Scandinavian Sport Studies Forum*, 5, 69–91.
- Hoare, N., McIlveen, P., & Hamilton, N. (2012). Acceptance and commitment therapy (ACT) as a career counselling strategy. *International Journal for Educational and Vocational Guidance*, 12, 171–187.
- Hodge, K., & Sharp, L. (2016). Case studies. In B. Smith & A. C. Sparkes (Eds.), *Routledge handbook of qualitative research in sport and exercise* (pp. 62–74). Routledge.

- Hughes, C. (2011). The influence of self-concept, parenting style and individualism–collectivism on career maturity in Australia and Thailand. *International Journal for Educational and Vocational Guidance*, 11(3), 197–210.
- Johnston, C. S. (2018). A systematic review of the career adaptability literature and future outlook. *Journal of Career Assessment*, 26(1), 3–30.
- Kalenius, A. (2014). Suomalaisten koulutusurakenteen kehitys 1970-2030. <http://urn.fi/URN:ISBN:978-952-263-253-1>
- Kavoura, A., & Ryba, T.V. (2020). Identity tensions in dual career: The discursive construction of future selves by female Finnish judo athletes. *Sport in Society*, 23(4), 645–659.
- Kearney, P. & Hayes, P.R. (2018). Excelling at youth level in competitive track and field athletics is not a prerequisite for later success. *Journal of Sport Sciences*, 36(2), 2502–2509.
- Kidd, J. M. (2008). Exploring the components of career well-being and the emotions associated with significant career experiences. *Journal of Career Development*, 35(2), 166–186.
- Kiuru, N., Puolakanaho, A., Lappalainen, P., Keinonen, K., Mauno, S., & Muotka, J., Lappalainen, R. (2021). Effectiveness of a web-based acceptance and commitment therapy program for adolescent career preparation: A randomized controlled trial. *Journal of Vocational Behavior*, 127, article 103578.
- Kirk, D. (2005). Physical education, youth sport and lifelong participation: The importance of early learning experiences. *European Physical Education Review* 11(3), 239–255.
- Kim, S., Ahn, T., & Fouad, N. (2016). Family influence on Korean students' career decisions. *Journal of Career Assessment*, 24(3), 513–526.
- Knight, C.J., Harwood, C.G., & Sellars, P.A. (2018). Supporting adolescent athletes' dual careers: The role of an athlete's social support network. *Psychology of Sport and Exercise*, 38, 137–147.
- Koivisto, P., Vinokur, A. D., & Vuori, J. (2011). Effects of career choice intervention on components of career preparation. *The Career Development Quarterly*, 59(4), 345–366.
- Kokko, S., Hämylä, R., & Martin, L. (2020). Nuorten liikuntakäyttäytyminen Suomessa. <https://www.liikuntaneuvosto.fi/wp-content/uploads/2021/05/Nuorten-liikuntakayttaytyminen-Suomessa-LIITU-tutkimuksen-tuloksia-2020.pdf>
- Korhonen, N., Nikander, A., & Ryba, T.V. (2020). Exploring the life form of a student athlete afforded by a dual career development environment in Finland. *Case Studies in Sport and Exercise Psychology*, 4(1), 108–116.
- Kramers, S., Thrower, S., Steptoe, K., & Harwood, C. (2022). Parental strategies for supporting children's psychosocial development within and beyond elite sport. *Journal of Applied Sport Psychology*.
- Küttel, A., Christensen, M. K., Zysko, J., & Hansen, J. (2018). A cross-cultural comparison of dual career environments for elite athletes in Switzerland, Denmark, and Poland. *International Journal of Sport and Exercise Psychology*, 18(4), 454–471

- Lavallee, D., & Robinson, H.K. (2007). In pursuit of an identity: A qualitative exploration of retirement from women's artistic gymnastics. *Psychology of Sport and Exercise*, 8(1), 119-141.
- Lally, P. S., & Kerr, G. A. (2005). The career planning, athletic identity, and student role identity of intercollegiate student athletes. *Research Quarterly for Exercise and Sport*, 76, 275-285.
- Lent, R., & Brown, S. (2013). Understanding and facilitating career development in the 21st century. In S. Brown, & R. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (2nd ed., pp. 1-26). Hoboken, NJ: John Wiley.
- Linnér, L., Stambulova, N. B., Lindahl, K., & Wylleman, P. (2019). Swedish university student-athletes' dual career scenarios and competences. *International Journal of Sport and Exercise Psychology*.
- Marcenaro-Gutierrez, O., Lopez-Agudo, L. A., & Ropero-García, M. A. (2017). Gender differences in adolescents' academic achievement. *Young*, 26(3), 250-270.
- Mcachlan, G., & Peel, D. (2000). *Finite mixture models*. John Wiley.
- Muthén, L. K., & Muthén, B. O. (1998-2017). *Mplus user's guide* (8th ed.). Muthén & Muthén.
- Moazami-Goodarzi, A., Sorkkila, M., Aunola, K., & Ryba, T.V. (2019). Antecedents and consequences of student-athletes' identity profiles in upper secondary school. *Journal of Sport and Exercise Psychology*, 42(2), 132-142.
- Morris, R., Cartigny, E., Ryba, T. V., Wylleman, P., Henriksen, K., Torregrossa, M., Lindahl, K., & Cecić Erpič, S. (2020). A taxonomy of dual career development environments in European countries. *European Sport Management Quarterly*, 21(1), 134-151.
- Mäkikangas, A., & Kinnunen, U. (2016). The person-oriented approach to burnout: A systematic review. *Burnout Research*, 3, 11-23.
- Negru-Subtiricia, O., & Pop, E. I. (2016). Longitudinal links between career adaptability and academic achievement in adolescence. *Journal of Vocational Behavior*, 93, 163-170.
- Nurmi, J-E., Salmela-Aro, K., & Haavisto, T. (1995). The Strategy and Attribution Questionnaire: Psychometric properties. *European Journal of Psychological Assessment*, 2, 108-121.
- Nurmi, J-E. (2014). Socialization and self-development: Channeling, selection, adjustment, and reflection. In R. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed., pp. 85-124). Wiley.
- Ommundsen, Y. (2006). Pupils' Self-Regulation in Physical Education: The Role of Motivational Climates and Differential Achievement Goals. *European Physical Education Review*, 12(3), 289-315.
- Opintopolku. (2020). Yliopistojen todistusvalinnan pisteytykset. <https://opintopolku.fi/wp/opo/korkeakoulujen-haku/mika-korkeakoulujen-opiskelijavalinnoissa-muuttuu-vuoteen-2020-menessa/yliopistojen-todistusvalinnat-2020/#yo-ebibrpdia>

- Park, S., Lavallee, D., & Tod, D. (2013). Athletes' career transition out of sport: A systematic review. *International Review of Sport and Exercise Psychology*, 6(1), 22–53.
- Patton, W., & Creed, A.P. (2011). Development issues in career maturity and career decision status. *The Career Development Quarterly*, 49(4), 336–351.
- Persson, M., Espedalen, L.E., Stefansen, K., & Strandbu, Å. 2020. "Opting Out of Youth Sports: How Can We Understand the Social Processes Involved?." *Sport, Education and Society*, 25(7), 842–854.
- Petitpas, A.J., Van Raalte, J.L., & Brewer, B.W. (2013). Athletes' careers in the United States: Developmental programming for athletes in transition. In N.B. Stambulova, & T.V. Ryba (Eds.), *Athletes' careers across cultures* (pp. 222–234). London: Routledge.
- Ronkainen, N., Ryba, T.V., & Selänne, H. (2019). "She is where I'd want to be in my career": Youth athletes' role models and their implications for career and identity construction. *Psychology of Sport and Exercise*, 45.
- Ronkainen, N., Allen-Collinson, J., Aggerholm, K., & Ryba, T. V. (2020). Superwoman? Young sporting women, temporality, and learning not to be perfect. *International Review for the Sociology of Sport*, 56(8), 1137–1153.
- Ronkainen, N., Aggerholm, K., Allen-Collinson, J., & Ryba, T.V. (2022). Beyond life-skills: talented athletes, existential learning and (Un)learning the life of an athlete. *Qualitative Research in Sport, Exercise and Health*, 56(8), 1137–1153.
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press.
- Rudolph, C. W., Lavigne, K. N., Katz, I. M., & Zacher, H. (2017). Linking dimensions of career adaptability to adaptation results: A meta-analysis. *Journal of Vocational Behavior*, 102, 151–173.
- Ryba T. V., & Aunola, K. (2015). *Constructing the dual career adapt-ability scale*. Unpublished material. University of Jyväskylä.
- Ryba, T.V., Ronkainen, N.J., & Selänne, H. (2015). Elite athletic career as a context for life design. *Journal of Vocational Behaviour*, 88, 47–55.
- Ryba, T. V., Aunola, K., Kalaja, S., Selänne, H., Ronkainen, N. J., & Nurmi, J-E. (2016). A new perspective on adolescent athletes' transition into upper secondary school: A longitudinal mixed method study protocol. *Cogent Psychology*, 3(1), 1142412–15.
- Ryba, T. V., Zhang, C-Q., Huang, Z., & Aunola, K. (2017). Career adapt-abilities scale–Dual career form (CAAS-DC): Psychometric properties and initial validation in high-school student-athletes. *Health Psychology and Behavioral Medicine*, 5(1), 85–100.
- Ryba, T. V., Stambulova, N. B., Selänne, H., Aunola, K., & Nurmi, J.E. (2017). "Sport has always been first for me" but "all my free time is spent doing homework": Dual career styles in late adolescence. *Psychology of Sport and Exercise*, 33, 131–140.
- Ryba, T. V., Ronkainen, N., Douglas, K., Aunola, K. (2021). Implications of the identity position for dual career construction: Gendering the pathways to (Dis)continuation. *Psychology of Sport and Exercise*, 53(3).

- Salmela-Aro, K., Aunola, K., & Nurmi, J-E. (2007). Personal goals during emerging adulthood: A 10-year follow up. *Journal of Adolescent Research*, 22(6), 690–715.
- Salmela-Aro, K., Kiuru, N., & Nurmi, J. E. (2008). The role of educational track in adolescents' school burnout: A longitudinal study. *British Journal of Educational Psychology*, 78(4), 663–689.
- Sameroff, A. (Ed.). (2009). *The transactional model of development: How children and contexts shape each other*. Washington, DC, US: American Psychological Association.
- Savickas, M. L. (1997). Career adaptability: An integrative construct for life-span, life-space theory. *The Career Development Quarterly*, 45, 247–259.
- Savickas, M. L. (2002). Career construction: A developmental theory of vocational behavior. In D. Brown (Eds.), *Career choice and development* (pp. 149–205). San Francisco, CA: Jossey-Bass.
- Savickas, M.L., Nota, L., Rossier, J., Dauwalder, J.P., Duarte, M.E., Guichard, J., et al. (2009). Life designing: A paradigm for career construction in the 21st century. *Journal of Vocational Behavior*, 75(3), 239–250.
- Savickas, M. L., & Porfeli, E. J. (2012). Career adapt-abilities scale: Construction, reliability, and measurement equivalence across 13 countries. *Journal of Vocational Behavior*, 80(3), 661–673.
- Savickas, M. L. (2013). Career construction theory and practice. In S.D. Brown & R.W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (2nd ed., pp. 42–70). Wiley.
- Sax, L. J., & Wartman, K. L. (2010). Studying the impact of parental involvement on college student development: A review and agenda for research. In M. B. Paulsen & L. W. Perna (Eds.), *Higher education: Handbook of theory and research* (pp. 219–255). Springer.
- Schein, E. H. (1990). Organizational culture. *American Psychologist*, 45(2), 109–119.
- Schultheiss, D. E. P. (2003). A relational approach to career counseling: Theoretical integration and practical application. *Journal of Counseling & Development*, 81(3), 301–310.
- Schmid, M.J., Örencik, M., Schmid, J., Nagel, S., & Conzelmann. (2021). Vocational careers of retired Olympic athletes from Switzerland: A person-oriented study. *International Review for the Sociology of Sport*.
- Skorikov, V. (2007). Continuity in adolescent career preparation and its effects on adjustment. *Journal of Vocational Behavior*, 70(1), 8–24.
- Skrubbeltrang, L. S., Karen, D., Nielsen, J. C., & Olesen, J. S. (2018). Reproduction and opportunity: A study of dual career, aspirations and elite sports in Danish SportsClasses. *International Review for the Sociology of Sport*, 55(1), 38–59.
- Spradley, J. P. (1980). *Participant observation*. Harcourt Brace College Publishers.
- Sorkkila, M., Ryba, T. V, Selänne, H., & Aunola, K. (2017). A person-oriented approach to sport and school burnout in adolescent student-athletes: The

- role of individual and parental expectations. *Psychology of Sport and Exercise*, 28, 58–67.
- Sorkkila, M., Ryba, T. V., Selänne, H., & Aunola, K. (2020). Development of school and sport burnout in adolescent student-athletes: A longitudinal mixed-method study. *Journal of Research on Adolescence*, 30(S1), 115–133.
- Staff, J., Messersmith, E.E., Schulenberg, J.E. (2009). Adolescents and the world of work. In R. Lerner & L. Steinberg (Eds.), *Handbook of adolescent psychology* (3rd ed., pp. 270–313). New York: John Wiley & Sons
- Stake, R. E. (2005). Qualitative case studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (pp. 443–466). Sage Publications Ltd.
- Stambulova, N. B., & Wylleman, P. (2019). Psychology of athletes' dual careers: A state-of-the-art critical review of the European discourse. *Psychology of Sport & Exercise*, 42, 74–88.
- Stambulova, N. B., & Wylleman, P. (2015) Dual career development and transitions. *Psychology of Sport and Exercise*, 21, 1–3.
- Storm, L.K., Henriksen, K., Larsen, C.H., & Christensen, M.K. (2014). Influential relationships as context of learning and becoming elite: Athletes' retrospective interpretations. *International Journal of Sport Sciences & Coaching*, 9(6), 1341–1356.
- Storm, L.K., Henriksen, K., Stambulova, N., Cartigny, E., Ryba, T.V., De Brandt, K., Ramis, Y., & Erpic, S.C. (2021). Ten essential features of European dual career development: A multiple case study. *Psychology of Sport and Exercise*, 54.
- Storm, L.K., Ronglan, L.T., Henriksen, K., & Christensen M.K. (2021). Organisational cultures of two successful Scandinavian handball talent development environments: a comparative case study. *Sports Coaching Review*.
- Storm, R. K., & Eske, M. (2021). Dual career and academic achievements: Does elite sport make a difference? *Sport, Education and Society*, 27(6), 747–760.
- Super, D. E., Savickas, M. L., & Super, C. (1996). The life-span, life-space approach to careers. In D. Brown & L. Brooks (Eds.), *Career choice and development* (3rd ed., pp. 121–178). Jossey Bass.
- Tekavc, J., Wylleman, P., & Erpic, S.C. (2015). Perceptions of dual career development among elite swimmers and basketball players. *Psychology of Sport and Exercise*, 21, 27–41.
- Tessitore, A., Capranica, L., Pesce, C., De Bois, N., Gjaka, M., Warrington, G., Mac Donncha, C., & Doupona, M. (2020). Parents about parenting dual career athletes: A systematic literature review. *Psychology of Sport & Exercise*, 53.
- Thomsen, K. R., & Nørgaard, J. (2018). Grades for goals? Challenging associations between educational engagement and improved football performance among Danish male elite players. *Soccer & Society*, 21(2), 152–165.
- Tian, Y., & Fan, X. (2014). Adversity quotients, environmental variables and career adaptability in student nurses. *Journal of Vocational Behavior*, 85, 251–257.

- Timonen, E., Silvonen, J., & Vanhalakka-Ruoho, M. (2016). Nuorten uramuuntuvuus toisen asteen opintojen alussa. *Psykologia*, 51(3), 191–208.
- Verkooijen, K.T., van Hove, P., & Dik, G. (2012). Athletic identity and well-being among young talented athletes who live at a Dutch elite sport centre. *Journal of Applied Sport Psychology*, 24(1), 106–113.
- Wells, C. S., & Wollack, J. A. (2003). *An instructor's guide to understanding test reliability*. Testing and evaluation services publication, University of Wisconsin.
- Wigfield, A., Eccles, J. S., Schiefele, U., Roeser, R. W., & Davis-Kean, P. (2006). Development of Achievement Motivation. In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology: Social, emotional, and personality development* (pp. 933–1002). John Wiley & Sons, Inc.
- Wiltshire, G., & Ronkainen, N. J. (2021). A realist approach to thematic analysis: Making sense of qualitative data through empirical, inferential and dispositional themes. *Journal of Critical Realism*, 20(2), 159–180.
- Wright, J, Macdonald, D, Groom, L (2003) Physical activity and young people: Beyond participation. *Sport, Education and Society* 8(1), 17–33.
- Wuerth, S., Lee, M. J., & Alfermann, D. (2004). Parental involvement and athletes' career in youth sport. *Psychology of Sport and Exercise*, 5(1), 21–33.
- Wylleman, P., & Lavallee, D. (2004). A developmental perspective on transitions faced by athletes. In M. Weiss (Eds.), *Developmental sport and exercise psychology: A lifespan perspective* (pp. 507–527). Morgantown, WV: Fitness Information Technology.
- Wylleman, P. Reints, A. & De Knop, P. (2013). A developmental and holistic perspective on athletic career development. In P. Sotiaradou & V. De Bosscher (Eds.) *Managing high performance sport* (pp. 159–182). New York: Routledge.



ORIGINAL PAPERS

I

ASSOCIATIONS BETWEEN STUDENT-ATHLETES' SELF-ESTEEM AND CAREER ADAPTABILITY ACROSS THE HIGH SCHOOL YEARS

by

Aku Nikander, Kaisa Aunola, Asko Tolvanen, & Tatiana V. Ryba, 2022

Scandinavian Journal of Medicine and Science in Sports, 32(4), 789-797

<https://doi.org/10.1111/sms.14114>

Reproduced with kind permission by Wiley.

Running Head: SELF-ESTEEM AND CAREER ADAPTABILITY

**Associations Between Student-Athletes' Self-Esteem and Career Adaptability Across
the High School Years**

Jaakko A.O. Nikander, Kaisa Aunola, Asko Tolvanen, Tatiana V. Ryba.

Department of Psychology, University of Jyväskylä, Jyväskylä, Finland

Acknowledgements

This research was supported by the Finnish Ministry of Education and Culture (grant number OKM/39/626/2017)

Abstract

The key challenges in sustainable elite sports concern young athletes' holistic development. Consequently, preparation for dual careers has been recommended to enhance athletes' well-being and equip them for life after sports. The aim of this study was to examine the developmental associations between self-esteem and career adaptability among adolescent athletes across the high school years and investigate the role of gender in these developmental trajectories. A total of 391 student-athletes were followed up four times from the beginning of high school (T1) to its end (T4) using the Dual Career Form of the Career Adapt-Abilities Scale and the Self-Esteem Questionnaire. The results indicated that individual differences in student-athletes' self-esteem and career adaptability were relatively stable across the high school years and were thus modeled via the between-persons factors capturing differences between individuals across time. The results further showed that the overall levels of self-esteem and career adaptability were positively associated. Males showed higher overall levels of career adaptability and self-esteem than females. This study suggests that it is important to facilitate youth athletes' self-regulation resources by involving them in vocational developmental tasks. Further, gender differences should be considered when supporting student-athletes' development.

Keywords: *dual career, career adaptability, gender, self-esteem, well-being, adolescence*

1 1 INTRODUCTION

2 The demands of different life domains (school, sporting, and private life) may lead to
3 increased pressure on student-athletes and pose potential threats to their psychosocial
4 development and well-being. According to the European Commission,¹ the main challenge
5 related to elite sports is how to safeguard and guide young athletes' talent development
6 simultaneously in their educational, athletic, and private lives. Special arrangements in the
7 form of dual careers (DC)—a combination of sports and education or work—have been
8 recommended to enhance young athletes' well-being and prepare them for life after sports.^{1,2}
9 Although student-athletes report less stress and fewer symptoms of depression and anxiety
10 than non-athletes,³ they still face a unique range of stressors that include, for example, role
11 strain and transitions (e.g., starting sports high school or university).² Sorkkila and Ryba and
12 colleagues^{4,5} emphasized that research is needed to understand, not only the risks, but also the
13 protective factors affecting student-athletes' well-being (e.g., self-esteem) in their DC
14 pathways. For adolescent student-athletes to manage transitions, achieve vocational goals,
15 and solve a range of challenges in the course of their life trajectories, support provided for
16 them should target a broad range of skills, including career adaptability.^{6,7} The present study
17 examined the developmental associations between career adaptability and self-esteem among
18 student-athletes, and the role of gender in the development of both.

