

Siv Gjesdal

## **Motivation in youth sport:**

A study of athletes' motivation, perceptions of coach behavior, self-perceptions, affective responses and behavior

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DISSERTATION FROM THE NORWEGIAN SCHOOL OF SPORT SCIENCES • 2018

ISBN 978-82-502-0561-1



Dedicated to:

Signe Regine Arefjord Lunde (1914-2013)

&

All the players I have ever coached

## **Acknowledgements**

Being allowed the opportunity to do a PhD is truly a privilege, and I am grateful that this privilege was bestowed upon me. Spending four years working on a topic that interests me greatly has been rewarding, but also challenging. However, I have not done it alone! In fact, it took a village. I am lucky enough to have had the support and guidance of many people, whom all deserve special thanks.

First for all, thank you to my supervisor Yngvar Ommundsen. You have been with me every step of the way, which started when you agreed to supervise my masters' thesis. Knowing that your door is always open has been a great comfort during the most stressful of times. Thank you for believing in me and allowing me to be creative. The single greatest contribution to my development has been our conversations. You listen more than you talk, you guide rather than direct, and you willingly share the knowledge and experience that you have. I am immensely grateful to have had you as my supervisor!

Thank you to all the athletes and coaches who participated in the two projects that my thesis builds upon, as well as the Football Association of Norway. None of this would have been possible without your contributions. I also want to acknowledge my co-authors, who have all contributed to my research, as well as supported me through the publishing game: Paul Appleton, Ellen Haug, Bente Wold, Bård Solstad and Andreas Stenling. Your input has increased the quality of the work, thank you!

Parts of this research received funding from the European Commission's Seventh Framework Programme FP7/2007-2013 under grant agreement number 223600. In relation to this, it is incumbent to acknowledge the contribution of the PAPA project director, Prof. Joan L. Duda, and the principle investigators within the PAPA Consortium: Prof. Isabel Balaguer, Prof. Jaume Cruz, Prof Yngvar Ommundsen, Prof. Athanasios G. Papaioannou, Prof. Philippe

Sarrazin, and Prof. Bente Wold. Moreover, one of the papers received funding from UEFA, awarded to project manager Paul Appleton as a part of the international project "Intentions to drop-out in female footballers from 5 European countries: The role of the coach-created motivational climate".

My time at the Department of Coaching and Psychology at the Norwegian School of Sport Sciences (NSSS) has been amazing, mostly due to all my great colleagues. Hedda, our conversations have inspired me both professionally and personally. Thank you for always being there for me. Christian, we might disagree but we're always friends. Tynke, I will never forget how you supported me when my academic self-confidence was at an all time low. Kristin, you are always there for all us, and I truly believe that the department could not function without you. Einar, teaching football with you has been so much fun! I treasure our conversations to and from the field. Mathias, meeting you by the kettle and staying there for 20 minutes talking about football is a highlight of the day. Gro, Heidi and Cathrine, thank you for our many conversations about many things, but Mplus in particular. Thank you Matti, for our conversations about movies and series, as well as the US. Mats and Terese, nearing the end of the PhD run together has made it feel a little less lonely. And to the rest of my awesome colleagues: Ola, Erik, Kenneth, Daniel, Svein, Dag André, Eivind, Halgeir, Peter, Karl Marius, Marit, Glyn, Anne Marte, Marte, Nic, Anne, Katrine, Tom Henning, Anders, Lene, Geir, Fam, Hallgeir, Øystein, Liv-Jorunn and Frank – you have all contributed to my time at NSSS!

To my friends, thank you for all the fun we have together! Your encouragement has been invaluable in the past four years. Although I don't get to see all of you as often as I want to, every time I do you all help me get out of the academic bubble and remind me that there is more to life than just sports.

To my family, your love and support is very important to me. Mum, thank you for always taking the time to talk about anything and everything, and for helping me with my English! Dad, you inspire me. If I become half the academic you are, I'll be happy. To my brothers, thank you for both your support and your banter. Paula, thank you for always taking an interest! Oski and Inds, you two are the light of my life – thank you for always making me smile. To Maria and Manuel, thank you for always welcoming us with open arms, to a house filled with love and laughter. Last but not least, Edson. Thank you for your support, you make everything better!

Oslo, April 2018

Siv Gjesdal

## **List of Papers**

### **Paper I**

Gjesdal, S., Appleton, P.R. & Ommundsen, Y. (2017). Both the “what” and “why” of youth sports participation matter; a conditional process analysis. *Frontiers in Psychology*, 8, 659, 1-12. doi: 10.3389/fpsyg.2017.00659.

### **Paper II**

Gjesdal, S., Haug, E.M. & Ommundsen, Y. (2018). A conditional process analysis of the coach-created mastery climate, task goal orientation, and competence satisfaction in youth soccer: The moderating role of controlling coach behavior. *Journal of Applied Sport Psychology*, 1-15. doi: 10.1080/10413200.2017.1413690.

### **Paper III**

Gjesdal, S., Wold, B. & Ommundsen, Y. (Re-Submitted). Promoting additional activity in youth soccer: a half-longitudinal study on the influence of autonomy-supportive coaching and basic psychological need satisfaction. *Journal of Sports Sciences*.

### **Paper IV**

Gjesdal, S., Stenling, A., Solstad, B.E. & Ommundsen, Y. (Re-Submitted). A study of coach-team perceptual distance concerning the coach-created motivational climate in youth sport. *Scandinavian Journal of Medicine & Science in Sports*.



## Summary

**Background:** The aim of the present thesis was to contribute to the research area of youth sport motivation by looking at potential nuances in relationships that have received empirical support previously. Specifically, the focus was on the relationship between youth athletes' motivation and various outcomes, but also how perceptions of coach behavior are related to that motivation. As a part of the Promoting Adolescent Physical Activity (PAPA) project, this doctoral thesis shares the project's overall belief that the potential health benefits of youth sport participation will depend on the social psychological environment created by the coach, as well as central motivational processes (Duda, 2013). To that end, the thesis draws from self-determination theory (SDT; Ryan & Deci, 2017) and achievement goal theory (AGT; Nicholls, 1989) to investigate aspects of youth sport motivation.

**Objectives:** This thesis was guided by three overarching themes, namely (1) how youth athletes' motivation influences intrapersonal aspects pertaining to their participation and in general, (2) the relationship between perceived coach behavior and various motivational outcomes, and (3) the role of coach-team perceptual distance in the relationship between coach behavior and various motivational outcomes.

**Methods and Design:** Youth athletes' and their coaches filled out standardized questionnaires to measure aspects relating to coach behavior, motivation and various outcomes. (I) A latent conditional process analysis using cross-sectional data was used to investigate the interaction between achievement goal orientation and motivational regulation in relation to competence need satisfaction and general self-esteem (N = 496 female youth athletes). (II) Again, a latent conditional process analysis using cross-sectional data was employed when examining whether athletes' perceptions of controlling coach behavior moderated the relationship between a coach-created mastery climate, task goal orientation, and competence satisfaction (N = 1119 youth athletes). (III) A two-wave design was used to create a half-longitudinal

model to test whether the satisfaction of the basic need for autonomy, competence and relatedness mediated the relationship between coach autonomy support and frequency of additional soccer activity outside of the team context (N = 527 youth athletes). (IV) Polynomial regression with response surface methodology was used to examine whether coach-team perceptual distance in regard to the coach-created motivational climate related to achievement goal orientations, enjoyment, and anxiety (N = 1359 youth athletes, 87 different teams and 87 coaches).

**Results and discussion:** Findings (I) indicated that youth athletes' intrinsic regulation for their sport moderated the relationship between achievement goal orientations and self-esteem. Specifically, the indirect relationship between task goal orientation and self-esteem through competence need satisfaction was stronger for athletes who were higher in intrinsic regulation. Moreover, the negative indirect relationship between an ego goal orientation and self-esteem, through competence frustration was only seen in conditions of very high intrinsic regulation. Findings support the idea of investigating the combination of achievement goal orientation and motivational regulation, suggesting that both may be important for positive self-perceptions.

Following up on the finding that a task goal orientation appears beneficial, results (II) showed that the positive relationship between a coach-created mastery climate, task goal orientation, and competence satisfaction was abated by perceptions of controlling coach behavior. This suggests that the relationship between one type of coach behavior and motivation may vary as a function of another type of coach behavior. It speaks to the importance of taking a multi-dimensional perspective on coach behavior, and perhaps moving away from the parsimonious models that have ruled the research literature for a long time.

Findings (III) also revealed that autonomy support was not related to any of the three basic psychological needs, thus not offering support for the hypothesized mediation. The non-

significant links are partly consistent with previous research showing that once we control for previous levels of need satisfaction, autonomy support from the coach does not appear to predict all three needs. This underlines the importance of longitudinal research. Furthermore, autonomy satisfaction, but not relatedness and competence, was associated with positive residual change in the frequency of additional soccer activity outside of the team context across the season, indicating the energizing value of autonomy.