19 1.1 Career Adaptability

20 Career adaptability refers to an individual's readiness to and resources for achieving
21 vocational development and overcoming the complex challenges that arise during
22 occupational transitions.⁸ It is conceptualized as psychological resources that enable
23 adolescents to regulate their strategies along the four dimensions:⁸ *career concern* (i.e., the
24 extent to which the individual is conscious of and prepares for vocational development tasks
25 and transitions in the near and distant future), *career control* (i.e., the extent to which a

26 person takes responsibility for constructing their own career and choosing their approach to
27 vocational development tasks), *career curiosity* (i.e., information-seeking behaviors,
28 openness to new experiences, exploration, and reflection on the match between the
29 individual's abilities and the demands of a particular career), and *career confidence* (i.e., self-
30 efficacy in pursuing a self-determined occupation and successfully coping with career
31 stressors).

32 Career adaptability and thoughts concerning adaptability become evident early in
33 secondary education.⁹ As an individual considers future transitions and developmental tasks,
34 the pressure to deal with goals relevant to those transitions increases.¹⁰ Career adaptability
35 contributes to positive transitions and personal functioning in adolescents,¹¹ predicting an
36 increased sense of control and life satisfaction.¹¹ However, individuals differ in their
37 competencies (adaptability) and career-related behaviors.¹² Rudolph and colleagues¹² found
38 that personality traits contribute to the prediction of career adaptability, suggesting that
39 personality-related factors play a role in adaptability. Further, Hirschi¹³ found that boys
40 demonstrated higher career adaptability than girls. Gender did not, however, affect the
41 development of career adaptability among young students.¹³ Investigating adolescent
42 athletes' career adaptability and the factors that promote it is important because student-
43 athletes tend to have difficulty envisioning their lives after sports and engaging in self-
44 exploration during their sporting careers.¹⁴ Park and colleagues¹⁵ found that athletes who had
45 not planned their post-sporting lives had an elevated risk of experiencing psychological
46 distress, especially following involuntary athletic career termination.

47 **1.2 Self-esteem**

48 Self-esteem—one's overall attitude towards oneself, which involves self-evaluation of
49 one's own worth and value¹⁶—plays a role in developing career adaptability.^{16,17} Self-esteem
50 has been shown to be positively associated with perceived competence in sports,¹⁸ enhanced

51 initiative¹⁹, career adaptability,^{7,20} and career success;²¹ for example, Erol and Orth²² showed
52 that increased self-esteem is related to a sense of career control, which is likely to translate
53 into better career opportunities. Moreover, Choi and colleagues²³ demonstrated that self-
54 esteem is among the strongest predictors of career decision efficacy. Although self-esteem
55 appears to be rather stable throughout adolescence,^{24,25} it can be influenced by life events,
56 individual experiences, and environmental factors.²⁴ A crucial question is, therefore, to what
57 extent is self-esteem development associated with the development of career adaptability
58 during the critical adolescent years? Gender may also play a role. In a previous study,
59 Baldwin and Hoffman²⁶ showed that boys have higher levels of self-esteem than girls, and
60 girls exhibited a greater mean-level fluctuation in self-esteem, suggesting gender differences
61 in the development of self-esteem during early adolescence. However, Birkeland et al.²⁴ did
62 not find gender differences in self-esteem development. Overall, the previous results suggest
63 that boys, on average, may have higher levels of self-esteem than girls.²⁶ However, owing to
64 inconsistent findings concerning the development of self-esteem,^{24, 26} future studies on this
65 topic are needed before conclusions can be made concerning gender differences in the
66 development of self-esteem across the high school years.

67 **1.3 The Present Study**

68 To support student-athletes in integrating combined sport and education into their
69 lives, it is necessary to gain an understanding of the individual factors that affect their life
70 paths. Therefore, in the present study, we investigated the developmental associations
71 between the relatively new concept of career adaptability and self-esteem among student-
72 athletes in the crucial phase of their development. More specifically, this study aimed to
73 investigate the following research questions:

74 (1) To what extent do individual differences in a) career adaptability (both in terms of
75 the five dimensions and regarding the overall common level of career adaptability) and b)

76 self-esteem remain stable across the high school years, and to what extent there is rather time
77 specific fluctuation in these at different phases of high school? It was expected that student-
78 athletes would differ from each other in terms of the level of career adaptability. That is,
79 some individuals would demonstrate higher adaptabilities than others, and these individual
80 differences in the level of career adaptability would remain stable across high school¹²
81 (Hypothesis 1). In line with the previous research,^{7,20} we hypothesized that self-esteem would
82 show stability across high school^{7,20} (Hypothesis 2).

83 (2) To what extent are career adaptability and self-esteem associated across high
84 school years? It was hypothesized that self-esteem is positively associated with career
85 adaptability across high school^{5,7,12,20} (Hypothesis 3) and that self-esteem would positively
86 predict subsequent career adaptabilities^{8,12} (Hypothesis 4).

87 (3) What is the role of gender in the development of career adaptability and self-
88 esteem? Based on previous research, we expected to find that gender does not affect the
89 development of career adaptability¹³ (Hypothesis 5), but we predicted that males would show
90 higher levels of self-esteem than females²⁶ (Hypothesis 6).

91 **2 METHODS**

92 **2.1 Participants and Procedures**

93 The present study contributed to the Finnish Longitudinal Dual Career Study,⁵ which
94 followed student-athletes across their high school years. The sample consisted of 391 athletes
95 (51 % female; $M_{\text{age}} = 16$, $SD = 0.17$ at the beginning of the study) from six sports high
96 schools. In Finland, sports high schools are one of the identified DC pathways²⁷ that provide
97 structural support for talented athletes to combine upper secondary education with sports.

98 The study was approved by the ethics board of the University of Jyväskylä before data
99 collection commenced. The participants signed an informed consent form before participating
100 in the study. The data were collected using an online questionnaire or via completion of an

101 identical paper questionnaire. The data applied in the current study were collected at the
102 baseline, that is, at the beginning of the first grade (T1; September), and after that, once at the
103 end of each grade (March), that is, at the end of the first grade (T2), at the end of the second
104 grade (T3), and at the end of the third grade (T4). Career adaptability and self-esteem were
105 assessed using self-rated scales at each measurement point (T1–T4).

106 **2.2 Measurements**

107 **2.2.1 Dual career adaptability.** Career adaptability was measured at time points T1–
108 T4 using the Career Adapt-Abilities Scale–Dual Career Form (CAAS-DC).⁷ The Dual Career
109 Form was developed by adding a subscale (Dual Career Concern) to the original CAAS.⁸ The
110 CAAS-DC contains a total of 27 items that measure five dimensions of career adaptability:
111 concern (four items; e.g., *thinking about what my future will be like*), control (six items; e.g.,
112 *making decisions by myself*), curiosity (six items; e.g., *observing different ways of doing*
113 *things*), confidence (six items; e.g., *learning new skills*), and dual career concern (five items;
114 e.g., *concerned about my athletic career*). All items were rated on a 5-point Likert scale (1 =
115 *not my strongest ability* to 5 = *one of my strongest abilities*). For each subscale, a mean score
116 was obtained, indicating competence in that domain. The CAAS-DC score was shown to
117 demonstrate factorial and concurrent validity in a Finnish high school sample.⁷ Cronbach's
118 alpha values were used in the present study for the scores of different subscales and time
119 points (T1, T2, T3, and T4); values varied between 0.82 and 0.91.

120 **2.2.2 Self-esteem.** Self-esteem was measured at time points T1–T4 using five items
121 (e.g., *I feel like a person who has a number of good qualities*) taken from the Rosenberg Self-
122 Esteem Scale (RSES).¹⁶ All items were rated on a 5-point Likert scale (1 = *strongly disagree*
123 to 5 = *strongly agree*). The measure has been used in previous studies involving adolescents
124 in Finland, and the test scores have demonstrated good validity.⁷ Cronbach's alphas in the
125 current sample at different time points ranged between 0.77 and 0.82.

126 **2.3 Analysis Strategy**

127 To investigate the developmental stability and within-person fluctuation of career
128 adaptability and self-esteem during the high school years, as well as these constructs'
129 developmental associations, we employed random intercept cross-lagged path analysis²⁸ in
130 the structural equation modeling framework. The selected strategy was found to be the most
131 appropriate strategy to test the stated hypotheses because it considered both the between-
132 (i.e., individual variation in the overall levels of the studied constructs across time) and
133 within-person (i.e., time-specific variation in the studied constructs) effects and thus produces
134 more valid (unbiased) results reflecting the developmental phenomena than autoregressive
135 cross-lagged panel models.²⁸

136 First, to explore between individual variation in the overall levels of the five career
137 adaptability dimensions and self-esteem across four measurement points, six first-order
138 factors describing these overall levels were specified. Additionally, a second-order factor for
139 the five first-order level factors of career adaptability was specified to model the overall level
140 of career adaptability across time. Correlation between the overall levels of career
141 adaptability across time and overall level of self-esteem across time was allowed. Second,
142 time-specific factors capturing common variation between career adaptability dimensions at a
143 particular time point were specified separately for each time point T1–T4. Similarly, time-
144 specific factors were estimated for self-esteem at each time point T1–T4. These specific
145 factors were not allowed to correlate with the first-order factors of career adaptability and
146 self-esteem or the second-order factor of career adaptability. Third, regression paths between
147 time-specific factors capturing the lagged effects of career adaptability and self-esteem were
148 allowed for successive measurement points. These regression coefficients captured the cross-
149 lagged effects between adaptability and self-esteem after controlling for the possible stability
150 of each construct. In addition to the regression coefficients, the residual correlations between

151 the time-specific factors of adaptability and self-esteem at each measurement point were
152 allowed. Finally, a gender variable was added to the model to predict the overall levels of
153 career adaptability and self-esteem across time, and the mean differences between genders in
154 other specified factors were examined and estimated with the help of modification indices
155 (i.e., the associations between gender and the first-order factors in the model were fixed to
156 zero; therefore, poor model fit and the model modification indices indicated whether any of
157 these associations needed to be estimated). The Mplus syntax for the constructed model is
158 provided in Supplemental Material S1.

159 The model was estimated using the Mplus statistical program (version 7.3.; Muthén &
160 Muthén, 1998–2019). Initial analyses revealed the invariance of the study constructs across
161 time and gender groups.¹ The results of the invariance tests are given in Supplemental
162 Material S2. The covariance coverage of the data varied from 0.69 to 1.00. The missing
163 values were supposed to be missing at random (MAR), and estimation was performed using
164 the full information maximum likelihood estimator (MLR), which produces robust standard
165 error and scale corrected chi-square test values. In addition to the chi-square test, the model
166 fit was evaluated using the comparative fit index (CFI), the Tucker-Lewis index (TLI), the
167 root mean square error of approximation (RMSEA), and the standardized root mean square
168 error (SRMR). Good model fit was indicated if the chi-square test result was non-significant,
169 CFI and TLI were at least .95, RMSEA was lower than .06, and SRMR was lower than .08.

170 **3 RESULTS**

¹ When testing invariance, we applied change in RMSEA (as RMSEA is a generally stricter indicator of invariance than CFI and is suitable in the case of large sample sizes and complex models; see, Chen, 2007).²⁹ The results of these analyses showed that in the cases of all constructs, factor loadings, intercepts, and residual variances of the observed variables were invariant across time and gender groups (as indicated by a change of RMSEA lower than .015; change of RMSEA values varied between -.007 and .011 depending on the construct and the model) between the tested nested models.

171 The descriptive statistics (Table 1) demonstrated that participants showed relatively
172 high self-esteem and career adaptabilities across high school. Among the five dimensions of
173 adaptability, confidence, control, and DC concern had the highest mean scores across high
174 school, while concern and curiosity had the lowest. Based on the correlations, self-esteem and
175 the career adaptability dimensions were positively correlated at each measurement point. The
176 correlations were particularly strong in the case of the control adaptability dimension.

177 **3.1 Development of Career Adaptability**

178 The results of the tested model are shown in Figure 1 (only statistically significant
179 paths are shown). The final model (model modifications are presented in detail in S1)
180 demonstrated a good fit to the data: $X^2(240) = 331.014, p < .05$, RMSEA = 0.031, SRMR =
181 0.037, CFI = 0.983, TLI = 0.978. The results showed that adaptability was relatively stable
182 across high school and that most of the variation in the adaptability dimensions was caused
183 by the individual differences in the overall level of career adaptability ($R^2_{-concern} = .65, p$
184 $< .001$; $R^2_{-DCconcern} = .85, p < .001$; $R^2_{-control} = .67, p < .001$; $R^2_{-curiosity} = .77, p < .001$;
185 $R^2_{-confidence} = .86, p < .001$). In addition, the levels of the different adaptability dimensions
186 were relatively stable across high school; approximately half of the variation in different
187 dimensions at different measurement points (T1–T4) was caused by the overall individual
188 level of particular adaptability dimensions ($R^2_{-concern} = .45-.47, p < .001$; $R^2_{-DCconcern} = .35-.47,$
189 $p < .001$; $R^2_{-control} = .48-.56, p < .001$; $R^2_{-curiosity} = .36-.38, p < .001$; $R^2_{-confidence} = .43-.51, p$
190 $< .001$).

191 In addition to the overall level of adaptability, time-specific variation was found. The
192 time-specific variation of career adaptability at T3 predicted subsequent career adaptability at
193 T4 ($R^2 = .17$): The higher the adaptability at the end of the second grade, the higher the
194 adaptability at the end of high school.

195 **3.2. Development of Self-Esteem**

196 Similar results were found for self-esteem, which was relatively stable across the high
197 school years. Most of the variation in self-esteem at different measurement points was caused
198 by the individual differences in the overall level of self-esteem across time ($R^2-T1 = .61, p$
199 $< .001$; $R^2-T2 = .59, p < .001$; $R^2-T3 = .53, p < .001$; $R^2-T4 = .41, p < .001$). However, this
200 effect decreased at the end of the high school, and measurement point-related variation
201 increased ($R^2-T4 = .59, p < .001$). The time-specific variation of self-esteem at the T3
202 predicted subsequent self-esteem at the T4 ($R^2 = .15, p < .01$): The higher the self-esteem at
203 the end of the second grade, the higher subsequent self-esteem at the end of high school.

204 **3.3 Developmental Association Between Career Adaptability and Self-esteem**

205 The model revealed that the individual differences in the overall level of career adaptability
206 across the high school years were positively and statistically significantly associated with
207 individual differences in the overall level of self-esteem ($r = .50, p < .001$). Further, one
208 specific association was found indicating that the individual overall level of control was
209 positively associated with the individual overall level of self-esteem ($r = .47, p < .001$). In
210 addition to these associations between the overall levels of adaptability and self-esteem, time-
211 specific positive associations between the constructs were found at each measurement point,
212 and the correlations became stronger towards the end of the high school ($r^{T1} = .29, p < .01$;
213 $r^{T2} = .29, p < .001$; $r^{T3} = .56, p < .001$; $r^{T4} = .46, p < .001$). The cross-lagged associations
214 between career adaptability and self-esteem were not significant. Finally, the results
215 concerning the role of gender showed that gender predicted individual levels of career
216 adaptability ($R^2 = .03$) and self-esteem ($R^2 = .07$), with females demonstrating lower levels of
217 both compared to males.

218 **4 DISCUSSION**

219 This study aimed to add to our understanding of the development of and
220 developmental associations between self-esteem and career adaptability among adolescent

221 student-athletes across high school, as well as the role gender plays in student-athletes' career
222 adaptability and self-esteem. First, the results showed that career adaptability and self-esteem
223 were relatively stable across individual differences in high schoolers' overall levels of each
224 construct over time, which explained most of the variation. Second, during the high school
225 years, career adaptability and self-esteem were positively associated with each other, showing
226 mutual variation. Third, gender was associated with the overall levels of career adaptability
227 and self-esteem, with males showing higher levels of both compared to females.

228 The present study's first objective was to examine the extent to which individual
229 differences in career adaptability and self-esteem are stable across the high school years and
230 to what extent time-specific fluctuation occurs at different phases of high school. In this
231 study, career adaptability was found to be relatively stable, with an individual-level
232 explanation available for over half of the variation across high school. It was expected
233 (Hypothesis 1) that there would be stable individual differences between student-athletes
234 across high school.^{8,12} One explanation for adaptability's high degree of stability could be, as
235 previous studies¹⁴ have shown, that athletes tend to postpone their career-related activities,¹⁴
236 consequently, stable personality-related factors¹² play a larger role in their adaptability at this
237 stage than more time-specific contextual and environmental factors. Overall, it seems that
238 individual involvement in vocational developmental tasks determines the extent of student-
239 athletes' career aspiration development. Similarly, as expected (Hypothesis 2), self-esteem
240 was found to be relatively stable across high school, with an individual-level explanation
241 available for around half of the variation. However, an interesting finding was that
242 individuality's influence decreased at the end of high school. This may indicate that the life
243 events concerning the upcoming transition can affect self-esteem at the individual level.^{24,26}

244 In addition to overall high stable individual-level career adaptability and self-esteem,
245 our stability hypothesis was further supported by the findings concerning time-specific

246 variation predictions: Career adaptability in the middle of high school predicted career
247 adaptability at the end of high school. Timonen et al.⁹ suggested that starting high school and
248 subsequent transitions may trigger thoughts about adaptability. Those youths who self-assess
249 as having the resources to construct a career and being prepared for transitions will show high
250 career adaptability later in life. Individuals who focus on goals related to career transitions
251 and developmental tasks may also reflect more on their future endeavours.¹⁰

252 The present study's second aim was to examine the developmental association
253 between self-esteem and career adaptability across time among student-athletes. As we
254 expected (Hypothesis 3), and in line with previous research,^{5,7,12,20} career adaptability was
255 positively associated with self-esteem at each measurement point and at the individual level
256 across high school. However, self-esteem at the previous time point did not predict
257 subsequent career adaptabilities at the following time point, as expected (Hypothesis 4). This
258 may be because both career adaptabilities and self-esteem showed high stability. It may also
259 be related to trait-like factors.¹² No change was observed. The findings further suggested that
260 towards the end of high school, mutual variation between adaptability and self-esteem
261 increases, which may indicate that there are some common factors behind these constructs
262 that explain the association. Regarding the adaptability dimensions, a positive association
263 was found between level of control and self-esteem. Erol and Orth²² suggested that increased
264 self-esteem is related to a sense of control and better career opportunities. Additionally, in
265 line with Rudolph and colleagues'¹² finding that a proactive personality predicts career
266 adaptability, student-athletes who self-assess as having a plan, assume an active role in their
267 career development, and feel that they are in control of their future may develop not only
268 career adaptability, but also high self-esteem.

269 The present study's third objective was to examine the role of gender in the
270 development of career adaptability and self-esteem. The results showed that gender was

271 positively associated with both the student-athletes' overall level of career adaptability
272 (contradictory to Hypothesis 5) as well as with their overall level of self-esteem (Hypothesis
273 6), with males reporting higher overall career adaptability and self-esteem levels than
274 females. Concerning self-esteem, our findings are in line with previous studies.^{24, 26} It can be
275 speculated that as males have been shown to perceive their self-esteem more positively than
276 females during adolescence²⁶ and as career adaptability is related to trait-like optimism,¹²
277 male student-athletes may, at least in part, derive their higher perception of adaptability from
278 their optimism about the future.^{14,30} Overall, our findings highlight that gender differences in
279 career adaptability and self-esteem levels should be considered when providing support for
280 youth athletes.

281 To conclude, given that the individual-level explained most of the variation in career
282 adaptability, it is important to recognize individuals with low levels of career adaptability
283 (and identify the reasons for that) and support the development of adaptabilities starting at the
284 beginning of high school (or even earlier). Such interventions can be achieved by facilitating
285 individual planning and the exploration of possible future paths, engaging in meaningful
286 conversations, and increasing these individuals' sense of control. The association between
287 career adaptability and self-esteem across high school suggests that both are complementary
288 resources for positive development. Student-athletes with high self-esteem and career
289 adaptability might have more resources to explore other plans and pursue endeavours outside
290 of sports in the future.

291 The present study has some limitations that should be considered before generalizing
292 the results. First, the sample comprised high school students; the results might be different for
293 vocational school students. Second, the present study examined the effect of gender on career
294 adaptability and self-esteem. However, other factors may play a role in the development of
295 the studied constructs. In further studies, the role of different individual, school- and sport-

296 related factors as well as sources of social support or pressure, such as coaches and teachers,
297 in student-athletes' career adaptability and self-esteem development should be investigated
298 alongside the associations between these factors to gain a deeper understanding of the
299 possible confounding affecting the phenomena.

300 **5 PERSPECTIVES**

301 The present study contributes to the existing literature in three ways. First, we showed
302 that self-esteem and career adaptability are relatively stable across high school among
303 student-athletes, indicating that support for career-related activities should be individually
304 targeted early on during a dual career. Second, as the individual overall level of control was
305 positively associated with the individual overall level of self-esteem, student-athletes who
306 feel that they are in control of their future may develop not only career adaptability, but also
307 high self-esteem. Third, gender differences should be considered when providing support for
308 student-athletes' dual career construction development and well-being.

309 **Declaration of Conflicts of Interest**

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

312

313 **References**

- 314 1. EU Guidelines on Dual Careers of Athletes. *Recommended policy actions in support of*
315 *dual careers in high-performance sport*. Brussels: Sport Unit of the Directorate-
316 General for Education and Culture of the European Commission; 2012.
- 317 2. Stambulova NB, Wylleman P. Psychology of athletes' dual careers: A state-of-the-art
318 critical review of the European discourse. *Psychology of Sport & Exercise*.
319 2019;42:74–88.

- 320 3. Gerber M, Holsboer-Trachsler E, Puhse U, Brand S. Elite sport is not an additional
321 source of distress for adolescents with high stress levels. *Perceptual and Motor Skills*.
322 2011;112(2):581–599.
- 323 4. Sorkkila M, Ryba TV, Selänne H, Aunola K. Development of school and sport burnout
324 in adolescent student-athletes: A longitudinal mixed-methods study. *Journal of*
325 *Research on Adolescence*. 2020;30(S1):115–133.
- 326 5. Ryba TV, Aunola K, Kalaja S, Selänne H, Ronkainen NJ, Nurmi J-E. A New
327 perspective on adolescent athletes' transition into upper secondary school: A
328 longitudinal mixed method study protocol. *Cogent Psychology*. 2016;3(1):1142412–
329 15.
- 330 6. Henriksen K, Storm LK, Stambulova N, Pyrdol N, Larsen CH. Successful and less
331 successful interventions with youth and senior athletes: Insights from expert sport
332 psychology practitioners. *Journal of Clinical Sport Psychology*, 2019;13(1):72–94.
- 333 7. Ryba TV, Zhang C-Q, Huang Z, Aunola K. Career adapt-abilities scale–Dual career
334 form (CAAS-DC): Psychometric properties and initial validation in high-school
335 student-athletes. *Health Psychology and Behavioral Medicine*. 2017;5(1):85–100.
- 336 8. Savickas, ML. The theory and practice of career construction. In S. D. Brown & R. W.
337 Lent (Eds.), *Career development and counselling: Putting theory and research to*
338 *work*. Hoboken, NJ: John Wiley & Sons. 2013; (pp. 42–70)
- 339 9. Timonen E, Silvonen J, Vanhalakka-Ruoho M. Nuorten uramuuntuvuus toisen asteen
340 opintojen alussa. *Psykologia*. 2016;51(3):191–208.
- 341 10. Salmela-Aro K, Aunola K., Nurmi J-E. Personal goals during emerging adulthood. A
342 10-year follow up. *Journal of Adolescent Research*. 2007;22(6):690–715.
- 343 11. Johnston CS. A systematic review of the career adaptability literature and future
344 outlook. *Journal of Career Assessment*. 2018;26(1):3–30.

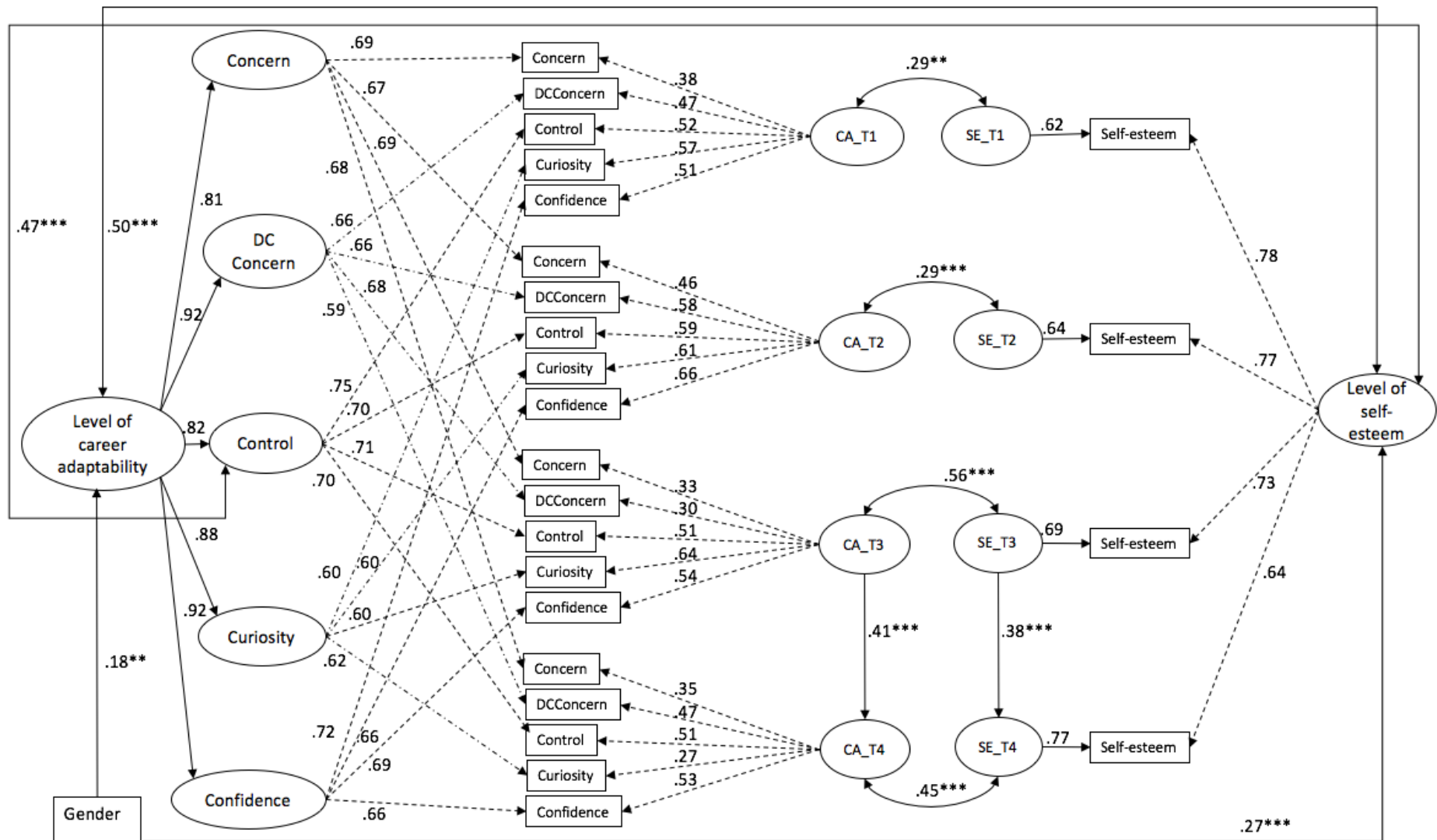
- 345 12. Rudolph CW, Lavigne KN, Katz IM, Zacher H. Linking dimensions of career
346 adaptability to adaptation results: A meta-analysis. *Journal of Vocational Behavior*.
347 2017;102:151–173.
- 348 13. Hirschi A. Career adaptability development in adolescence: Multiple predictors and
349 effect on sense of power and life satisfaction. [Online magazine]. *Journal of*
350 *Vocational Behavior*. 2009;74(2):145–155.
- 351 14. Ryba TV, Ronkainen N, Douglas K, Aunola K. Implications of the identity position
352 for dual career construction: Gendering the pathways to (dis)continuation. *Psychology*
353 *of Sport and Exercise*. 2021;53.
- 354 15. Park S, Lavalley D, Tod D. Athletes' career transition out of sport: A systematic
355 review. *International Review of Sport and Exercise Psychology*. 2013;6(1):22–53.
- 356 16. Rosenberg M. *Society and the adolescent self-image*. Revised edition. Middletown,
357 CT: Wesleyan University Press; 1989.
- 358 17. Hewitt JP. The social construction of self-esteem. In Snyder CR, Lopez SJ (Eds.),
359 *Handbook of Positive Psychology*. New York: Oxford University Press. 2002; pp.135–
360 148.
- 361 18. Amorose AJ, Anderson-Butcher D, Cooper J. Predicting changes in athletes' well-
362 being from changes in need satisfaction over the course of a competitive season.
363 *Research Quarterly for Exercise and Sport*. 2009;80(2):386–392.
- 364 19. Orth U, Robins RW, Widaman KF. Life-span development of self-esteem and its
365 effects on important life outcomes. *Journal of Personality and Social Psychology*.
366 2012;102(6):1271–1288.
- 367 20. Rusu A, Mairean C, Hojbota A-M, Gherasim LR, Gavrioaiel SI. Relationships of
368 career adaptabilities with explicit and implicit self-concepts. *Journal of Vocational*
369 *Behaviour*. 2015;89:92–101.

- 370 21. Kuster F, Orth U, Meier LL. High self-esteem prospectively predicts better work
371 conditions and outcomes. *Social Psychological and Personality Science*.
372 2013;4(6):668–675.
- 373 22. Erol RY, Orth U. Self-esteem development from age 14 to 30 years: A longitudinal
374 study. *Journal of Personality and Social Psychology*. 2011;101(3):607–619.
- 375 23. Choi BY, Park H, Yang E, Lee Y, Lee SM. Understanding career decision self-
376 efficacy: A meta-analytic approach. *Journal of Career Development*. 2012;39(5):443–
377 460.
- 378 24. Birkeland MS, Melkevik O, Holsen I, Wold B. Trajectories of self-esteem during
379 adolescence. *Journal of Adolescence*. 2011;35(1):43–54.
- 380 25. Trezniewski KH, Donnellan MB, Robins RW. Stability of self-esteem across the life
381 span. *Journal of Personality and Social Psychology*. 2003;84(1):205–220.
- 382 26. Baldwin S, Hoffman J. The dynamics of self-esteem: a growth-curve analysis. *Journal*
383 *of Youth and Adolescence*. 2002;31(2):101–113.
- 384 27. Morris R, Cartigny E, Ryba TV, Wylleman P, Henriksen K, Ramis Y, Lindhal K,
385 CeciĆ Erpič S. A taxonomy of dual career development environments in European
386 countries. *European Sport Management Quarterly*. 2020;21(1):134–151.
- 387 28. Berry D, Willoughby, M.T. On the practical rethinking of cross-lagged panel models:
388 Rethinking a developmental workhorse. *Child Development*. 2017; 88(4):1186–1206.
- 389 29. Chen, F.F. Sensitivity of goodness of fit indexes to lack of measurement invariance,
390 structural equation modelling: *A Multidisciplinary Journal*. 2007;14(3):464–504.
- 391 30. Henriksen K, Mortensen J. Reality and dreams. A comparison of elite athletes' lived
392 career paths with young talented athletes' imagined career paths. *Scandinavian Sport*
393 *Studies Forum*. 2014;5:69–91.

394 **Table 1.** Means (*M*), Standard Deviations (*SD*), and Bivariate Correlations between the Study Variables. Cronbach’s alphas are presented in the
395 diagonal.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1 SelfesT1	.77	.65 ^c	.55 ^c	.48 ^c	.27 ^c	.21 ^c	.16 ^b	.24 ^c	.34 ^c	.23 ^c	.22 ^c	.24 ^c	.32 ^c	.24 ^c	.12 ^b	.20 ^b	.50 ^c	.39 ^c	.35 ^c	.34 ^c	.31 ^c	.28 ^c	.23 ^c	.23 ^c
2 SelfesT2		.77	.59 ^c	.59 ^c	.18 ^b	.26 ^c	.18 ^b	.24 ^c	.23 ^c	.36 ^c	.31 ^c	.28 ^c	.18 ^c	.25 ^c	.17 ^b	.24 ^b	.35 ^c	.48 ^c	.42 ^c	.38 ^c	.22 ^c	.38 ^c	.29 ^c	.28 ^c
3 SelfesT3			.77	.68 ^c	.17 ^b	.23 ^c	.28 ^c	.27 ^c	.24 ^c	.27 ^c	.45 ^c	.35 ^c	.22 ^c	.23 ^c	.33 ^c	.32 ^c	.39 ^c	.38 ^c	.57 ^c	.43	.24 ^c	.31 ^c	.34 ^c	.29 ^c
4 SelfesT4				.82	.13 ^a	.22 ^c	.20 ^b	.31 ^c	.18 ^c	.26 ^c	.35 ^c	.39 ^c	.14 ^b	.18 ^b	.24 ^c	.32 ^c	.31 ^c	.28 ^c	.40 ^c	.51 ^c	.20 ^c	.28 ^c	.23 ^c	.34 ^c
5 ConcT1					.85	.55 ^c	.45 ^c	.39 ^c	.54 ^c	.38 ^c	.24 ^c	.29 ^c	.60 ^c	.39 ^c	.25 ^c	.29 ^c	.53 ^c	.34 ^c	.30 ^c	.31 ^c	.65 ^c	.43 ^c	.33 ^c	.26 ^c
6 ConcT2						.86	.52 ^c	.39 ^c	.36 ^c	.62 ^c	.36 ^c	.36 ^c	.37 ^c	.59 ^c	.34 ^c	.36 ^c	.33 ^c	.53 ^c	.32 ^c	.28 ^c	.43 ^c	.72 ^c	.36 ^c	.29 ^c
7 ConcT3							.84	.59 ^c	.36 ^c	.33 ^c	.50 ^c	.39 ^c	.34 ^c	.32 ^c	.52 ^c	.42 ^c	.36 ^c	.28 ^c	.47 ^c	.32 ^c	.37 ^c	.36 ^c	.54 ^c	.39 ^c
8 ConcT4								.84	.38 ^c	.33 ^c	.44 ^c	.58 ^c	.24 ^c	.28 ^c	.35 ^c	.32 ^c	.33 ^c	.28 ^c	.38 ^c	.44 ^c	.35 ^c	.31 ^c	.45 ^c	.61 ^c
9 ConfiT1									.89	.52 ^c	.45 ^c	.36 ^c	.62 ^c	.40 ^c	.33 ^c	.39 ^c	.67 ^c	.44 ^c	.40 ^c	.37 ^c	.64 ^c	.44 ^c	.46 ^c	.31 ^c
10 ConfiT2										.91	.49 ^c	.44 ^c	.38 ^c	.71 ^c	.39 ^c	.42 ^c	.41 ^c	.75 ^c	.44 ^c	.40 ^c	.44 ^c	.76 ^c	.45 ^c	.29 ^c
11 ConfiT3											.85	.60 ^c	.25 ^c	.34 ^c	.68 ^c	.45 ^c	.37 ^c	.39 ^c	.64 ^c	.46 ^c	.64 ^c	.41 ^c	.58 ^c	.40 ^c
12 ConfiT4												.87	.31 ^c	.31 ^c	.45 ^c	.47 ^c	.38 ^c	.36 ^c	.46 ^c	.61 ^c	.36 ^c	.38 ^c	.47 ^c	.60 ^c
13 CurioT1													.90	.48 ^c	.33 ^c	.35 ^c	.64 ^c	.39 ^c	.34 ^c	.31 ^c	.57 ^c	.40 ^c	.32 ^c	.29 ^c
14 CurioT2														.87	.39 ^c	.37 ^c	.40 ^c	.70 ^c	.40 ^c	.39 ^c	.39 ^c	.67 ^c	.33 ^c	.25 ^c
15CurioT3															.85	.54 ^c	.33 ^c	.35 ^c	.63 ^c	.42 ^c	.27 ^c	.33 ^c	.50 ^c	.34 ^c
16 CurioT4																.85	.33 ^c	.35 ^c	.63 ^c	.42 ^c	.27 ^c	.33 ^c	.50 ^c	.34 ^c
17 ContT1																	.85	.56 ^c	.54 ^c	.53 ^c	.61 ^c	.39 ^c	.37 ^c	.31 ^c
18 ContT2																		.88	.58 ^c	.48 ^c	.43 ^c	.68 ^c	.39 ^c	.26 ^c
19 ContT3																			.85	.63 ^c	.30 ^c	.38 ^c	.50 ^c	.34 ^c
20 ContT4																				.83	.35 ^c	.34 ^c	.40 ^c	.53 ^c
21 DCT1																					.85	.52 ^c	.47 ^c	.38 ^c
22 DCT2																						.84	.45 ^c	.35 ^c
23 DCT3																							.82	.56 ^c
24 DCT4																								.84
<i>M</i>	3.76	3.72	3.72	3.61	2.86	2.98	2.87	2.98	3.44	3.47	3.36	3.29	3.05	3.17	3.14	2.99	3.45	3.47	3.36	3.29	3.37	3.33	3.15	3.10
<i>Males</i>	3.91	3.85	3.88	3.77	2.99	3.09	2.92	3.10	3.43	3.52	3.42	3.46	3.10	3.28	3.18	3.09	3.52	3.53	3.48	3.44	3.46	3.41	3.26	3.21
<i>Females</i>	3.62	3.60	3.57	3.45	2.73	2.87	2.82	2.87	3.45	3.42	3.30	3.12	2.99	3.06	3.09	2.93	3.31	3.37	3.24	3.14	3.28	3.26	3.05	3.00
<i>SD</i>	.62	.65	.68	.76	.80	.83	.81	.84	.69	.75	.71	.77	.73	.72	.72	.70	.73	.78	.79	.80	.76	.73	.75	.84
<i>Males</i>	.57	.63	.63	.73	.81	.84	.84	.81	.67	.77	.72	.73	.74	.75	.75	.75	.71	.77	.80	.79	.72	.74	.70	.77
<i>Females</i>	.63	.65	.68	.78	.78	.83	.84	.85	.70	.73	.70	.78	.72	.70	.68	.67	.74	.80	.76	.74	.78	.74	.77	.87

396 Note 1. c= $p < .001$, b= $p < .01$, a= $p < .05$ Selfes = Self-esteem, Conc = Concern, Confi = Confidence, Curio = Curiosity, Cont= Control, DC =
397 Dual career concern, , T1 = measurement point 1, T2 = measurement point 2, T3 = measurement point 3, T4 = measurement point 4.



399

400 *Figure 1.* Factor model of career adaptability, self-esteem, and gender (Standardized coefficients; Only statistically significant paths reported).
 401 SE_T1 = specific factor of self-esteem at time point 1, SE_T2 = specific factor of self-esteem at time point 2, SE_T3 = specific factor at time

402 point 3, SE_T4 = specific factor of self-esteem at time point 4, CA_T1 = specific factor for adaptability at time point 1, CA_T2 = specific factor
403 for adaptability at time point 2, CA_T3 = specific factor for adaptability at time point 3, CA_T4 = specific factor for adaptability at time point 4.
404



II

THE ROLE OF INDIVIDUAL AND PARENTAL EXPECTATIONS IN STUDENT-ATHLETES' CAREER ADAPTABILITY PROFILES

by

Aku Nikander, Asko Tolvanen, Kaisa Aunola, & Tatiana V. Ryba, 2021

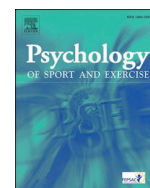
Journal of Psychology of Sport and Exercise, 59(3).

<https://doi.org/10.1016/j.psychsport.2021.102127>

Reproduced with kind permission by Elsevier.

Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

Psychology of Sport & Exercise

journal homepage: www.elsevier.com/locate/psychsportThe role of individual and parental expectations in student-athletes' career adaptability profiles[☆]Jaakko Nikander^{*}, Asko Tolvanen, Kaisa Aunola, Tatiana V. Ryba

University of Jyväskylä, Department of Psychology, P.O. Box 35, FI-40014, Finland

ARTICLE INFO

Keywords:

Dual career
 Career adaptability
 Success expectations
 Gender
 High school

ABSTRACT

Objectives: To support holistic development, adolescent student-athletes are encouraged to integrate sport with education/academics (i.e., dual careers). Career adaptability, as a psychological resource, may help youth athletes cope with transitions and successfully manage their careers. Individuals with a plan and higher expectations for the future demonstrate higher career adaptability and are better prepared for the future. In the present study, we examined what kinds of distinct career adaptability profiles could be identified among youth athletes in Finland at the transition stage to a sports high school (i.e., specialized school for athletes). Moreover, we investigated whether youth athletes' success expectations about school and sport, and corresponding parental expectations, predicted the probability of student-athletes demonstrating a certain career adaptability profile. Next, we examined how gender was represented in the different profiles. **Design and methods:** The present study is part of the Longitudinal Finnish Dual Career study. A total of 391 student-athletes (51% females) from six sports high schools in Finland, and 448 parents (42% fathers) participated in the study. The student-athletes answered questionnaires on career adaptability (Career Adapt-Abilities Scale – Dual Career Form) and success expectations at the beginning and then again at the end of the first year of sports high school. At the beginning of sports high school, parents responded to a questionnaire about their expectations of success for their children in both academics and in sport. The data were analyzed using structural equation modeling and latent profile analysis. **Results:** Five distinct adaptability profiles across time were identified: stable, very low adaptability, stable low adaptability, stable moderate adaptability, stable high adaptability, and increased adaptability. Student-athletes' high success expectations in academics and sport, and mothers' high success expectations in academics, increased the probability of student-athletes showing higher adaptability profiles. **Conclusions:** The student-athletes' high level of expectations for both sport and academics are associated with career adaptability, and mothers' high expectations of student-athletes' academic success relate to higher career adaptability profiles among student-athletes and can thus be considered an important factor in supporting their dual careers.

According to the [European Commission \(2012\)](#), the main challenge related to elite sport is how to guide the simultaneous development of young athletes' talent in their education, athletics, and private lives. Special arrangements in the form of dual career (i.e., a combination of sport and educations or work) have been recommended to enhance young athletes' well-being and prepare them for life after sport ([Stambulova & Wylleman, 2019](#)). Adolescence is a time when student-athletes face a unique range of stressors, including role strain, career exploration, and multiple life-transitions ([Nurmi, 2014](#); [Stambulova & Wylleman, 2019](#)). To manage transitions and achieve vocational tasks are among major developmental tasks in adolescence ([Super et al., 1996](#)).