Last, results (IV) showed that coach-team perceptual distance in regard to the coach-created motivational climate existed, suggesting that not all coaches are aware of how the motivational climate they create is perceived by the athletes. Furthermore, relationships to outcomes that are theoretically expected with a mastery climate (i.e. task goal orientation and enjoyment) and a performance climate (i.e. ego goal orientation and anxiety) appeared stronger when there was more coach-team perceptual agreement concerning the given climate. When there was coach-team perceptual disagreement, it was relatively more detrimental in terms of outcomes when the coach reported a lower level of a performance climate or a higher level of a mastery climate compared the team, than with the opposite pattern.

**Conclusions:** In summary, the findings from the present thesis highlight some of the complexity of youth sport motivation, and the relationship between this motivation and coach behavior.

## Sammendrag

**Bakgrunn:** Det overordnede formålet var å bidra til økt kunnskap om motivasjon i barne- og ungdomsidretten ved å se på potensielle nyanser i forhold som tidligere har fått empirisk støtte. Nærmere bestemt, vi så på aspekter relatert til utøveres motivasjon, persepsjon av treneroppførsel og ulike motivasjonsutfall. Som en del av det internasjonale Promoting Adolescent Physical Activity (PAPA) prosjektet, deler denne avhandlingen prosjektets tanke om at de potensielle helsegevinstene av idrettsdeltagelse er avhengig av det psyko-sosiale miljøet skapt av treneren, samt av viktige motivasjonsprosesser (Duda, 2013). Avhandlingen hadde derfor som hensikt å undersøke ulike deler av motivasjon i barne- og ungdomsidrett, og er basert på selv-bestemmelses teorien (SDT; Ryan & Deci, 2017) og målorienteringsteorien (AGT; Nicholls, 1989)

**Mål:** Avhandlingen har hatt tre overordnede temaer, nemlig (1) hvordan utøvernes motivasjon er relatert til ulike utfall i og utenfor idrettskonteksten, (2) forholdet mellom persepsjon av treneroppførsel og motivasjon, samt motivasjonsutfall, og (3) om trener-lag perseptuell-distanse spiller en rolle for forholdet mellom treneroppførsel og motivasjon, samt motivasjonsutfall.

**Metode og design:** Utøvere og trenere svarte på standardiserte spørreskjemaer. (I) En latent moderert medieringsanalyse med tversnittdata ble brukt til å studere interaksjonen mellom utøvernes målorientering og motivasjonsregulering (N = 496 utøvere). (II) Igjen ble en latent moderert medieringsanalyse med tversnittdata brukt, denne gangen til å undersøke om forholdet mellom et trenerskapt mestringsklima, mestringsorientering og behovet for kompetanse var moderert av kontrollerende treneradferd (N = 1119 utøvere). (III) Et halvt-longitudinelt design ble brukt til å teste om behovstilfredstillelse av autonomi, kompetanse og sosial tilhørighet medierte forholdet mellom autonomistøtte fra treneren og hvor ofte spillerne deltar i annen fotballaktivitet utenfor lagkonteksten (N = 527 utøvere). (IV) Polynomial

regresjon ble brukt til å se på hvordan trener-lag perseptuell-distansse relaterte til lagets målorientering, trivsel og angst (N = 1359 utøvere, 87 lag, 87 trenere).

**Resultat og diskusjon:** (I) Funnene indikerte at utøvernes målorientering og motivasjonsregulering samhandler i deres relasjon til behovet for kompetanse og generell selvfølelse. Resultatene viser at det indirekte forholdet mellom oppgaveorientering og selvfølelse via opplevd kompetanse var sterkere for de utøverne med høyere nivå av indre motivasjon. Dessuten var det indirekte (negative) forholdet mellom en resultatorientering og selvfølelse bare signifikant for de utøverne med veldig høye nivåer av indre motivasjon. Resultatene tyder på at både målorientering og motivasjonsregulering er viktig for en positiv selvoppfattelse, og gir støtte til ideen om å studere begge deler samtidig.

(II) Resultatene viser at et mestringstiljø skapt av treneren var relatert til høyere oppgaveorientering hos utøverne, men at dette forholdet var svakere ved høyere nivå av opplevd kontrollerende treneroppførsel. Dette gjaldt også det indirekte forholdet til behovet for kompetanse. Funnet støtter tanken om at forholdet mellom utøvernes motivasjon og én type treneroppførsel kan variere som følge av en annen type treneroppførsel. Dette antyder viktigheten av å se på treneroppførsel som noe multidimensjonalt.

(III) Funn indikerte at autonomistøtte fra treneren ikke var relatert til utøvernes tilfredsstillelse av behovene for autonomi, kompetanse og sosial tilhørighet, noe som viser viktigheten av å studere disse forholdene longitudinelt. Videre var autonomi, men ikke kompetanse og sosial tilhørighet, relatert til positive endringer i hvor ofte utøverne deltok i fotballaktivitet utenfor lagkonteksten. Dette understreker den energigivende egenskapen til autonomi.