Adolescent student-athletes should therefore be provided support for a broad range of skills, such as career adaptability. Career adaptability is a psychological resource that facilitates achievement of vocational development tasks and supports career success ([Savickas, 2013](#)). It may assist adolescent student-athletes in managing their transitions ([Ryba et al., 2016](#)). However, little is known about the development and antecedents related to career adaptability among student-athletes. In addition to the importance of individual competencies to succeed in dual career, the European Commission (2012) highlights the importance of environmental influences (e.g., parental support and involvement) in the dual career development of student-athletes. For example, previous

[☆] This research was supported by the Finnish Ministry of Education and Culture (grant number OKM/39/626/2017).

^{*} Corresponding author. University of Jyväskylä, Department of Psychology, P.O. Box 35, FI-40014, Finland.

E-mail addresses: aku.j.o.nikander@jyu.fi (J. Nikander), asko.j.tolvanen@jyu.fi (A. Tolvanen), kaisa.aunola@jyu.fi (K. Aunola), tatiana.ryba@jyu.fi (T.V. Ryba).

<https://doi.org/10.1016/j.psychsport.2021.102127>

Received 23 July 2021; Received in revised form 3 November 2021; Accepted 10 December 2021

Available online 12 December 2021

1469-0292/© 2021 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY license (<http://creativecommons.org/licenses/by/4.0/>).

studies have shown that parental expectations may contribute to successful dual career by expressing confidence in their children's abilities to succeed in academics and sport (Sorkkila et al., 2017). Thus far, the influence of parental success expectations on the construction of student-athlete dual careers has not, however, been examined. Therefore, the present study aimed to examine what kinds of career adaptability profiles could be identified among Finnish athletes at the beginning of high school. Further, student-athletes' expectations of success in school and sport, and the corresponding parental success expectations, were examined as predictors of different career adaptability profiles, after controlling for gender, grade point average, and level of competition in sport. The present research was carried out as part of the Longitudinal Finnish Dual Career study (author et al., 2016), which aims to follow up student-athletes' overall development across high school years according to various variables.

1. Career adaptability

Career adaptability refers to the psychological resources required to overcome the challenges presented by vocational tasks (Savickas, 2013). According to Savickas (2013), career adaptability may enable adolescents to regulate their career strategies (e.g., plan their future, overcome challenges, and transitions) within the four dimensions of concern, control, curiosity, and confidence. Concern refers to the extent to which the individual is aware of and prepares for career-related transition and developmental tasks in the proximate and remote future. Control means that a person takes responsibility for constructing their own career and chooses how to approach tasks related to their vocational development. Curiosity refers to information-seeking behaviors, openness to new experiences, and reflection on the match between an individual's abilities and the demands of a particular career. Confidence refers to self-efficacy in pursuing a self-determined occupation and the successful management of stressors throughout one's career.

In a Finnish study, Salmela-Aro et al. (2007) found that career adaptability and thoughts concerning adaptability become evident early in secondary education. As an individual considers future transitions and developmental tasks, the pressure to deal with goals relevant to those transitions increases (Salmela-Aro et al., 2007). Johnson (2018) showed that career adaptability is related to successful transitions and individual functioning in adolescence, and predicts an increased sense of control and life satisfaction (Rudolph et al., 2017). For example, Hirschi and Valero (2015) found that university students who demonstrated higher adaptability profiles showed more career planning, career exploration, and occupational self-efficacy beliefs. However, considering the many assets of career construction for youth development, career planning was rated lowest for perceived importance and perceived possession of dual career competencies among student-athletes in the GEES (Gold in Education and Elite Sport)–project (Wylleman et al., 2017). Furthermore, investigating the career adaptability of adolescent athletes, and the factors that promote it, is important because student-athletes will face a number of transitions during their dual careers (Stambulova & Wylleman, 2019). In particular, the transition to sport high school and the first year of sport high school have been shown to cause challenges for youth athletes aiming to find a balance between sport and education (Sorkkila et al., 2020; Stambulova et al., 2015).

Hirschi and Valero (2015) discussed how previous research on career adaptability has used variable-centered approaches to study the associations of the four adaptability dimensions with a number of outcomes, meaning that the approach does not take into consideration those individuals who demonstrate different combinations of adaptabilities. They suggested a person-oriented approach as a key to filling this gap in the literature. A person-oriented approach can be rationalized by the individualization of dual career development (Ryba, Stambulova, et al., 2017) and, from a practical point of view, the personalization of career counseling (Savickas, 2013). The identification of individual profiles

with distinct combinations of career adaptabilities, examined longitudinally, could contribute to our knowledge of career adaptability development and its associations with predictors among student-athletes.

2. Career adaptability and individual success expectations

Ryba et al. (2017, 2021) found that student-athletes integrate life events, experiences, and expectations for the future in a particular pattern, which may in turn influence the course of their dual careers. Therefore, it can be expected that student-athletes' own self-explorations and expectations of success in sport and school will affect how they manage a dual career. Individual expectations of success in sport or education have been conceptualized as the extent to which individuals believe that they have the ability to be successful in sports or academics and are not distressed about whether they are likely to fail (Nurmi et al., 1995; Sorkkila et al., 2017). Further, Sorkkila et al. (2017) suggested that high success expectations may be related to confidence. Moreover, high expectations for success have been shown to be associated with optimism and self-esteem (Nurmi et al., 1995). Since confidence and belief in one's abilities are key aspects of career adaptability, and since previous research has also shown that self-esteem and optimism are related to career adaptability (Rudolph et al., 2017), it is plausible that success expectations are related to career adaptability. Career adaptability has also been shown to be related to academic achievement. For example, in their longitudinal study, Negru-Subtiriccia and Pop (2016) found that academic achievement positively predicted career control and confidence. Success expectations, either in sports or academics, could therefore be associated with career adaptability.

Gender has been shown to affect the development of career adaptability among youth students, with boys often demonstrating higher career adaptability than girls (Hirschi, 2009). It has been suggested that these gender differences are because boys tend to demonstrate stronger self-esteem than females during adolescence (Baldwin & Hoffman, 2002). Since career adaptability is associated with self-esteem (Rudolph et al., 2017), male student-athletes may demonstrate higher career adaptability across the first year of high school. In the context of dual career, it should also be considered that boys and girls may have different future career prospects. For example, in Finland, only 1.6% of professional athletes are women (Research Institute for Olympic Sports, 2018). Further, girls and young women may be under pressure to be "superwomen," which may influence their career decisions (Ryba et al., 2021; Kavoura et al., 2018).

3. Parents' role in dual career and career adaptability

Condello et al.'s (2019) survey examining elite athletes' perspectives toward their dual careers showed that parents are important supporters for successful dual careers. Parental attitudes and beliefs toward DC are considered influential factors that guide student-athletes' choices (Guidotti et al., 2015), and high parental involvement has been identified as a resource for a successful career transition (Wuerth et al., 2004). However, support should be appropriate, demonstrating affection and avoiding simultaneous psychological control (Aunola et al., 2018). Parental involvement and support are vital for adolescent development, providing guidance and assistance to set career-related goals, facilitate planning, and decision making in accordance with these goals (Hargrove, 2002; Bryant, 2006). Tessitore et al. (2020) provided a qualitative analysis of parental experiences as social agents in athletes' dual careers. The analysis showed that fathers and mothers offer different types of support through their involvement in the lives of their student-athlete children. Fathers were less involved in the academic domain, since fathers tend not to be as responsible for their children's daily schedules when compared to mothers. However, a study by Korhonen et al. (2020) showed that fathers are also involved in the academic domain, suggesting that such involvement depends on the individual child's

relationship with their parents and, perhaps, the cultural values of a given society.

Savickas (2005) stated that environmental experiences impact career adaptability. Parents, and the form of support they provide, can have a crucial influence on their child's career adaptability. For example, parental support contributes to the development of individuals' career adaptability during the early stages of vocational exploration and development (Guan et al., 2016). Further, Super et al. (1996) stated that parental support plays a role in enabling adolescents' self-exploration that is accompanied by distress, uncertainty, and indecision about career paths. This is especially relevant in the sports context, where athletes tend to postpone their career-related self-exploration. To address this, Ryba et al. (2017) called upon youth athletes' parents and significant adults to create potential pathways for self-discovery by engaging youth in meaningful conversations about their future careers.

Parents' beliefs, perceptions, and career expectations all affect how they offer support and prepare their children for the future. For example, in Finland, 71% of parents expect their child to attain a master's degree (Ryba et al., 2016), which may shape their future choices. Moreover, parents' expectations, especially if they are related to success, may be perceived as pressuring, which can lead to challenges in both academic and athletic development by increasing the risk of burnout (Aypay, 2011; Hill, 2009). However, parental expectations of success can also be seen as demonstrating trust in a child's ability and competence to achieve success (Aunola et al., 2002; Ommundsen et al., 2006). Parental expectations of success in sports or academics have been defined as the extent to which parents believe that their child has the ability to be successful in academics or sports (Sorkkila et al., 2017). Sorkkila et al. (2017) were the first to examine parental expectations in adolescent student-athletes' dual careers. They found that athletes' and mothers' success expectations for sports and academics, and fathers' success expectations for academics, protected against student-athlete burnout in the matching domain at the beginning of sports high school. However, the association between parental success expectations and student-athletes' career adaptabilities has not been investigated.

Although it is widely understood that parents influence on their children's development and transition to adult life in general, it is not known how parents help talented youth cope with the various challenging situations they experience in sport and schooling. Moreover, there is a lack of knowledge about the associations between individual success expectations, career adaptability, and gender differences in a dual career. This makes individual factors and the influence of parents' expectations on their children's career adaptability would be an interesting topic for research.

3.1. The present study

The following research questions were examined:

- (1) What distinct career adaptability developmental profiles in terms of concern, dual career concern, control, curiosity, and confidence can be identified among youth athletes during their first year of sports high school?
- (2) How do student-athletes' sport and academic success expectations and their corresponding parental expectations relate to their career adaptability profiles?

Since previous studies have shown that academic achievement (Guan et al., 2016; Negru-Subtiriccia & Pop, 2016) and gender (Hirschi, 2009) are related to career adaptability, we controlled for these variables in these analyses. Additionally, as sport achievements may be related to the dual career construct of career adaptability, the level of competition was also controlled for.

4. Method

4.1. Participants and procedures

The present study is a part of the Finnish Longitudinal Dual Career Study (author et al., 2016), which followed adolescent athletes during their sports high school years. A total of 391 student-athletes (51% female, 49% male) from six sports high schools, and 448 parents (42% fathers, 58% mothers) participated in the study. The student-athletes' mean age was 16 years ($SD = 0.17$) at the first measurement point. Half of the participating student-athletes played individual sports (e.g., cross-country skiing, tennis) and half played team sports (e.g., soccer, basketball). They represented their sport at various levels (i.e., regional, national, and international) and had been competing for an average of seven years in their sport. Participants reported that they spent time in their sport and related activities (e.g., time of transportation to training venue or competition) approximately 25 h a week. Demonstrating the demands of the academic level, on average, athletes' grade point average (GPA) on a scale from 4 to 10 was 8.85 at the end of secondary school.

In Finland, after nine years of basic education, students (at the age of 15 or 16) must make a decision regarding their future in the educational system. Students have two options, either high school or vocational education, with high school functioning most often as a step to higher education. Furthermore, educational policy emphasizes high school grades and course selections in tertiary education admission. In Finland, sports high schools are one of the identified DC pathways (Morris et al., 2021) that are recommended for talented athletes who are pursuing the highest level of achievement in their sport. The Ministry of Education and Culture has given an elite sport schools status for these high schools and they have a special national task to nurture elite athletes by organizing and providing structural support for talented athletes to integrate sports with schooling. Admission to these dual career development environments requires, simultaneously, high athletic achievements or high potential in sports and above average academic abilities measured by their grades in the secondary school report. While high school usually lasts for three years, student-athletes have the right to extend their studies from three years to four years.

Before the data collection commenced, ethical approval was received from the ethics board of the relevant university (In Finland, ethical approvals are applied for from University ethics committees). Before participating in the study, the participants signed an informed consent form. The data were collected at school via an online questionnaire or an identical paper questionnaire. The data were collected at two different time points: T1 (autumn of the first year in sports high school) and T2 (spring of the first year in sports high school). Career adaptability, sports and school success expectations were assessed using self-rated scales at each measurement point (T1–T2). Parental success expectations were assessed at time point 1.

5. Measurements

Dual-career adaptability. Dual career adaptability was measured using the Career Adapt-Abilities Scale–Dual Career form (CAAS-DC) (Ryba & Aunola, 2015). The dual career form was developed by adding an additional subscale (dual career concern) to the original CAAS (Savickas and Porfeli, 2012) and further validated (Ryba et al., 2017). The CAAS-DC contains a total of 27 items measuring five dimensions of career adaptability: concern (four items; e.g., *thinking about what my future will be like*), control (six items; e.g., *making decisions by myself*), curiosity (six items; e.g., *observing different ways of doing things*), confidence (six items; e.g., *learning new skills*), and dual career concern (five items; e.g., *concerned about my athletic career*). Earlier research demonstrated that the CAAS-DC had factorial and concurrent validity in a Finnish sports high school sample (Ryba et al., 2017). All items were rated on a five-point Likert scale (1 = *not one of my strongest abilities*; 5 =

one of my strongest abilities). A mean variable for each subscale was created, which indicated competence in that dimension. Cronbach's alphas for the scores of different subscales at the two time points (T1 and T2) in the present study varied between 0.82 and 0.91.

Success expectations in school. The success expectations of athletes in school were assessed using the Success Expectations scale (subscale of the Strategy and Attribution Questionnaire, Nurmi et al., 1995). The scale consists of five items (e.g., *when I start a school assignment, I usually expect that I will succeed*) and is rated on a 4-point scale (1 = *completely disagree*; 4 = *completely agree*). The Cronbach's alphas for the score of this scale were 0.77 at time point 1 and 0.76 at time point 2.

Success expectations in sport. The expectations of success in sports were similarly assessed as school expectations using the Success Expectation Scale (Nurmi et al., 1995), which was modified for the sports context. The scale consisted of five items (e.g., *when I go to training, I usually expect that I will succeed*) measuring an individual's expectations of success in a task without being overly apprehensive of failure. Individuals rated the items on a 4-point scale (1 = *completely disagree*; 4 = *completely agree*). The Cronbach's alphas for the score of this scale were 0.63 at time point 1 and 0.66 at time point 2.

Parental success expectations in school. The Parental Belief Questionnaire (Frome & Eccles, 1998) was used to assess parental success expectations for school. The scale consists of four items measuring skill-specific school beliefs focusing on different school subjects (two items for math and foreign languages; e.g., *how well do you think your child is doing in math/foreign language at the moment in school?*), and two items measuring general school beliefs (e.g., *in general, how well do you think your child is doing at the moment in school?*). The items were assessed on a 4-point Likert scale (1 = *not very well*; 4 = *very well*). Finally, the sum score of the skill-specific and general beliefs was calculated to reference parents' expectations in school. The Cronbach's alpha was 0.90 for general school belief and 0.79 for specific school beliefs.

Parental success expectations in sport. Similar to the way success expectations in school were measured, parents' sports success expectations were assessed using the Parental Beliefs Questionnaire (Frome & Eccles, 1998). The scale was modified for sports. The scale consists of three items (*how well do you think your child is doing at the moment in sports? how well do you think your child will do sports later on?*, and *how well do you think your child is doing in sports compared to peers?*). The items were rated on a 4-point scale (1 = *not very well*; 4 = *very well*). The Cronbach's alpha for parental success expectations in sports was 0.80.

5.1. Analysis strategy

We used latent profile analysis (LPA) with the Mplus (version 8.4) statistical program with MLR estimator (Muthén and Muthén, 1998-2017) to carry out the analyses. To answer our research questions, we first estimated latent class solutions starting from the one-class solution and ending with the six-class solution based on the scores of the five subscales (concern, control, curiosity, confidence, and DC concern) of career adaptabilities at T1 and T2. The model was specified so that the latent classes were allowed to differ in their mean values and variances (Enders & Tofighi, 2008). LPA expects local independence within the classes. Accordingly, the covariances were set to zero between the variables. The specified LPA is a special model of the finite mixture models (Mcachlan & Peel, 2000). The estimation was performed using the full information maximum likelihood estimator, and the standard errors were calculated using the robust estimator. Missing values (covariance coverage varying between 0.93 and 1.0) were supposed to be missing at random (MAR).

We used Bayesian information criteria (BIC) to select the best fitting model from the estimated 1–6 class models. The smaller the BIC, the better the fit of the to the data. For the best fitting model, the average latent class posterior probabilities (AvePP) were calculated, indicating the distinctiveness between classes. Additionally, the Akaike information criterion (AIC), Vuong-Lo-Mendell-Rubin likelihood ratio (VLMR),

and Lo-Mendell-Rubin adjusted likelihood ratio (LMR) were used to find the best fitted model. First, a lower AIC was considered a better fit to the data. Second, significant p-values for VLMR and LMR were used as indicators to reject the model with one less class.

Second, to test differences between latent classes in athletes' and parents' sport- and school-related expectations (i.e. in auxiliary variables), the Bolck-Croon-Hagenaars (BCH) method was used (Asparouhov & Muthén, 2015). In this method, the BCH weights of career adaptabilities were saved to data file in the first step; in the second step, these weights were used to specify the model when testing differences between the latent classes in auxiliary variables. The advantage of this method is that it makes it possible to specify the LPA model and compare the latent classes using auxiliary variables, while the used weights take care of the uncertainty related to the latent classes remaining unchanged. In this step, Wald's test was used as an overall test to assess differences between latent classes in auxiliary variables; for pairwise comparisons, additional parameters were specified.

Finally, we added the covariates—gender, GPA, and the level of competition in sport—to the model to evaluate their impact and to see whether the results would remain the same. Table 1 presents the mean (*M*), standard deviation (*SD*), and bivariate correlations.

6. Results

6.1. Latent profile analysis

The first aim of the study was to determine the types of distinct career adaptability profiles that can be identified among student-athletes during the first year of sports high school (T1 and T2) in terms of concern, DC concern, control, curiosity, and confidence, and how common the identified profiles are in the sample. Statistical criteria (see Table 2) and a theoretical interpretation of the classes supported the five-class solution. The model fit indices and class sizes of the one-to six-class solutions are listed in Table 2. In the selected five-class solution, average posterior probability (AvePP) showed that the latent classes were clearly distinctive with each other. The individual likelihood of belonging to a certain latent class was 0.966, 0.926, 0.921, 0.928, and 0.937, respectively, this indicates that the five-class model provided distinct categorization. Even the two latent classes are small in size, five class solution clearly fits to the data better than four or six class solution. The identified career adaptability profiles for the different subscales are presented in Table 3. The five profiles were labeled according to the mean standardized profile scores as 1) stable very low adaptabilities, 2) stable low adaptabilities, 3) stable moderate adaptabilities, 4) stable high adaptabilities, and 5) increased adaptabilities.

As illustrated in Fig. 1, the stable moderate adaptabilities were the largest profile (38%), as the athletes in this profile demonstrated scores above the sample mean in career adaptability at both T1 and T2. The second largest profile (28%) was the stable low adaptability profile. The athletes in this profile had adaptability scores below the sample mean at both T1 and T2. The third largest profile was high adaptabilities (16%), and athletes in this profile had scores above +1SD the sample mean at both T1 and T2. The fourth largest profile had very low adaptabilities (11%), and student-athletes in this profile had the lowest career adaptability scores, with scores of -1SD below the mean. The fifth largest profile, increased adaptabilities (8%), had scores close to sample means at T1, but scores near +1SD above the sample means at T2.

Some gender differences were evident. Females ($W_T(4) = 11.097$, $p < .05$) were more likely to demonstrate lower adaptability profiles, while males demonstrated higher adaptability profiles. Females had a 64.5% probability of demonstrating profile 1 (stable very low adaptabilities), 52.4% for profile 2 (stable low adaptabilities), 54.8% for profile 3 (stable moderate adaptabilities), 38.8% for profile 4 (stable high adaptabilities), and 34% for profile 5 (increased adaptabilities).

Table 1
Means (M), standard deviations (SD), and bivariate correlations between the study variables.

Variables	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
1 MotherS		.12	.27 ^b	.01	.10	.08	.13 ^a	.08	.08	.07	.17 ^b	.12	.08	.11	.01	.16 ^a	-.02	.16 ^a	
2 MotherSc			.23 ^c	.23 ^c	.41 ^c	.12 ^b	.42 ^c	.12 ^b	.42 ^c	.12 ^b	.42 ^c	.12 ^b	.42 ^c	.12 ^b	.46 ^c	.08	.34 ^c	-.03	
3 FathersS				.35 ^c	.14 ^b	.36 ^c	.14 ^b	.36 ^c	.14 ^b	.36 ^c	.14 ^b	.36 ^c	.14 ^b	.36 ^c	.14 ^b	-.13	.05	-.14	.06
4 FathserSc					.14 ^b	.36 ^c	.14 ^b	.36 ^c	.14 ^b	.36 ^c	.14 ^b	.36 ^c	.14 ^b	.36 ^c	.14 ^b	.45 ^c	.01	.35 ^c	-.05
5 ConcT1						.55 ^c	.54 ^c	.38 ^c	.60 ^c	.39 ^c	.53 ^c	.34 ^c	.65 ^c	.43 ^c	.32 ^c	.21 ^c	.25 ^c	.14 ^b	.14 ^b
6 ConcT2							.36 ^c	.62 ^c	.37 ^c	.59 ^c	.33 ^c	.53 ^c	.43 ^c	.72 ^c	.33 ^c	.23 ^c	.29 ^c	.19 ^c	.19 ^c
7 ConfiT1								.52 ^c	.62 ^c	.40 ^c	.67 ^c	.44 ^c	.64 ^c	.44 ^c	.32 ^c	.23 ^c	.25 ^c	.11a	.11a
8 ConfiT2									.38 ^c	.71 ^c	.41 ^c	.75 ^c	.44 ^c	.76 ^c	.29 ^c	.28 ^c	.30 ^c	.22 ^c	.22 ^c
9 CurioT1										.48 ^c	.64 ^c	.39 ^c	.57 ^c	.40 ^c	.23 ^c	.18 ^c	.17 ^c	.09	.09
10 CurioT2											.40 ^c	.70 ^c	.39 ^c	.67 ^c	.21 ^c	.21 ^c	.15b	.18 ^c	.18 ^c
11 ContT1												.56 ^c	.61 ^c	.39 ^c	.29 ^c	.33 ^c	.21 ^c	.26 ^c	.26 ^c
12 ContT2													.43 ^c	.68 ^c	.23 ^c	.31 ^c	.24 ^c	.32 ^c	.32 ^c
13 DCT1														.52 ^c	.24 ^c	.27 ^c	.18b	.15b	.15b
14 DCT2															.28 ^c	.30 ^c	.26 ^c	.30 ^c	.30 ^c
15 Ind SchoolT11																-.36 ^c	.63 ^c	.22 ^c	.22 ^c
16 Ind ST1																	.34 ^c	.58 ^c	.58 ^c
17 Ind SchoolT2																			
18 Ind ST2																			
M	3.54	5.82	3.49	5.94	2.86	2.98	3.44	3.47	3.05	3.17	3.45	3.47	3.37	3.33	2.59	2.88	2.61	2.90	2.90
Males					2.99	3.09	3.43	3.52	3.10	3.28	3.52	3.53	3.46	3.41	2.68	2.99	2.71	3.00	3.00
Females					2.73	2.87	3.45	3.42	2.99	3.06	3.31	3.37	3.28	3.26	2.49	2.76	2.54	2.79	2.79
SD	.50	1.29	.46	1.29	.80	.83	.69	.75	.73	.72	.73	.78	.76	.73	.53	.46	.50	.46	.46
Males					.81	.84	.67	.77	.74	.75	.71	.77	.72	.74	.50	.45	.52	.44	.44
Females					.78	.83	.70	.73	.72	.70	.74	.80	.78	.74	.54	.45	.49	.46	.46

Note 1. c = $p < .001$, b = $p < .01$, a = $p < .05$

Selfes = Self-esteem, Conc = Concern, Confi = Confidence, Curio = Curiosity, Cont = Control, DC = Dual career concern, MotherS = Mothers' sports success expectations, MotherSc = Mothers' school success expectations, FathersS = Fathers' sports success expectations, FatherSc = Fathers' school success expectations, Ind Scol = Individuals' school success expectations, Ind S = Individuals' sports success expectations, T1 = measurement point 1, T2 = measurement point 2.

Table 2
Comparison of the latent profile analysis solutions with one to six classes for career adaptability (selected solution in bold).

Classes	Free Parameters	Log L	H0 Scaling	BIC	AIC	aLMR	aLMR p -value
1	20	-5419	0.986	10958	10879		
2	41	-4850	1.25	9945	7515	1128	0.0135
3	62	-4588	1.10	9547	7034	519	0.000
4	83	-4447	1.24	9391	6794	279	0.1913
5	104	-4345	1.18	7044	6631	203	0.0254
6	125	-4255	1.25	9258	8761	177	0.5593

Log L = log-likelihood value; BIC = Bayesian information criteria; AIC = Akaike information criterion; aLMR = adjusted Lo-Mendell-Rubin likelihood ratio test.

Table 3
Identified Career Adaptability Profiles and Estimates and Standard Errors (SE; in parentheses) for Different Subscales.

Class	ConcT1	ConcT2	DCT1	DCT2	CurioT1	CurioT2	ContT1	ContT2	ConfiT1	ConfiT2
1	-1.123 (0.104)	-1.018 (0.139)	-1.473 (0.123)	-1.516 (0.126)	-1.126 (0.131)	-1.295 (0.123)	-1.365 (0.135)	-1.784 (0.159)	-1.245 (0.162)	-1.661 (0.165)
2	-0.488 (0.092)	-0.405 (0.097)	-0.483 (0.088)	-0.523 (0.089)	-0.428 (0.080)	-0.275 (0.076)	-0.410 (0.086)	-0.400 (0.086)	-0.551 (0.071)	-0.524 (0.089)
3	0.416 (0.085)	0.503 (0.112)	0.568 (0.142)	0.430 (0.129)	0.566 (0.160)	0.414 (0.102)	0.613 (0.105)	0.639 (0.172)	0.963 (0.256)	0.726 (0.158)
4	1.132 (0.131)	1.286 (0.143)	1.140 (0.096)	1.134 (0.127)	1.112 (0.157)	1.212 (0.160)	1.109 (0.111)	1.186 (0.127)	1.092 (0.106)	1.359 (0.118)
5	0.295 (0.185)	1.431 (0.040)	0.155 (0.170)	0.821 (0.026)	0.136 (0.201)	1.243 (0.060)	0.031 (0.871)	0.871 (0.079)	0.168 (0.179)	0.853 (0.035)

Class 1 = stable very low adaptabilities, Class 2 = stable low adaptabilities, Class 3 = stable moderate adaptabilities, Class 4 = stable high adaptabilities, Class 5 = stable increased adaptabilities.

6.2. Role of student-athletes' and parents' success expectations

The second aim was to examine how student-athletes' expectations of success in school and sport, as well as corresponding parental expectations, relate to their career adaptability profiles. The results showed that students representing different profiles differed significantly from each other in terms of sports and school success expectations and mothers' school success expectations. The results are presented in Table 4. The results showed that the higher success expectations the

athletes reported for sport ($W_T(4) = 37.918, p < .001$), the more likely they were to demonstrate profiles of moderate adaptabilities, high adaptabilities, and increased adaptabilities than to the very low adaptabilities or low adaptabilities profiles. The higher success expectations in school the student-athletes reported ($W_T(4) = 53.699, p < .001$), the more likely they were to demonstrate profiles of moderate adaptabilities, high adaptabilities, and increased adaptabilities than to the very low adaptabilities or low adaptabilities profiles. Further, the results showed that the associations of individual success expectations with

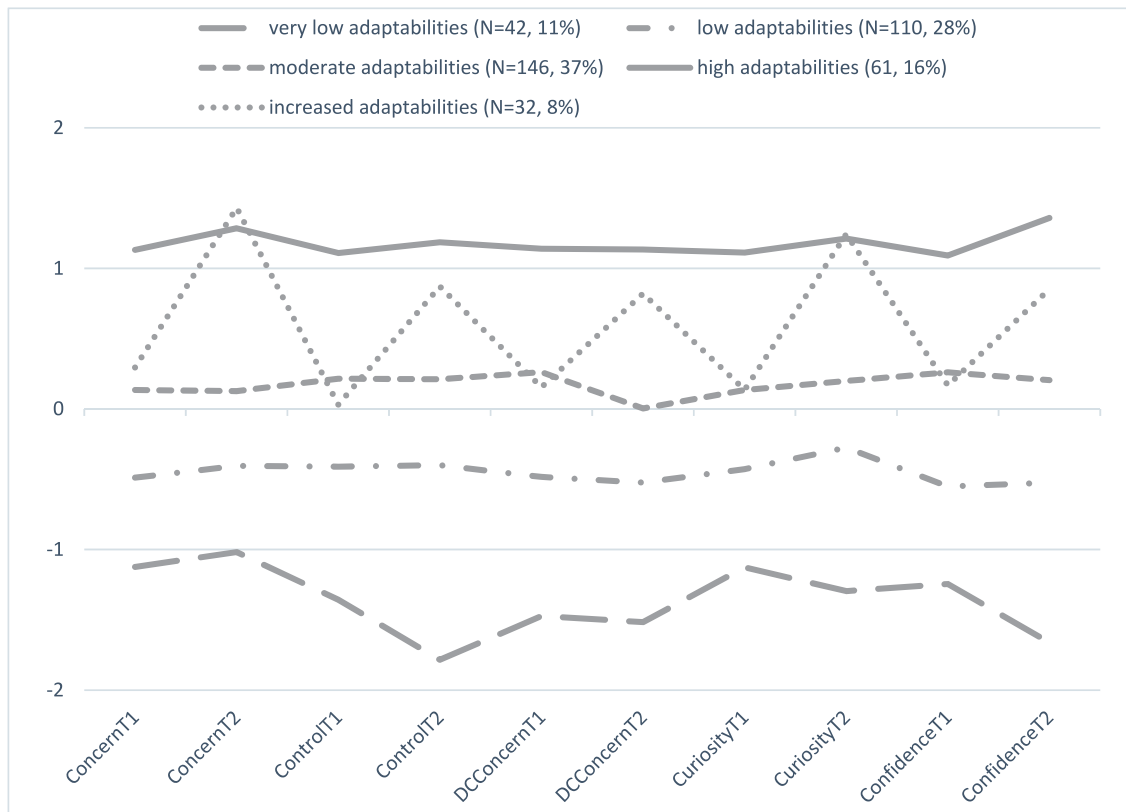


Fig. 1. Identified Career Adaptability Profiles among Student-Athletes across the First Grade of Sports High School. Note. T1 = Time 1 (the Fall of the first grade); T2 = Time 2 (the Spring of the first grade).

Table 4

Athletes' and parents' success expectations in sport and school (means and standard deviations) as predictors of career adaptability profiles, and pairwise comparison between different classes.

Class	Athlete				Mother		Father	
	SportT1 Mean (SD)	SportT2 Mean (SD)	SchoolT1 Mean (SD)	SchoolT2 Mean (SD)	Sport Mean (SD)	School Mean (SD)	Sport Mean (SD)	School Mean (SD)
1	2.559 (0.41)	2.660 (0.44)	2.364 (0.49)	2.394 (0.48)	3.477 (0.45)	5.425 (1.21)	3.400 (0.49)	5.722 (1.30)
2	2.723 (0.41)	2.792 (0.44)	2.470 (0.49)	2.500 (0.48)	3.428 (0.45)	5.633 (1.21)	3.544 (0.49)	5.955 (1.30)
3	2.981 (0.41)	2.982 (0.44)	2.615 (0.49)	2.663 (0.48)	3.627 (0.45)	5.959 (1.21)	3.552 (0.49)	5.949 (1.30)
4	3.111 (0.41)	3.056 (0.44)	2.942 (0.49)	2.861 (0.48)	3.631 (0.45)	6.230 (1.21)	3.413 (0.49)	6.230 (1.30)
5	2.892 (0.41)	2.817 (0.44)	2.643 (0.49)	2.668 (0.48)	3.443 (0.45)	5.907 (1.21)	3.203 (0.49)	6.240 (1.30)
Sport	1 vs 2*, 1 vs 3***, 1 vs 4***, 1 vs 5**, 2 vs 3*, 2 vs 4***, 4 vs 5*							
School	1 vs 3***, 1 vs 4***, 1 vs 5***, 2 vs 3*, 2 vs 4***, 2 vs 5**, 3 vs 4***							
MSchool	1 vs 3*, 1 vs 4***, 1 vs 5*, 2 vs 3*, 2 vs 4***, 2 vs 5*, 3 vs 4*							

Note * $p < .05$, ** $p < .01$, *** $p < .001$.

Class 1 = stable very low adaptabilities, Class 2 = stable low adaptabilities, Class 3 = stable moderate adaptabilities, Class 4 = stable high adaptabilities, Class 5 = increased adaptabilities, MSchool = mothers' school success expectations.

career adaptability profiles remained the same after the covariates (GPA, gender, sport achievement) were added to the model.

The results of mothers' and fathers' success expectations as predictors of adaptability profiles showed that the higher success expectations in school the mother reported ($W_T(4) = 13.712, p < .001$), the more likely the student-athlete was to demonstrate moderate adaptability, high adaptability, and increased adaptability than very low adaptability or low adaptability. Mothers' sport success expectations ($W_T(4) = 6.315, p = .18$), and fathers' sports ($W_T(4) = 9.458, p = .051$) or school ($W_T(4) = 4.428, p = .35$) success expectations were not associated with adaptability profiles. Further, the results showed that the associations of parental success expectations with career adaptability profiles remained the same after the covariates were added to the model.

7. Discussion

This study aimed to extend our understanding of the student-athletes' career adaptabilities by examining what kinds of career adaptability profiles can be identified among youth athletes across the demanding first year of elite sports high school and to what extent athletes' and their parents' success expectations predict the probability of the athlete demonstrating specific career adaptability profiles. Five distinct adaptability profiles were found: stable very low adaptabilities, stable low adaptabilities, stable moderate adaptabilities, stable high adaptabilities, and increased adaptabilities. Furthermore, student-athletes' high success expectations in sports and school were associated with higher adaptability profiles. Mothers' high success expectations in school increased the probability of student-athletes showing higher

adaptability profiles.

The first research question of the current study asked what kinds of distinct career adaptability profiles can be identified among youth athletes during their first year of sports high school. We recognized five distinct career adaptability profiles. In general, the profiles showed relatively stable levels of adaptability across the first school year, and differences between profiles were mainly in the overall level of abilities rather than in change across the school year or in subscales of abilities. This may be explained by the previous findings (Rudolph et al., 2017) suggesting that personality traits contribute to the prediction of career adaptability and that personal-related factors play a role in career adaptability. To qualify for entry into sports high school is very competitive in Finland, in addition to demonstrating superior abilities in sports, athletes also need to perform well academically. Since academic achievement is related to career adaptability (Negru-Subtiricia & Pop, 2016; Rudolph et al., 2017), it could be expected that this group of student-athletes would have demonstrated less variation in their career adaptabilities, resulting in less distinct profiles. Further, the transition stage to high school could be expected to facilitate career-related thinking (Salmela-Aro et al., 2007); however, the profiles identified in our study were mostly stable during the first year of high school. Overall, our study supports the findings of previous studies: that career adaptability is relatively stable in adolescence and that individuals differ in their levels of career adaptability (Hirschi, 2009; Rudolph et al., 2017).

We also recognized one group that demonstrated changes in career adaptabilities across the school year—that is, a group of increased adaptabilities. These findings suggest that career adaptability can be facilitated. However, this group was the smallest, with only 8% of student-athletes demonstrating this profile, and boys had a higher probability of showing this profile than girls. It can be speculated that by the time they entered sports high school, this group may have had a greater focus on sports and that their thoughts concerning a career started to develop during the first year of high school. This could mean that their future plans shift from sports to education-related plans, which is further supported by (Ryba et al., 2017; 2021), suggesting that student-athletes integrate their expectations for the future in a particular pattern that may influence the course of their career and the decisions they make.

Our second research question was set to determine how students' sport and school success expectations relate to their career adaptability profiles. Our findings suggested that the higher the success expectation in school and sports reported by the participants, the higher the levels of adaptability they would demonstrate. As previous research has demonstrated that the concept of success expectations that we used in the current study is closely linked to self-esteem and optimism (Nurmi et al., 1995) and that trait-related optimism and proactive personality are associated with career adaptability (Rudolph et al., 2017), our findings are aligned with the literature. Further, in our study, gender, GPA and student-athletes' sports level were controlled for; however, these did not affect the results, which highlights the fact that personality-related factors play an important role in the development of career adaptability. However, as the GEES –project (Wylleman et al., 2017) found that career planning was not perceived as important as other dual career competencies among student-athletes, our findings could also be explained by the fact that athletes tend to imagine their future options overly optimistically (Ryba et al., 2021). Hence, it is important that student-athletes' external resources assist them in exploring their future possibilities both inside and outside of the sports context.

The fact that sports high school student-athletes' career adaptability is already associated with their success expectations (both in school and sport) at the beginning of sports high school may have consequences for decisions later in life (persistent in DC, course enrolment, and persistence in school). This also supports the interpretation that the extent to which individuals manage to cope successfully with various challenges is influenced by their ways of thinking in related situations. It would be

prudent to develop and enhance the career adaptability of student-athletes who demonstrate stable very low and low adaptability profiles. This may be done by involving student-athletes in career-related activities and encouraging them to explore different career-related roles (Savickas, 2013). Additionally, such support seems to educate student-athletes about their future possibilities in sports and also to enhance their sport expectations. Although student-athletes have been shown to be more successful in academics than general students (Storm & Eske, 2021), student-athletes' involvement in career construction is important in countries such as Finland, where secondary education academic results influence tertiary education admissions (see also Korhonen et al., 2020). For student-athletes to pursue dreams outside of sports and to achieve holistic development, it is important for external support providers to understand the value of dual careers as a part of a lifelong development that begins with secondary education.

Our second research question was subsequently set to determine how parental success expectations in school and sport relate to student-athletes' career adaptability profiles. First, the results showed that mothers' school-related success expectations in this study were associated with their offspring's adaptability profiles. This is in line with previous studies (Guan et al., 2016; Hargrove, 2002; Bryant, 2006), which found that the support provided by parents is positively related to career-related activities. In addition to assisting in setting career-related goals and facilitating vocational planning (Bryant, 2006), our study suggests that it is important that parents support adolescents' (especially those who demonstrate low career adaptabilities) belief in their own abilities in the school domain. Previous literature suggests that adolescents could be effectively supported in the school domain by demonstrating maternal affection (e.g., responsiveness, involvement, acceptance, supportiveness) (Aunola et al., 2018), thereby increasing their offspring's career adaptability. However, to involve parents, especially mothers, it should be taken into consideration that maternal affection is not combined with psychological control (Aunola et al., 2018) or that the demands do not increase too much (Aypay, 2011). For example, Sorkkila et al. (2017) found that a high mother's success expectations in school increased the likelihood that athletes demonstrated a severe burnout profile.

Second, we found that fathers were not involved in adolescents' vocational development to the same extent as their mothers. Moreover, either mothers' or fathers' sports success expectations did not predict the likelihood of their child demonstrating a specific profile. As has been shown previously (Tessitore et al., 2020), this study supports the finding that fathers are not involved in adolescents' vocational development to the same extent as mothers. This may be because values and interests are socially constructed (Savickas, 2005) and mothers tend to have roles that include school-related activities. Although career adaptability in our study was associated with internal sports expectations, it seems that external success expectations in sports do not contribute to the development of career adaptability. Overall, the results suggest that, in the context of DC, mothers' attitudes toward school in particular may play a role in career adaptability development. However, it can only be speculated whether parents' high involvement (Wuerth et al., 2004) and support for emotional regulation in sports (Tessitore et al., 2020) facilitates student-athletes' sports success expectations and further career adaptability.

In the present study, we controlled for GPA, gender, and level of competition. GPA and level of competition were not found to be associated with the typicality of any profile. Some gender differences were, however, evident: In line with the previous literature (e.g., Hirschi, 2009), boys were more likely than girls to show high adaptability and increased adaptability profiles. One explanation for this finding could be that boys have shown to demonstrate higher perceived self-esteem during early adolescence (Baldwin & Hoffman, 2002), which is further associated with career adaptability. Moreover, career adaptability may be related more to the perception of one's own abilities, which could explain why boys demonstrated higher career adaptability. Girls and

young women, who may be under pressure to be “superwomen” (Ryba et al., 2021), may therefore benefit more from self-care and empowerment rather than career-related activities per se. Additionally, there should be more sports opportunities for female athletes, which could increase their dual career adaptability. For example, only 1.6% of professional athletes in Finland are women (Research Institute for Olympic Sports, 2018). It may be necessary to target support for girls and involve them in dual career-related activities to increase their psychological resources and continuation of DC by supporting their belief also in future sport-related achievements.

7.1. Evaluation of the study

This study has several strengths. First, it was able to provide new knowledge about individual differences in career adaptability among student-athletes and the role of individual and parental success expectations in these. Second, we collected data from a large sample of student-athletes, fathers, and mothers. Third, career adaptabilities were assessed longitudinally, making it possible to identify possible changes and stabilities in abilities across time. Fourth, this study extends the previous findings of the ongoing longitudinal dual career project by focusing on a relatively new construct of career adaptability and skills related to career construction. Furthermore, previous studies related to career construction among student-athletes have been mostly qualitative in nature (e.g., Ryba et al., 2017; 2021).