(IV) Resultatene viste at det var en del trener-lag perseptuell-distansse, noe som tyder på at ikke alle trenere er klar over hvordan laget oppfatter det klimaet de skaper. Videre fant vi at når treneren og laget hadde samme oppfatningen av det klimaet treneren skapte, var forholdet

til de utfallene som var teoretisk forventet mye sterkere. Ved ulik oppfatning derimot, var det verste utfallet dersom treneren oppfattet miljøet som mindre resultatorientert, og mer mestringsorientert, sammenlignet med laget.

**Konklusjon:** Funnene viser til noe av kompleksiteten ved unge utøvers motivasjon for idrett, og i forholdet mellom motivasjon og treneroppførsel.

## **Abbreviations**

PAPA	Promoting Adolescent Physical Activity
SDT	Self-Determination Theory
CET	Cognitive Evaluation Theory
OIT	Organismic Integration Theory
AGT	Achievement Goal Theory
TCM	Trans Theoretical Model
SEM	Structural Equation Modeling
UEFA	Union of European Football Associations
CFA	Confirmatory Factor Analysis
MOS	Motivational Orientation Scale
BRSQ	Behavioral Regulation in Sport Questionnaire
IMI	Intrinsic Motivation Inventory
SDQ	Self-Description Questionnaire
TEOSQ	Task and Ego Orientation in Sport Questionnaire
PMSQ-2	Perceived Motivational Climate in Sport Questionnaire
CCBS	Controlling Coach Behavior Scale
HCCQ	Health Care Climate Questionnaire
SAS	Sport Anxiety Scale
AIC	Akaike Information Criterion
FIML	Full Information Maximum Likelihood
MCAR	Missing Completely At Random
MI	Measurement Invariance
NSD	The Norwegian Centre for Research Data

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## INTRODUCTION

The potential benefits of youth sport engagement are many and varied, thought to fall within three overarching categories of outcomes, namely physical, psychological and social (Bangsbo et al., 2016; Eime, Young, Harvey, Charity, & Payne, 2013). In addition, evidence suggests that sustained youth sport participation during adolescence can serve as a predictor of adult physical activity levels (Bélanger et al., 2015; Kjønnsen, Anderssen, & Wold, 2009). It is therefore not without reason that the promotion of youth sport participation is of interest to both sport psychology researchers and policymakers (Commission of the European Communities, 2007; Duda et al., 2013; Rocchini, 2002). However, as a part of the Promoting Adolescent Physical Activity (PAPA) project, the current thesis shares its belief that the potential health benefits of youth sport participation will depend on the social psychological environment created by the coach as well as central motivational processes operating in the youth sport setting (Duda, 2013; Duda, Appleton, Stebbings, & Balaguer, 2017).

This thesis is set in the Norwegian youth sport context, and sport participation is a big part of the Norwegian culture. According to Green, Thurston, Vaage, and Roberts (2015), Norwegian youngsters are the "quintessential sporting omnivores" (p.1). Among many different youth sports in Norway, soccer and handball are the most popular in terms of participation numbers (Statistics Norway, 2017). Therefore, with the aim of furthering our understanding of the youth sport experience, the present doctoral work set out to investigate various aspects of motivation in these two sports. The thesis itself is divided into several chapters. The main aim of the introduction is to first present the theoretical frame of reference for the four papers included in the thesis, and then outline the specific issues addressed in each paper. Chapters outlining the methods and results of the four papers follow this. Next, in light of the results, the main findings are discussed, ending with practical implications, limitations and conclusions.

## **Organized Youth Sport**

Due to the many potential health benefits, the Commission of the European Communities (2007) established the importance of organized youth sport in public health strategies within the European Union. However, engagement in youth sport in and of itself does not guarantee the recommended levels of physical activity (Fenton, Duda, & Barrett, 2016). Nor is it uniformly associated with positive experiences for the athletes (Fraser-Thomas, Côté, & Deakin, 2005). Indeed, examples of negative experiences reported by youth athletes are poor relationships with coaches, parental pressure, negative peer influences and psychological stress (Fraser-Thomas & Côté, 2009). This is perhaps what is reflected in the declining participation numbers after early adolescence (Kjønniksen et al., 2009; Statistics Norway, 2017). Therefore, although participation should be encouraged, we must be mindful of the quality of the participation. The present thesis asks pertinent questions regarding this issue from a motivational perspective, reflected in three main themes; (1) how youth athletes' motivation influences intrapersonal aspects pertaining to their participation as well as in general, (2) the relationship between perceived coach behavior and various motivational outcomes, and (3) the role of coach-team perceptual distance in the relationship between coach behavior and various motivational outcomes.