However, this study has several limitations. First, as the latent classes were clearly distinctive with each other, the found five latent classes of career adaptability can be generalized to the population of Finnish sports high school student-athletes. Furthermore, as achievements in sport and education (GPA) were controlled for when predicting adaptability profiles with student-athletes' and their parents' expectations, the results can be generalized across achievement and competition levels among sports high school student-athletes in Finland. However, in order to find out whether similar profiles and predictions can be found in other dual career environments (e.g., among student-athletes in vocational school environments) or in other cultures, future studies are needed. Second, we had only two measurement points. While career adaptability seems to be relatively stable during the first year of high school, the secondary school phase should be covered to study the development of career adaptability in adolescence. This would provide information on which factors contribute to the development of career adaptability and how it could be facilitated. Second, although success expectations seem to be associated with the career adaptability profiles, career adaptability may also influence success expectations. Therefore, future studies should investigate the predictors and developmental trajectories of career adaptability among student-athletes throughout the sports high school years. Fourth, the Cronbach's alpha for the scale of individual success expectations in sports was relatively low. This may be due to the number of items (five items) used to measure expectations (See Wells & Wollack, 2003). Therefore, it would be valuable to replicate this study using a scale that shows higher reliability.

8. Conclusion

Overall, the findings of the present study suggest that the profiles of career adaptability differ mainly in the general level of adaptabilities rather than at the level of any specific adaptability, or in the pattern of change across the school year. This suggests that support and training for career-related skills for student-athletes should be individually targeted on dual careers early in the year or even before high school. Moreover, not only students' high school expectations, but also high sports expectations, are related to career adaptability indicating that student-athletes career related skills are not only facilitated by education-related beliefs, but also by sports beliefs. Similarly, mothers' high expectations concerning student-athletes' school success constitute an important factor in supporting student-athletes' dual careers. Finally,

gender differences should be considered when supporting student-athletes. Particularly, the findings of the present study suggest that female student-athletes' might benefit from support to their belief in their own abilities and future possibilities, in school as well in sports.

Declaration of competing interest

All authors have participated in design, analysis and interpretation of the data. Further, all authors have participated in drafting and revising the article critically for important intellectual content. I confirm that this manuscript meets the ethical publication standards and follows the ethical guidelines. All authors have approved the manuscript and agree with its submission to *Psychology of Sport and Exercise*. This manuscript has not been submitted to, nor is under review at, another journal or other publishing venue. Given their role as an Editorial Board member, Ryba T.V. had no involvement in the peer-review of this article and had no access to information regarding its peer-review. All other authors have no affiliation with any organization with direct or indirect financial interest in the subject matter discussed in the manuscript.

References

- Asparouhov, T., & Muthén, B. (2015). Auxiliary variables in mixture modeling: Using the BCH method in Mplus to estimate a distal outcome model and arbitrary secondary model. *Mplus Web Notes*, 21.
- Aunola, K., Nurmi, J. E., Niemi, P., Lerkkanen, M. K., & Rasku-Puttonen, H. (2002). Developmental dynamics of achievement strategies, reading performance, and parental beliefs. *Reading Research Quarterly*, 37(3), 310–327.
- Aunola, K., Sorkkila, M., Viljaranta, J., Tolvanen, A., & Ryba, T. V. (2018). The role of parental affection and psychological control in adolescent athletes' symptoms of school and sport burnout during the transition to upper secondary school. *Journal of Adolescence*, 69, 140–149.
- Aypay, A. (2011). Elementary student burnout scale for grades 6-8: A study of validity and reliability. *Educational Sciences: Theory and Practice*, 11(2), 520–527.
- Baldwin, S., & Hoffman, J. (2002). The dynamics of self-esteem: A growth-curve analysis. *Journal of Youth and Adolescence*, 31(2), 101–113.
- Bryant, B. K., Zvonkovic, A. M., & Reynolds, P. (2006). Parenting in relation to child and adolescent vocational development. *Journal of Vocational Behavior*, 69, 149–175.
- Condello, G., Capranica, L., Doupona, M., Varga, K., & Burk, V. (2019). Dual-career through the elite university student-athletes' lenses: The international FISU-EAS survey. *PLoS One*, 14(10), e0223278. <https://doi.org/10.1371/journal.pone.0223278>.
- Enders, C. K., & Tofighi, D. (2008). The impact of misspecifying class-specific residual variances in growth mixture models. *Structural Equation Modelling*, 15, 75–95. <https://doi.org/10.1080/10705510701758281>
- EU Guidelines on Dual Careers of Athletes. (2012). *Recommended policy actions in support of dual careers in high-performance sport*. Brussels: Sport Unit of the Directorate-General for Education and Culture of the European Commission.
- Frome, P. M., & Eccles, J. S. (1998). Parents' influence on children's achievement-related perceptions. *Journal of Personality and Social Psychology*, 74, 435–452.
- Guan, P., Capezio, A., Restubog, S. L. D., Read, S., Lajom, J. A., & Li, M. (2016). The role of traditionalism in the relationships among parental support, career decision-making self-efficacy and career adaptability. *Journal of Vocational Behavior*, 94, 114–123.
- Guidotti, F., Cortis, C., & Capranica, L. (2015). Dual career of European student-athletes: A systematic literature review. *Kinesiology Slovenica*, 21(3), 5–20.
- Hargrove, B. K., Creagh, M. G., & Burgess, B. L. (2002). Family interaction patterns as predictors of vocational identity and career decision-making self-efficacy. *Journal of Vocational Behavior*, 61, 185–201.
- Hirschi, A. (2009). Career adaptability development in adolescence: Multiple predictors and effect on sense of power and life satisfaction. [Online magazine]. *Journal of Vocational Behavior*, 74, 145–155.
- Hirschi, A., & Valero, D. (2015). Career adaptability profiles and their relationship to adaptivity and adapting. *Journal of Vocational Behavior*, 88, 220–229. <https://doi.org/10.1016/j.jvb.2015.03.010>
- Johnston, C. S. (2018). A systematic review of the career adaptability literature and future outlook. *Journal of Career Assessment*, 26(1), 3–30.
- Kavoura, A., Kokkonen, M., Chroni, S., & Ryba, T. V. (2018). “Some women are born fighters”: Discursive constructions of a fighter identity by female Finnish judo athletes. *Sex Roles*, 79(3–4), 239–252. <https://doi.org/10.1007/s11199-017-0869-1>
- Korhonen, N., Nikander, A., & Ryba, T. V. (2020). Exploring the life form of a student athlete afforded by a dual career development environment in Finland. *Case Studies in Sport and Exercise Psychology*, 4(1). <https://doi.org/10.1123/cssep.2020-0005>
- Mcachlan, G., & Peel, D. (2000). *Finite mixture models*. John Wiley.
- Muthén, L. K., & Muthén, B. O. (1998-2017). *Mplus user's guide* (8th ed.). Muthén & Muthén.
- Negru-Subtiricua, O., & Pop, E. I. (2016). Longitudinal links between career adaptability and academic achievement in adolescence. *Journal of Vocational Behavior*, 93, 163–170.

- Nurmi, J.-E. (2014). Socialization and self-development: Channeling, selection, adjustment, and reflection. In R. Lerner, & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed., pp. 85–124). Wiley.
- Nurmi, J.-E., Salmela-Aro, K., & Haavisto, T. (1995). The Strategy and attribution questionnaire: Psychometric properties. *European Journal of Psychological Assessment*, 2, 108–121.
- Research Institute for Olympic Sports. (2018). *Ammattilaisurheilijoiden määrä tasaissa kasvuissa*. <https://kihu.fi/arviointi-ja-seuranta/ammattilaisurheilijoiden-maara-tasaissa-kasvuissa/>.
- Rudolph, C. W., Lavigne, K. N., Katz, I. M., & Zacher, H. (2017). Linking dimensions of career adaptability to adaptation results: A meta-analysis. *Journal of Vocational Behavior*, 102, 151–173.
- Ryba, T. V., & Aunola, K. (2015). *Constructing the dual career adapt-ability scale*. Unpublished material. University of Jyväskylä.
- Ryba, T. V., Aunola, K., Kalaja, S., Selänne, H., Ronkainen, N. J., & Nurmi, J.-E. (2016). A new perspective on adolescent athletes' transition into upper secondary school: A longitudinal mixed method study protocol. *Cogent Psychology*, 3(1), 1142412–1142415.
- Ryba, T. V., Ronkainen, N., Douglas, K., & Aunola, K. (2021). Implications of the identity position for dual career construction: Gendering the pathways to (Dis)continuation. *Psychology of Sport and Exercise*, 53(3). <https://doi.org/10.1016/j.psychsport.2020.101844>
- Ryba, T. V., Stambulova, N. B., Selänne, H., Aunola, K., & Nurmi, J. E. (2017). "Sport has always been first for me" but "all my free time is spent doing homework": Dual career styles in late adolescence. *Psychology of Sport and Exercise*. <https://doi.org/10.1016/j.psychsport.2017.08011>
- Ryba, T. V., Zhang, C.-Q., Huang, Z., & Aunola, K. (2017). Career adapt-abilities scale–Dual career form (CAAS-DC): Psychometric properties and initial validation in high-school student-athletes. *Health Psychology and Behavioral Medicine*, 5(1), 85–100.
- Salmela-Aro, K., Aunola, K., & Nurmi, J.-E. (2007). Personal goals during emerging adulthood: A 10-year follow up. *Journal of Adolescent Research*, 22(6), 690–715.
- Savickas, M. L. (2005). The theory and practice of career construction. In S. D. Brown, & R. W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (pp. 42–70). John Wiley & Sons, Inc.
- Savickas, M. L. (2013). Career construction theory and practice. In S. D. Brown, & R. W. Lent (Eds.), *Career development and counseling: Putting theory and research to work* (2nd ed., pp. 42–70). Wiley.
- Savickas, M. L., & Porfeli, E. J. (2012). Career adapt-abilities scale: Construction, reliability, and measurement equivalence across 13 countries. *Journal of Vocational Behavior*, 80, 661–673.
- Sorkkila, M., Ryba, T. V., Selänne, H., & Aunola, K. (2017). A person-oriented approach to sport and school burnout in adolescent student-athletes: The role of individual and parental expectations. *Psychology of Sport and Exercise*, 28, 58–67.
- Sorkkila, M., Ryba, T. V., Selänne, H., & Aunola, K. (2020). Development of school and sport burnout in adolescent student-athletes: A longitudinal mixed-method study. *Journal of Research on Adolescence*, 30(S1), 115–133. <https://doi.org/10.1111/jora.12453>
- Stambulova, N. B., & Wylleman, P. (2015). Dual career development and transitions. *Psychology of Sport and Exercise*, 21, 1–3.
- Stambulova, N. B., & Wylleman, P. (2019). Psychology of athletes' dual careers: A state-of-the-art critical review of the European discourse. *Psychology of Sport and Exercise*, 42, 74–88.
- Storm, R. K., & Eske, M. (2021). Dual career and academic achievements: Does elite sport make a difference? *Sport, Education and Society*. <https://doi.org/10.1080/13573322.2021.19119070>
- Super, D. E., Savickas, M. L., & Super, C. (1996). The life-span, life-space approach to careers. In D. Brown, & L. Brooks (Eds.), *Career choice and development* (3rd ed., pp. 121–178). Jossey Bass.
- Tessitore, A., Capranica, L., Pesce, C., De Bois, N., Gjaka, M., Warrington, G., Mac Donncha, C., & Doupona, M. (2020). Parents about parenting dual career athletes: A systematic literature review. *Psychology of Sport and Exercise*. <https://doi.org/10.1016/j.psychsport.2020.101833>
- Wells, C. S., & Wollack, J. A. (2003). *An instructor's guide to understanding test reliability*. Testing and evaluation services publication, University of Wisconsin.
- Wuerth, S., Lee, M. J., & Alfermann, D. (2004). Parental involvement and athletes' career in youth sport. *Psychology of Sport and Exercise*, 5(1), 21–33. [https://doi.org/10.1016/S1469-0292\(02\)00047-X](https://doi.org/10.1016/S1469-0292(02)00047-X)
- Wylleman, P., De Brandt, K., & Defruyt, S. (2017). *Gold in education and elite sport (GEES): Handbook for dual career support providers*. https://kics.sport.vlaanderen/topsport/Documents/170301_GEES_Handbook_for_dual_career_support_providers.pdf.



III

FROM ATHLETIC TALENT DEVELOPMENT TO DUAL CAREER DEVELOPMENT? A CASE STUDY IN A FINNISH HIGH PERFORMANCE SPORTS ENVIRONMENT

by

Aku Nikander, Noora Ronkainen, Natalia Korhonen, Milla Saarinen & Tatiana V.
Ryba, 2022

International Journal of Sport and Exercise Psychology, 20(1), 245-262

<https://doi.org/10.1080/1612197X.2020.1854822>

Reproduced with kind permission by Routledge.

From athletic talent development to dual career development? A case study in a Finnish high performance sports environment

J. A. O. Nikander, N. J. Ronkainen , N. Korhonen, M. Saarinen and T. V. Ryba 

Department of Psychology, University of Jyväskylä, Jyväskylä, Finland

ABSTRACT

The focus of dual career (DC) research has shifted from exploring individual experiences within *Athletic Talent Development Environments* (ATDEs) toward understanding the impact of the environment and the broader cultural context on individuals' developmental trajectories in *Dual Career Development Environments* (DCDEs). To comply with national and EU recommendations for socially responsible elite sport, many successful ATDEs list DC as one of their primary values and advertise themselves as DCDEs in order to attract more athletes. The present study aimed to evaluate whether and how a talent development environment for youth athletes in Finland has transformed from an ATDE to DCDE by exploring the environment's success factors and organisational culture. This study is grounded in the theoretical framework of *Holistic Ecological Approach* and follows the *Real-Time Case Method*. Principal methods of data collection included interviews, observations, and documents. The results indicated that the environment was characterised by an incoherent organisational culture, and the environment was identified as an ATDE rather than a DCDE. We suggest that for the Finnish sports environment to successfully transform into a functioning DCDE, changes in the organisational culture are necessary and DC recommendations should be integrated into the environment to provide resources for student-athletes to develop a balanced life and the prerequisites to succeed in future endeavours.

ARTICLE HISTORY

Received 24 May 2020
Accepted 6 October 2020

KEYWORDS

Development environment;
organisational culture; youth
athletes; dual career; critical
realism

Integration of sport with education or work has been termed dual career (DC) in the European sport psychology discourse. It has been argued that developing a DC would provide athletes with resources and competencies to combine different domains of life, help create a balanced lifestyle, and improve well-being (Linnér et al., 2019; Stambulova et al., 2015). However, DC pathways are also associated with potential challenges, such as fatigue, role strain, and scarce social life, for the student-athletes attempting to find a balance between the different demands (Condello et al., 2019; Stambulova et al.,

CONTACT J. A. O. Nikander  aku.j.o.nikander@jyu.fi  Department of Psychology, University of Jyväskylä, Jyväskylä, Finland

© 2020 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group
This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

2015). Thus, DC athletes would benefit from a supportive environment that provides DC competencies (e.g., planning, management, adaptability), focus on the whole person, and where individuals from different domains work together (De Brandt et al., 2018; Knight et al., 2018; Linnér et al., 2019). Since the European Commission (2012) published the DC guidelines for environments adopting talent development policies, subsequent research on environmental influences has mainly focussed on the actors in the student-athletes' microenvironment (e.g., peers, coaches, and teachers) that underpin the athletes' development (Stambulova & Wylleman, 2019).

In a recent review, Stambulova and Wylleman (2019) recommended that DC research should adopt a holistic environment approach and the *Holistic Ecological Approach* (HEA) has been suggested as being key to broaden the understanding of the social factors that influence student-athletes' developmental trajectories (Henriksen et al., 2020). Originally, Henriksen et al. (2010) introduced the HEA in athletic talent development research to examine *Athletic Talent Development Environments* (ATDEs), and recently, the Erasmus+ Sport project Ecology of Dual Career (ECO-DC) used the HEA to understand the *Dual Career Development Environments* (DCDEs) across Europe. Whereas ATDEs aim to guide talented athletes to reach the highest levels in their respective disciplines (Henriksen & Stambulova, 2017), DCDEs aim to encourage athletes to combine their sporting pursuits with education or work (Morris et al., 2020). Henriksen et al. (2020) consequently implemented the HEA in the study of a Danish athlete-friendly university and found that a successful environment (a) had a DC support team working to integrate efforts; (b) arranged individual solutions and facilitates athletes' choices through inspiring stories; (c) connected student-athletes via narrative resources; (d) taught student-athletes DC skills and encouraged them to take responsibility for balancing their DC endeavours; and (e) had a philosophy that puts sports first and recognised that finding a balance is a process and that student-athletes must be seen as whole persons.

Küttel et al. (2018) conducted a cross-national research emphasizing that when the new DC guidelines are applied at a national level, it is important to be aware of the gatekeepers' (those who have the power to decide who gets particular resources) tendency to base DC actions on their basic assumptions—in other words, on their taken-for-granted beliefs and feelings (Schein, 1990). Thomsen and Nørgaard (2018) found that many sports clubs expressed inconsistent statements and used education as a strategic instrument to recruit the most talented athletes. Henriksen et al. (2014) reported similar statements from a study of a less successful ATDE, where managers and coaches highlighted that they have a balance between students' sport and academic development, however, they found an incoherent organisational culture that failed to provide guidelines on how a student-athlete should develop in different domains. This suggests that sports environments might brand themselves as being something they are not (e.g., advertise themselves as DCDEs) by using rhetoric that follows the recommendations in order to attract more athletes. However, a real transformation of an environment requires changes in its organisational culture (Schein, 1990).

The European Commission (2012) advocates for the responsibility in supporting athletes in preparing for life after sport. A shift in focus from the individual student-athletes to the whole environment (i.e., study domain, sports domain, and private life domain) facilitates a broader understanding of the student-athletes developmental trajectories in DCDEs and the functioning of the environment. The field of DCDEs is relatively unexplored and

while the recommendations and demands for changes in organisational culture have originated at the top (European Commission, 2012; Finnish Olympic Committee, 2020), no previous research has examined how the talent development environments have integrated and implemented the DC guidelines. To evaluate whether and how an ATDE for youth athletes in Finland has transformed into a DCDE, we examined the current environment of a Finnish sports academy. The study was guided by the following research questions: (a) What is the organisational culture of the Finnish sports academy? (b) How is DC development organised in this academy? (c) What are this academy's DC success factors?

Theoretical framework

This study is based on the HEA inspired by the *ecological psychology* (Bronfenbrenner, 1979) of human development. The aim of the HEA is to extend the understanding of athlete development from the individual level to the environment level. Based on the HEA, Henriksen et al. (2010) developed the *Environment Success Factors* (ESF) model. Furthermore, Henriksen et al. (2020) presented a *Dual Career Environment Success Factors* (DC-ESF) model, where organisational culture is substituted by a DC philosophy (integrated set of key ideas and values) that describes how DC support should be organised to increase the effectiveness of dual career development environments. However, we have chosen to use the organisational culture from the original ESF framework (Henriksen et al., 2010) as we feel that organisational culture is vital in reaching our study aims. Hence, our model is a combination of the original ESF model and the DC-ESF model (Figure 1). The working model first illustrates the preconditions (e.g., finances, facilities, and human resources) that are available at the environment and the reasons for student-athletes to apply to the studied environment. Processes including activities, coordination, and support services are daily functions that, together with the organisational culture (Schein, 1990), affect the individual development of the student-athletes. The aforementioned elements contribute to the levels of success, effectiveness (success in producing desired outcomes), and efficiency (ability to accomplish a job with a minimum expenditure of time and effort) in the environment (European Commission, 2017). According to the European Commission (2017), when evaluating efficiency of the DCDEs, DC service providers should consider the ability to provide resources efficiently, the communication between stakeholders, and the policies and procedures to help resolve problems experienced in the DC. Finally, the ESF model is based on the organisational psychology of Schein (1990). Therefore, we have chosen to define organisational culture as

a pattern of shared basic assumptions that the group learned as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way of to perceive, think, and feel in relation to these problems. (Schein, 1990, p. 111)

Moreover, organisational culture in the ESF model consists of three levels: artifacts, espoused values, and basic assumptions. Artifacts are the physical manifestations of the environment, including visible organisational structures and processes. Espoused values are explanations of what the environment aims for (goals, strategies, and philosophies). Underneath the artifacts and espoused values are the unconscious actions, and resistant to change values, known as the basic assumptions.

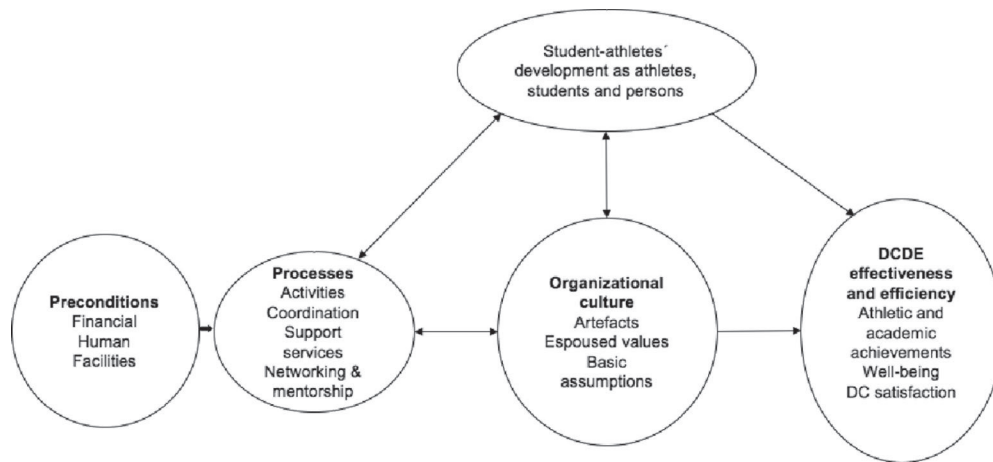


Figure 1. The dual career ESF working model.

Organisational culture change has become a tool for sport psychology practitioners to improve elite team environments (Cruickshank et al., 2015; Henriksen & Stambulova, 2017). The motivation to change culture could arise because the new culture is expected to be more successful or the new culture is imposed from above. However, scholars (Maitland et al., 2015; McDougall et al., 2019) have noted that culture is treated as an easily transformable entity that can be manipulated by practitioners in sports, whereas organisational culture scholarship (Asch & Graeme, 2002) outside of sport has pointed out that culture change is often anything but a straightforward process and is likely to involve resistance. In this study, we see culture as dynamic (top-down processes also work bottom-up) and multi-level (national culture affects organisations, which further affect individuals' values and beliefs) construct and recognise that the history of an environment influences its functions (Martin, 2002).

Methods

The present study is based on the data collected from a project (ECO-DC) that received ethical approval from the Ethics Committee of the Liverpool John Moores University and University of Jyväskylä. We selected the case study design to investigate the Finnish sports academy and its complexity within a real-life context from multiple perspectives and to develop a deep understanding of its holistic and meaningful characteristics (Hodge & Sharp, 2016). The present study was organised as a qualitatively oriented instrumental case—that is, “the case is of secondary interest, it plays a supportive role, and it facilitates our understating of something else” (Stake, 2005, p. 445). In other words, we attempted to gain insight into how DC recommendations are implemented to produce culture change in a sport environment (i.e., the sports academy). We acknowledge that the present study may not provide context-independent guidelines to be followed across environments, however, it can provide actors in the field of DC with an example (Flyvbjerg, 2006).

We positioned this study within the philosophical realm of critical realism, since we aimed to explain social-psychological phenomena in a Finnish sports academy. Critical

realism is one perspective within the broader umbrella of realist approaches that subscribe to an assumption that there is a reality independent of our knowledge of it (ontological realism) while maintaining that all our knowledge is fallible and theory-laden (epistemological constructivism). The critical realist approach presented here uses Bhaskar's (1989) stratified ontology. According to the Bhaskar (1989) the world has three overlapping levels: empirical level (i.e., observed experiences and events); actual level (i.e., unobserved but occurring experiences); and real level (i.e., unobservable causal powers). Critical realism is especially relevant when studying emergent psychological processes in a particular socio-cultural context (Ryba et al., 2016, 2020), and complex phenomena such as organisational culture (Maxwell, 2017). Furthermore, Wiltshire (2018) stated that critical realism has the potential to produce impactful research (i.e., positive influence on the public policy or culture) by directing researchers to focus on explaining the enduring social relations that produce real-world problems.

Using the HEA, we investigated the sports academy holistically, focussing on key agents in three domains of the environment: sport, study, and private life. The ESF working model was used to understand and explain the transformation of the environment from an ATDE into a DCDE. This was accomplished by employing the ESF working model as a theoretical basis and changing it into an empirical model based on the evaluation of the empirical data collected in the environment (Henriksen & Stambulova, 2017).

The selection process and the introduction of the sport environment

According to the Finnish Olympic committee's website (2020), there are 20 sports academies in Finland. We used an information-oriented case selection method—that is, we chose an academy that had been established before DC policies were implemented—in order to study how the Finnish sports academy has transformed from an ATDE into a DCDE. The high school that operates alongside the academy is a middle-sized institution (housing about 300 students), whose student body is composed of both student-athletes and non-athlete students. Student-athletes live either in the dormitories or in private housing. Student-athletes and coaches chosen for the case study represented a respected endurance sport that requires a high volume of training. The participants (Table 1) of the study comprised coaches, teachers, student-athletes, the principal of the school (a gatekeeper), a school counsellor, a mental trainer, a dormitory attendant (i.e., a person who supports student-athletes in the dormitory), and the head of the academy (a gatekeeper). Participants were given pseudonyms, and recognisable information about the environment has been kept to a minimum to maintain confidentiality.

Interviews

The first and third authors conducted semi-structured interviews in the environment. The semi-structured interview guides that were created by the ECO-DC consortium and translated by the third author allowed the gathering of data on key items while simultaneously leaving participants with more freedom to reflect and discuss topics excluded from the guide. The interviews covered the thematic areas of environmental resources (e.g., how would you describe the main resources of this DC environment?), social support (e.g., who do you consider as key helping persons in your effort to combine sport and

Table 1. Overview of data collection.

Observations Place	Activities observed	Informal interviews
At the school (12 h)	Classes and teaching with student and non-student athletes Everyday interaction School activity and behaviour	Mental trainer Dormitory attendant 11 student-athletes 1 former student-athlete
Dormitory (1 h)	Student-athlete free time activities Student-athlete behaviour	2 coaches
At the sports academy (6 h)	Training and coaching Meetings Everyday interaction	
At the competitions (5 d)	Coaching and student-athlete behaviour	
Semi-structured interviews		
Interviewee	Time	Place
High school principal	45 min	Sports academy cafe
The head of the academy	50 min	Meeting room
Teacher Jaana	37 min	Classroom
Teacher Milla	54 min	Classroom
Teacher Emmi	58 min	Cafe
Student counsellor Pihla	150 min	Phone
Student athlete Miika	21 min	Sports hotel cafe
Student athlete Johanna	46 min	Sports hotel cafe
Student athlete Viljami	38 min	Sports hotel cafe
Student athlete Anniina	33 min	Meeting room
Student athlete Tanja	48 min	Meeting room
Student athlete Paavo	25 min	School building
Coach Juuso	50 min	Sports hotel cafe
Coach Mika	49 min	Meeting room
Document analysis		
Class schedule, website (school, academy, municipality), reports of the statistics of the sports academy (e.g., graduation rates, medal results, number of elite athletes) social media, race results.		

school), and the culture of the environment (e.g., how would you describe the values and attitudes regarding the DC in this environment?). All participants were provided with a consent form prior to being interviewed and were informed of the objectives of the study as well as of their right to withdraw at any given time.

Observations

In an attempt to achieve contextual sensitivity, we also employed participant observation (Spradley, 1980). According to Tangaard (2006), participant observation is a suitable method to research social relationships because it enables the observation of a phenomenon or a participant under more authentic circumstances and aids in understanding the culture in more depth. For the observations, we spent a total of 11 h at the school, 5 days at competitions, 6 h at practice, and 1 h at the dorms. These hours consisted of informal talks with student-athletes, coaches, and teachers as well as observations of interactions between the actors in different situations (classroom, competitions, and practice). The first author, who has a background in sports coaching, observed coaches and student-athletes during practice, competitions, and student-athletes' social events. The third author, whose background is in education, observed teachers and student-athletes within the school as well as at the dormitory. Notes were taken after observations and were used as data items in the thematic analysis.

Analysis of documents

Archives and documents were also employed as a substantial data source. The academy's and school's social media accounts, websites (of the school, the academy, and the municipality), the academy's training plans, competition results, class schedules, bus schedules, and the summary of the statistics of DCDEs in Finland obtained from the Research Institute for Olympic Sports (2019) were juxtaposed with interviews and observations in order to understand the essential features of the environment's success factors.

Data analysis and interpretation

The data were analyzed by using thematic analysis at the latent level (Braun et al., 2016). Thematic analysis was connected to the data-driven and theory-driven processes. This approach was chosen to understand participants' experiences and find out whether these experiences could be understood according to the theoretical framework of the HEA (Henriksen et al., 2010) and the organisational culture (Schein, 1990). In line with our critical realist approach, the generation of themes was influenced by the three levels of ontology (Wiltshire & Ronkainen, [under review](#)).

The first author read actively through all the transcribed interviews several times to become familiar with the data. In the data-driven coding, the data was sorted into codes, which represented the most basic unit of data (e.g., "going to school interferes recovery"). At this stage, it was possible to look for demi-regularities and similar excerpts found in the transcripts were segmented into themes (e.g., the previous quote was categorised under the theme *athletes skip and come late to class*), which comprised a collection of quotes expressing participants' experiences. In critical realist approach, these themes can be described as empirical themes attempted to describe participant's intentions, hopes, concerns, feelings and beliefs as they are evident in the data (Wiltshire & Ronkainen, [under review](#)). Next, the first author moved from descriptive statements to a plausible statements and empirical themes were developed into inferential themes (Wiltshire & Ronkainen, [under review](#)). Inferential themes refer to inferences and conceptual redescrptions. For example themes *athletes skip and come late to class* (i.e., participants expressed that going to school interferes with their recovery) and *inspiration by the alumni's achievements* (i.e., participants expressed that they believed that being in the environment makes it possible to reach the elite level) developed in to the inferential theme *we make (athletic) stars* (i.e, being part of the environment provided a promise of reaching elite level and guided athletes on how to live). Finally, the empirical themes and inferential themes were categorised into the ESF working model. The analysis for all the participants was compared for similarities, differences, and patterns in the data, which were synthesised to describe the preconditions, processes, artifacts, espoused values, basic assumptions, and environment effectiveness and efficiency (e.g., *we make stars* was categorised under basic assumptions). The initial empirical ESF model (Henriksen et al., 2010, 2020) and the mapping of Schein's three levels of organisational culture were based on the discussions and the interpretations of the first, third, and fifth author, and was later modified based on the data-driven and theory-driven processes.

We considered the quality of research to be in line with a realist perspective (Ronkainen & Wiltshire, 2019), and our consideration of quality was aligned with the assertion that

some interpretive accounts can be more accurate than others. We sought to address threats to validity by considering three principles (Maxwell, 2017): descriptive validity (how well the researcher's description corresponds to the available facts), interpretive validity (how well the researcher has understood participants' meanings and intentions), and theoretical validity (how well the researcher provided an accurate explanation of the phenomena). First, to achieve descriptive validity, note-keeping was done as soon as possible after observations and interviews (Maxwell, 2017) in order to improve the accuracy with which authors could remember the events they had witnessed. Second, to achieve interpretive validity (Maxwell, 2012), the first and the third author discussed whether they agreed what participants meant by saying something and later, the third and the fifth author engaged in a process meant to critically review the first author's assumptions and initial interpretation of data to find the most plausible interpretation. Student-athletes from different grades and backgrounds were selected in order to gather a wide variety of perspectives on the environment to understand the different meanings and intentions relevant for understanding how the environment functioned. The first and the third authors also presented and discussed the findings of the study in the environment (a joint meeting with coaches, teachers, a student counsellor, the head of coaches, and the principal), which supported the interpretations of the data. Third, our analysis were guided by theoretical validity (Maxwell, 2017), for example, all the authors discussed how existing assumptions might be obscuring the phenomena and reviewers acted as critical peers who challenged authors' interpretations. Additionally, the initial data were complemented afterwards by non-structured interviews with the mental trainer and the dorm attendant and a semi-structured interview with a school counsellor to get an accurate picture of the environment.

Results

The empirical version of the ESF model based on the case environment (see Figure 2) summarises the factors affecting the environment. Below, we present the findings related to the preconditions, processes, and organisational culture, followed by their effects on the student-athletes' development and achievements, and the environment's effectiveness and efficiency from the perspective of sports, school, and private life. The results are organised under the general categories of the ESF model.

Preconditions

Trust in coaches, motivating conditions, professionalism, and attractiveness were central themes when describing the facilitative preconditions of the environment. A third-year student-athlete Viljami (male) offered an example of the coaches' qualifications and conditions in the environment: "in terms of sports, these like, conditions and coaches, the level of coaching's definitely really high, probably the best there is in Finland." All the interviewed student-athletes stated that they believe that coaches have the competence to facilitate their athletic development. Other professionals (e.g., doctors, physiotherapists, and mental trainer) and the university's sport science services further supported athletic aims. The mental trainer and a physiotherapist were hired to support the athletically most successful student-athletes and to educate coaches. Preconditions were facilitated

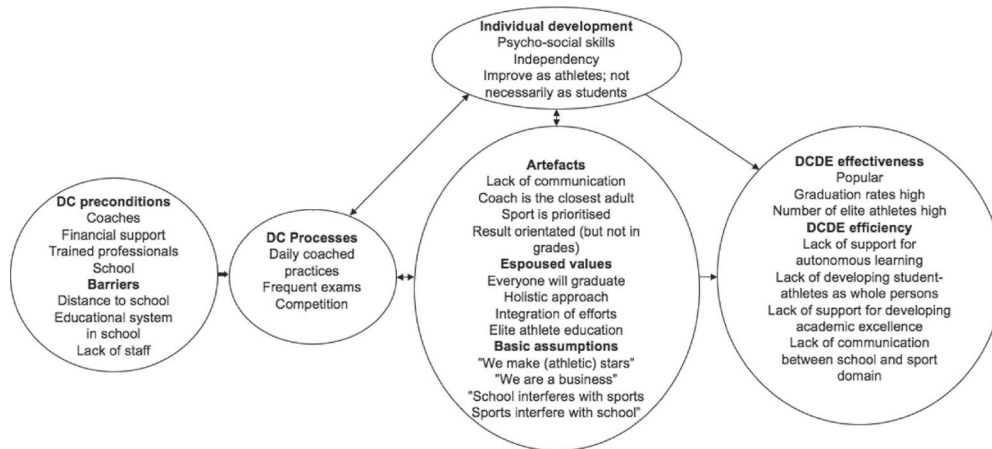


Figure 2. The empirical version of the dual career ESF model that summarises the most important factors of the sports academy that is branding itself as a DCDE.

by the environment's national goal of developing elite athletes, which provided access to substantial funding and made the environment attractive to the most talented youth athletes. A student-athlete discussed the popularity of the environment as follows:

Well, I dunno, maybe that, the advertisement and the experience you get, like, from other people who've gone to this school and then, of course, cus elite athletes (names excluded) sprout out of this place so, they certainly like, get people interested. (Fourth-year student-athlete Tanja, female)

High workload, lack of time, and prioritisation of sports were central themes when identifying barriers in the DC development process. Despite the financial support received by the academy, the participants discussed a number of barriers that they attributed to a lack of funding—for example, teacher Milla (female) stated that they lack teacher training, and both the coaches and the teachers noted that they had high workload due to a lack of personnel. Although, the high school that operated alongside the academy made it possible for student-athletes to complete their education, it was not fully integrated and, therefore, caused challenges for student-athletes. The current school system was straining the student-athletes: all the student-athletes interviewed, except for second-year student-athlete Johanna (female), felt that the workload for the school was high. First-year student-athlete Paavo (male) stated that his daily life consisted mainly of training, school, or homework, a situation that was further compounded by the distance from the dormitories to the school. Furthermore, it seemed that sports facilities were prioritised over school facilities. Despite the outdated teaching equipment (e.g., need for more online content for the courses) as mentioned by the interviewed student counsellor, and the lack of education for teachers (stated by teacher Milla), the academy was investing in new demanding training courses.

Processes

The processes toward success were characterised by four themes: learning the athletic lifestyle, inspiration by the alumni's achievements, frequent testing, and high competition. First, the environment was characterised by learning the athletic lifestyle. Training

schedules showed that instructed practice took place once per day on average, and the interviews revealed that further athletic development was supported by coaches or relative experts who offered sport-specific courses (including topics such as training theory, well-being, nutrition). Second, role models and inspiring narratives were related to the success of current elite athletes, as stated by third-year student-athlete Johanna (female): “individuals want to come here because successful elite athletes have been here, and you can see your own potential to reach the same level in sports.” Third, the school’s modus operandi appeared to be frequent testing, which may be due to the teachers having to arrange compensatory exams for student-athletes who miss the exam weeks. A teacher described the process as follows:

They had some camps during the exam week, well of course, that was so much work to us teachers then that because they missed five or four exams and there are only two retake dates, so then we had to try to piece together a schedule to get them to take the tests, like someone wanted to take theirs before the camp, someone wanted to take it afterwards, someone in the retake and then we were there like, making tests all the time. (Teacher Emmi, female)

Fourth, the environment was characterised by intense competition. First-year student-athlete Anniina (female) revealed that lack of success was mentally taxing for some time after a race, and third-year student-athlete Johanna described the atmosphere the following way: “here, it is a constant competition, and every day you see how fast your opponents are.” Student-athletes Viljami and Johanna stated they had moved out of the dormitories because they needed a place that was less engaged in matters related to sports.

Organisational culture

The key finding regarding the organisational culture of the environment was its incoherence as a DCDE across the different cultural levels observed (artifacts, espoused values, and basic assumptions). The themes related to espoused values included creating a balance between the student-athletes’ sport and academic development, integration of efforts, a holistic approach, an everyone-will-graduate attitude, and an everyone-can-become-elite athlete attitude. The gatekeepers and coaches stated that they had chosen to follow the current DC recommendations. They highlighted that coaches and teachers cooperate and support student-athletes to offer a suitable environment for combining sports and school, and that the school and the dormitory attendant help the students with their private life holistically. Furthermore, the production of elite athletes and the high graduation rate in the environment were highlighted as the primary goals by the gatekeepers and the coaches.

Observations revealed that the artifacts contradicted the espoused values. The artifacts of the environment included the separation of school and sports, the close proximity of the coach, the valuation of sports over education, and a focus on results. Clear tensions between the coaches and the teachers was discovered, specifically in the meeting where the authors presented the findings of the study. The dormitory attendant did provide (private life) support for student-athletes; however, the support was related to practical issues (e.g., room inspections to ensure cleanliness and taking student-athletes to doctor if needed) and not to emotional issues (e.g., the student-athletes did not mention the dormitory mother as a key person for supporting DC). The role of the coaches as the closest persons was visible. Regardless of whether student-athletes needed support in sports, school, or private life-related matters, they turned to their

coaches, who typically felt obligated to help because there was no one else out there for the student-athletes, which increased the workload of the coaches or forced them to limit the amount of support they provided. The formal events arranged in the environment showed that sports were valued over education. For example, the school's websites revealed that the school had an annual celebration day, but most of the award categories were related to success in sports. Additionally, the result orientation was visible in a way that only the student-athletes who had achieved success either in national (e.g., Finnish championships) or international (e.g., junior world championships) competitions would receive recognition on the academy's website and on social media.

Themes like "we are a business", "we make (athletic) stars", "the school interferes with the sports and the sports interfere with the school" inferred by the researchers helped to understand the basic assumptions and the discrepancy between the cultural levels of the espoused values and artifacts. Below, we will explore each theme in detail.

We are a business

The sports academy was dependent on student-athletes enrolment as described by a coach: "the funding is based on the number of the athletes ... We need to get athletes here to safeguard our own occupation." The coach further stated that the parents are a key factor in achieving this: "Parents will decide whether the youth will apply here, so we need to convince the parents that they are taken good care of." However, the student-athletes attested that they did not apply to the academy for educational achievements, as described by a fourth-year student-athlete Tanja:

Well, it is a bit, that because everything here revolves so much around sports that, of course, school's probably the sort of thing that should counterbalance the scale, but then I've personally felt that I've come here to do sports, so then, as a result, you do everything on sports' terms, even school.

Athletic success was used to promote the environment; the special national task of training elite athletes was advertised on the environment's media accounts as and alumni who had succeeded at the elite level were used to market the environment. The head of the academy explained the mission of the environment as follows:

our mission, our core mission, of course, is to arrange the best possible sports coaching and matters related to that, but because we're very much aware that it's very holistic, then other matters have to be in order as well, flexibility and understanding in school and, also that we arrange for meals here, living arrangement and everything so that, when our mission is, after all, to nurture as high-level athletes as possible and, as far as top-notch, elite athletes, so then it's not too much, that we don't make too many compromises regarding ...

We make stars

The basic assumptions of "we make stars" created a sport-focused culture, and the student-athletes were more committed to athletic development than to educational development. The most talented student-athletes were not either encouraged to continue on a DC pathway after graduation, as revealed by coach Mika's (male) statement:

[Yes,] I do think that if an athlete is getting close to the level of a national team so that they'd be able to build up the resources and throw themselves into that like, after sports high school, the career of a professional athlete, so that would, that'd be important.

Academic success and future educational pursuits did not seem to have any major significance in the environment in general as discussed by student-athletes and teachers. This was visible in the way that the overlapping demands and expectations between sports and school led to student-athletes occasionally neglecting school-related tasks (e.g., skipping or being late, not submitting assignments). A first-year student-athlete Anniina described the attitudes of coaches and peers in the following way:

Well I dunno really because, somehow like. Of course it's completely possible to reach goals fairly well in school, but it maybe depends quite a lot on you yourself because, everyone's sort of like, everyone sort of thinks that sports first and then if there's time, then school, so then, it's maybe a bit ...

Moreover, Teacher Emmi described the attitudes of the student-athletes the following way: "even in third-year they think they can become world champions although external facts would show something else, and they sacrifice so much for sports". While student-athletes adopted the idea of sport being the most important element in life, this narrowed their possibilities for private-life activities and to explore life in general.

The school interferes with the sports and the sports interfere with the school

Mostly, DC was understood to be a flexible education plan and a plan B after ending one's athletic career or if the athletic career did not work out. The student-athletes and coaches seemed to think that school interferes with sports and is a hindrance to reaching the elite level. A third-year student-athlete Viljami gave the following example:

I was sick before and during the final examination ... I was just focusing on getting better again and wanted to be healthy to be able to train again. I did not study much since my thoughts were on the upcoming season.

Coaches were supposed to have regular meetings with the teachers; however, as stated by the teachers, not all coaches attended the meetings. The school's responsibility was to be flexible and to work around sports; teachers had adopted the idea that sports come first and arranged for additional examinations and assignments if a student-athlete had missed classes due to sports. However, at the same time, some of the teaching staff suggested that the sports interfered with the school because student-athletes lacked the time and the travelling disrupted the rhythm of the studies. Teacher Milla described the situation as follows:

Of course, if you think about athletes specifically, then, to them this like, this educational system supports their activities, it supports it in many ways because athletes have their own curriculum and then, of course, even their daily schedule, when practice is held and everything is like, for the athletes like the best possible options are chosen for them, but then, on the other hand, because sports take up quite a big portion so, where actual studying and teaching is squeezed in so that, I don't know. I think that that's not being done in the best possible way at the moment.

Environment effectiveness and efficiency

The sports academy measured its success in the number of student-athletes, the number of elite athletes, and the number of students who graduate. The sports academy did not follow up on educational pathway post graduation. Additional

documents showed that the student-athletes have won several international championship medals and represent the national team at junior and senior levels. Considering that the school's success is measured in terms of graduations and that there were no dropouts, (although 11 student-athletes had transferred to a different school), the environment is successful and effective. From the standpoint of the academy not focussing on academic achievements beyond student-athletes graduating and that most student-athletes are able to graduate despite investing a minimum amount of time and energy into their studies, the academy is efficient in some criteria of efficiency. Additionally, the sports academy made the most out of their limited resources in terms of staff. However, when evaluating efficiency as a DCDE (i.e., the communication between stakeholders, the policies and procedures to help resolve problems experienced in the DC), the sports academy is not efficient.

The themes related to DCDE efficiency included lack of support for autonomous learning, lack of developing student-athletes as whole persons, lack of support for developing academic competencies, and lack of communication between school and sport domain. Observations showed that even in sports, the student-athletes were not encouraged to learn but were given direct instructions. The school was quite flexible in terms of allowing student-athletes to study at their own pace; however, some student-athletes felt the demands were too high and that training camps and competition absences led to a higher workload compared to attending class. The sports academy was also unable to help resolve the challenges (e.g., fatigue, role strain) experienced in the DC nor were they able to support student-athletes' individual development. For example, the student-athletes expressed that they did not receive enough everyday-life support, and second-year student-athlete Paavo specifically noted that during the first year, he had to cope with the majority of the challenges by himself. It was evident that student-athletes were mostly viewed as athletes and that the focus was on athletic development, which, together with the lack of time and a high workload, resulted in a barrier against pursuing academic excellence and developing as whole persons. It was also very clear that most of the actors in the environment had a lot of responsibilities and roles, and not enough tools to cope with all the demands, which was further affected by the miscommunication. Although many of the teachers were former student-athletes themselves, coach Juuso (male) explained the lack of understanding of DC as follows:

Well, probably like, with the coaches and the principal and people like that, it's actually, of course we don't have that many shared activities with the teaching side and with that, so maybe not all teachers live the life of an athlete in that because they don't know what it is, they've never been in the scene themselves, and they might not even be interested in it at all, it depends so much on the teacher there that how it is, how they see sports high schools from the point of view of an athlete so ... so I mean, without a doubt, they appreciate it, but the understanding of combining sports and studies certainly isn't completely on the same level.

Discussion

In this study, we explored whether and how a Finnish sports academy had transformed from an ATDE into a DCDE, what the academy's success factors and organisational

culture were, and how DC development was carried out in the academy. The main finding was that the basic assumptions contradicted with the recent recommendations on DC (Stambulova & Wylleman, 2019) and that the sports academy could be identified as an ATDE, lacking some of the essential features of a successful DCDE. Comparing the features of the Finnish sports to the features of Henriksen et al.'s (2020) study of what a successful DCDE is, we can see several differences. First, the environment did not have a DC support team, and the school and sport domains lacked communication and coordination. Second, role models and inspiring narratives were limited to the athletic achievements of the alumni. Third, the organisational culture was incoherent, and the understanding of DC differed between the domains, although all the actors had adopted the sports-come-first ideology. As the integration of efforts, the understanding of DC, and the support for student-athletes influence the outcome of DC programmes (Knight et al., 2018; Stambulova et al., 2015), the environment was successful and effective, but not efficient as a DCDE.

Since the espoused values stated by the gatekeepers contradicted the basic assumptions, the present study of the sports academy complements the studies on the rhetorical support of DC and the instrumental role of the education in the sporting environments by Saarinen et al. (2020) and Thomsen and Nørgaard (2018). According to the Schein (1990), culture is taught to new members by the leading figures and role models. Although the persons' background affects their DC mindset, as shown in this study, student-athletes, coaches and teachers had adopted the basic assumptions of the environment. Furthermore, in the sports domain, the aim to produce elite athletes may increase the pressure for coaches to give direct instructions and target expert services to the athletically most successful student-athletes, while in the school domain, the aim to have as many graduating students as possible may increase the pressure to arrange tests in the school to pass the classes rather than to support autonomous learning. Moreover, although coaches stated that they support DC, they may not have the tools or the training to understand how it could or should be done efficiently, which was further impeded by the miscommunication between coaches and teachers. This study supports the idea that not only the gatekeepers but also the coaches, teachers, and other actors would benefit from receiving training in the benefits of DC, in supporting DC, and in integrating efforts to be able to optimise development environments.

Küttel et al. (2018) have noted that values, understanding, and beliefs of DC might be influenced by the macro-level culture created by sports federations, or societal expectations. At the higher policy level, the Finnish Olympic Committee (2020), which provides education and support to the environment, has a top-down influence on the sports academy. They have stated that they support DC introducing three different DC pathways: (a) sports as an occupation; (b) combining sports and education; and (c) combining sports and another job. As the actions in the environment were mostly related to providing support to athletic development and the organisational culture of the environment emphasized sports being the core, the coaches and student-athletes adopted the "sports-as-an-occupation" ideology. However, according to Kalenius (2014), to find employment in Finland, one is typically required to possess a profession or a master's degree. This would indicate that to prepare for life after a sports career, one needs to have tertiary education. Taking into account a recent shift in the educational policy in Finland that emphasizes high school grades and course selections in tertiary education

admission (Opintopolku, 2020), the student-athletes in this environment may face challenges in the future (Korhonen et al., 2020).

Our findings are in line with previous DC studies that found that, when facing challenges in DC, student-athletes will prioritise sports (Saarinen et al., 2020; Stambulova et al., 2015). Furthermore, when the student-athletes in this study faced challenges in the sports domain, they reported a decrease in motivation toward the school. While adolescents' essential developmental tasks are to develop an identity and to explore future possibilities (Nurmi, 1991), the student-athletes in this environment appear to be vulnerable to an athletic identity foreclosure (Brewer & Petitpas, 2017). To optimise support for the adolescent student-athletes in the academy, as scholars have advocated, the academy should focus on the whole person approach: on fostering a culture that promotes continuing education (Knight et al., 2018), and on providing resources for the student-athletes to explore life and improve their well-being (Ryba et al., 2016; Stambulova & Wylleman, 2019). It would be important for DCDEs to actually have a code of conduct and ethical guidelines regarding the student-athletes' next phase in life (Stambulova & Wylleman, 2019) rather than just fulfilling the minimum standard of higher policy. Moreover, besides the code of conduct, open discussions about the meaning and value of this code, how willing people are to commit to it, and how it can inform their work, is needed.

While looking at the changes the sports academy implemented in response to the DC policy, the academy had hired new experts and was planning to arrange tertiary-level education on their premises in cooperation with universities. However, it was evident that such plans were mostly related to structural changes, not to attitudes or beliefs. As the academy had come to exist before the DC guidelines caught on, the gatekeepers may have felt pressure to brand themselves as a DCDE. It can also be speculated that as the environment has a history of being a successful ATDE, the stakeholders might not see the need for changes. Moreover, while acknowledging that bottom-up processes affect the broader culture, the environment delivers the message that it is functioning well in terms of reaching its goals that might affect the evaluation process of the higher policy actors. In this sense, the national policies also require more profound means of evaluation to assess whether the environment fulfils the criteria of a DCDE and to broaden the understanding of what a DCDE is—that it is not just a system that combines sports and education, but rather a system that provides student-athletes with resources and competencies to combine different domains of life.

In conclusion, the findings presented in this case study suggest that the Finnish sports academy had adapted to the recommendations to provide for athletes' sustainable routes for athletes' to reach the elite level by integrating a DC culture rhetorically. However, we identified the Finnish sports academy as an ATDE rather than a DCDE, and the results indicated an incoherent organisational culture. Finally, the results showed that the transformation from ATDE to DCDE requires changes in the organisational culture of the environment in order to function. The findings not only apply to this specific environment, but can be applied broadly to other ATDEs implementing DC practices. Considering that DC provides the resources for student-athletes to develop a balanced life and the prerequisites to attain academic/vocational dreams, our findings suggest that the basic assumptions of the gatekeepers, the integration of the efforts between the different domains, the education of the stakeholders, and the development of a support system in the environment are crucial factors to achieve the transformation from ATDE to DCDE.

Acknowledgements

The authors would like to express their gratitude to all who participated in the study. We also thank all members of the Erasmus+ sport project entitled “Ecology of Dual Career” (ECO-DC) for their cooperation during this study and the entirety of the project. The working DC-ESF model used in this paper constitutes an intellectual output of the Erasmus+ Sports project “Ecology of Dual Career” (ECO-DC). The last author of this paper cocreated and therefore has a copyright to use the model in this and further publications.

Disclosure statement

No potential conflict of interest was reported by the author(s).

Funding

This research was supported by the Erasmus Plus Sport Programme of the European Union (ID:590476-EPP-1-2017-1-UK-SPO-SCP) and the Finnish Ministry of Education and Culture (grant number OKM/39/626/2017).

ORCID

N. J. Ronkainen  <http://orcid.org/0000-0003-3785-0458>

T. V. Ryba  <http://orcid.org/0000-0002-3218-4938>

References

- Asch, D., & Graeme, S. (2002). The challenge of change. *European Business Journal*, 14(3), 133–143.
- Bhaskar, R. (1989). *Reclaiming reality*. Verso.
- Braun, V., Clarke, V., & Weate, P. (2016). Using thematic analysis in sport and exercise research. In B. Smith & A. Sparkes (Eds.), *Routledge handbook of qualitative research in sport and exercise* (pp. 199–218). Routledge.
- Brewer, B. W., & Petitpas, A. J. (2017). Athletic identity foreclosure. *Current Opinion in Psychology*, 16, 118–122. <https://doi.org/10.1016/j.copsyc.2017.05.004>
- Bronfenbrenner, U. (1979). *The Ecology of human development*. Harvard University Press.
- Condello, G., Capranica, L., Doupona, M., Varga, K., & Burk, V. (2019). Dual-career through the elite university student-athletes’ lenses: The international FISU-EAS survey. *PLoS One*, 14(10), e0223278. <https://doi.org/10.1371/journal.pone.0223278>
- Cruickshank, A., Collins, D., & Minten, S. (2015). Driving and sustaining culture change in professional sport performance teams: A grounded theory. *Psychology of Sport and Exercise*, 20, 40–50. <https://doi.org/10.1016/j.psychsport.2015.04.007>
- De Brandt, K., Wylleman, P., Torregrossa, M., Schipper-Van Veldhoven, N., Minelli, D., Defruyt, S., & De Knop, P. (2018). Exploring the factor structure of the dual career competency questionnaire for athletes in European pupil and student-athletes. *International Journal of Sport and Exercise Psychology*. <https://doi.org/10.1080/1612197X.2018.1511619>
- European Commission. (2012). Guidelines on dual careers of athletes recommended policy actions in support of dual careers in high-performance sport. http://ec.europa.eu/assets/eac/sport/library/documents/dual-career-guidelines-final_en.pdf
- European Commission. (2017). *Ecology of dual career – exploring dual career development environments across Europe (ECO-DC)*. Sport+ ERASMUS.
- Finnish Olympic Committee. (2020). *Urheilijan kaksoisura – Dual Career*. <https://www.olympiakomitea.fi/huippu-urheilu/urheiluaakatemiaohjelma/kaksoisura/>

- Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry*, 12(2), 219–245. <https://doi.org/10.1177/1077800405284363>
- Henriksen, K., Larsen, C. H., & Christensen, M. K. (2014). Looking at success from its opposite pole: The case of a talent development golf environment in Denmark. *International Journal of Sport and Exercise Psychology*, 12(2), 134–149. <https://doi.org/10.1080/1612197X.2013.853473>
- Henriksen, K., & Stambulova, N. (2017). Creating optimal environments for talent development: A holistic ecological approach. In J. Baker, S. Cobley, J. Schorer, & N. Wattie (Eds.), *Routledge handbook of talent identification and development in sport* (pp. 271–284). Routledge.
- Henriksen, K., Stambulova, N., & Roessler, K. K. (2010). A holistic approach to athletic talent development environments: A successful sailing milieu. *Psychology of Sport and Exercise*, 11(3), 212–222. <https://doi.org/10.1016/j.psychsport.2009.10.005>
- Henriksen, K., Storm, L. K., Kuettel, A., Linner, L., & Stambulova, N. (2020). A holistic ecological approach to sport and study: The case of an athlete friendly university in Denmark. *Psychology of Sport and Exercise*, 47, 101637. <https://doi.org/10.1016/j.psychsport.2019.101637>
- Hodge, K., & Sharp, L. (2016). Case studies. In B. Smith & A. C. Sparkes (Eds.), *Routledge handbook of qualitative research in sport and exercise* (pp. 62–74). Routledge.
- Kalenius, A. (2014). Suomalaisten koulutusurakenteen kehitys 1970–2030. <http://urn.fi/URN:ISBN:978-952-263-253-1>
- Knight, C. J., Harwood, C. G., & Sellars, P. A. (2018). Supporting adolescent athletes' dual careers: The role of an athlete's social support network. *Psychology of Sport and Exercise*, 38, 137–147. <https://doi.org/10.1016/j.psychsport.2018.06.007>
- Korhonen, N., Nikander, A., & Ryba, T. V. (2020). Exploring the life form of a student athlete afforded by a dual career development environment in Finland. *Case Studies in Sport and Exercise Psychology*, 4(1), 108–116. <https://doi.org/10.1123/cssep.2020-0005>
- Küttel, A., Christensen, M. K., Zysko, J., & Hansen, J. (2018). A cross-cultural comparison of dual career environments for elite athletes in Switzerland, Denmark, and Poland. *International Journal of Sport and Exercise Psychology*, 18(4), 454–471. <https://doi.org/10.1080/1612197X.2018.1553889>
- Linnér, L., Stambulova, N. B., Lindahl, K., & Wylleman, P. (2019). Swedish university student-athletes' dual career scenarios and competences. *International Journal of Sport and Exercise Psychology*. <https://doi.org/10.1080/1612197X.2019.1611898>
- Maitland, A., Hills, L., & Rhind, D. (2015). Organizational culture in sport – A systematic review. *Sport Management Review*, 18(4), 501–516. <https://doi.org/10.1016/j.smr.2014.11.004>
- Martin, J. (2002). *Organizational culture: Mapping the terrain*. Sage.
- Maxwell, J. A. (2012). *A realist approach for qualitative research*. Sage.
- Maxwell, J. A. (2017). The validity and reliability of research: A realist perspective. In D. Wyse, L. E. Suter, E. Smith, & N. Selwyn (Eds.), *The BERA/SAGE handbook of educational research* (pp. 116–140). Sage.
- McDougall, M., Ronkainen, N., Richardson, D., Littlewood, M., & Nesti, M. (2019). Three team and organizational culture myths and their consequences for sport psychology research and practice. *International Review of Sport and Exercise Psychology*, 13(1), 147–162. <https://doi.org/10.1080/1750984X.2019.1638433>
- Morris, R., Cartigny, E., Ryba, T. V., Wylleman, P., Henriksen, K., Torregrossa, M., Lindahl, K., & Cecić Erpič, S. (2020). A taxonomy of dual career development environments in European countries. *European Sport Management Quarterly*. <https://doi.org/10.1080/16184742.2020.1725778>
- Nurmi, J. (1991). How do adolescents see their future? A review of the development of future orientation and planning. *Developmental Review*, 11(1), 1–59. [https://doi.org/10.1016/0273-2297\(91\)90002-6](https://doi.org/10.1016/0273-2297(91)90002-6)
- Opintopolku. (2020). *Yliopistojen todistusvalinnan pisteytykset*. <https://opintopolku.fi/wp/opo/korkeakoulujen-haku/mika-korkeakoulujen-opiskelijavalinnoissa-muuttuu-vuoteen-2020-menessa/yliopistojen-todistusvalinnat-2020/#yo-ebibrpdi>
- Research Institute for Olympic Sports. (2019). Urheilulukiot, seurantatiedot vuosilta 2008–2018. https://kihuenergia.kihu.fi/tuotostiedostot/julkinen/2019_nie_urheiluluk_sel34_59015.pdf

- Ronkainen, N. J., & Wiltshire, G. (2019). Rethinking validity in qualitative sport and exercise psychology research: A realist perspective. *International Journal of Sport and Exercise Psychology*. <https://doi.org/10.1080/1612197X.2019.1637363>
- Ryba, T. V., Aunola, K., Kalaja, S., Selänne, H., Ronkainen, N. J., & Nurmi, J.-E. (2016). A new perspective on adolescent athletes' transition into upper secondary school: A longitudinal mixed-methods study protocol. *Cogent Psychology*, 3(1). <https://doi.org/10.1080/23311908.2016.1142412>
- Ryba, T. V., Wiltshire, G., North, J., & Ronkainen, N. J. (2020). Developing mixed methods research in sport and exercise psychology: Potential contributions of a critical realist perspective. *International Journal of Sport and Exercise Psychology*. <https://doi.org/10.1080/1612197X.2020.1827002>
- Saarinen, M., Ryba, T. V., Ronkainen, N. J., Rintala, H., & Aunola, K. (2020). "I was excited to train, so I didn't have problems with the coach": Dual career athletes' perceptions of (dis)empowering motivational climate. *Sport in Society*, 23(4), 629–644. <https://doi.org/10.1080/17430437.2019.1669322>
- Schein, E. H. (1990). Organizational culture. *American Psychologist*, 45(2), 109–119. <https://doi.org/10.1037/0003-066X.45.2.109>
- Spradley, J. P. (1980). *Participant observation*. Harcourt Brace College Publishers.
- Stake, R. E. (2005). Qualitative case studies. In N. K. Denzin & Y. S. Lincoln (Eds.), *The Sage handbook of qualitative research* (pp. 443–466). Sage Publications Ltd.
- Stambulova, N. B., Engström, C., Franck, A., Linne, L., & Lindahl, K. (2015). Searching for an optimal balance: Dual career experiences of Swedish adolescent athletes. *Psychology of Sport and Exercise*, 21, 4–14. <https://doi.org/10.1016/j.psychsport.2014.08.009>
- Stambulova, N. B., & Wylleman, P. (2019). Psychology of athletes' dual careers: A state of the art critical review of the European discourse. *Psychology of Sport and Exercise*, 42, 74–88. <https://doi.org/10.1016/j.psychsport.2018.11.013>
- Tangaard, L. (2006). A psychological field study of learning: Analysis of methodological aspects. *Nordic Psychology*, 58(3), 196–214. <https://doi.org/10.1027/1901-2276.58.3.196>
- Thomsen, K. R., & Nørgaard, J. (2018). Grades for goals? Challenging associations between educational engagement and improved football performance among Danish male elite players. *Soccer & Society*, 21, 152–165. <https://doi.org/10.1080/14660970.2018.1541798>
- Wiltshire, G. (2018). A case for critical realism in the pursuit of interdisciplinarity and impact. *Qualitative Research in Sport, Exercise and Health*, 10(5), 525–542. <https://doi.org/10.1080/2159676X.2018.1467482>
- Wiltshire, G., & Ronkainen, N. J. (under review). A realist approach to thematic analysis: Making sense of qualitative data through empirical, inferential and dispositional themes. *Journal of Critical Realism*.