## **The Theoretical Frame of Reference**

The etymological meaning of motivation concerns the underlying processes that move people to action (Eccles, Wigfield, & Schiefele, 1998; Ryan & Deci, 2017). Ryan and Deci (2007) argued that because sporting activity demands exertion, energy and focus, it epitomizes motivation; people being moved to act. Importantly, motivation is thought to be closely related to the quality of sport participation (Roberts, 2012; Ryan & Deci, 2007; Vallerand, 1997). In this thesis, youth sport motivation is discussed in light of two contemporary theoretical frameworks; self-determination theory (SDT; Deci & Ryan, 2000;

Ryan & Deci, 2017) and achievement goal theory (AGT; Nicholls, 1984, 1989). The following section outlines both, concluding with an acknowledgement of their underlying differences.

### ***Self-Determination Theory***

SDT is an organismic dialectical theory that views human beings as active and growth-oriented organisms, naturally inclined to act on their inner and outer environments, moving towards personal and interpersonal coherence. The organismic premise is reflected in this innate tendency. According to Ryan and Deci (2017), at their best, people are argentic, inspired, social, striving to learn by extending themselves and mastering new skills; much like toddler behavior. This tendency includes both the propensity for exploring as well as the inclination to assimilate social norms and values through active internalization and integration. But Ryan & Deci (2000) warned that this positive representation of human nature is not invariantly apparent. Indeed, individuals displaying passivity indicate that there are more than just innate tendencies at play. In fact, the manifestation of the innate human nature is believed to be largely dependent on one's experience, and SDT therefore positions the natural tendencies of humans in dialectical relation to the ambient social contexts that can either support or thwart these tendencies (Ryan & Deci, 2017).

Two decades ago, Vallerand (1997) proposed a sequence explaining the social psychological process of motivation from a SDT perspective. This sequence is *social factors* → *basic psychological needs* → *motivation* → *motivational consequences*. SDT is a meta-theory, consisting of six separate sub-theories that attempt to explain different aspects of this motivational process from an organismic dialectical perspective (Ryan & Deci, 2017). The present thesis employs three of the sub-theories, namely cognitive evaluation theory, organismic integration theory and basic needs theory. All three are outlined below.

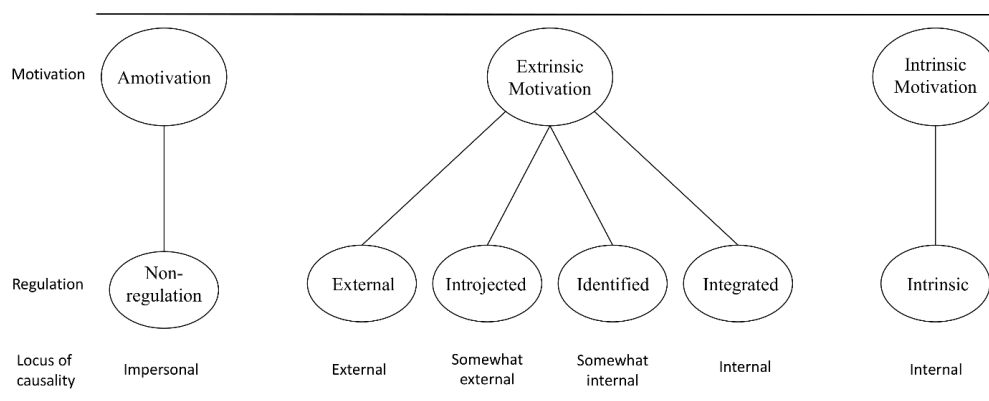
*Cognitive Evaluation Theory*

What distinguishes SDT from many other theories is the differentiation between various types of motivation, in contrast to only focusing on the amount of motivation (Ryan & Deci, 2017). The notion is that different types of motivation have different consequences for learning, performance, experiences and well-being (Ryan & Deci, 2000). The key distinction therein is between intrinsic and extrinsic motivation (Ryan & Deci, 2017). Cognitive evaluation theory (CET; Deci & Ryan, 1985) focuses exclusively on intrinsic motivation, which refers to behaving due to the enjoyment and satisfaction inherent in the activity itself. Intrinsic motivation for sport has been associated with various positive outcomes, such as continued participation and objective performance (Gillet, Vallerand, Amoura, & Baldes, 2010; Pelletier, Fortier, Vallerand, & Briere, 2001; Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2002). According to CET, all humans have a natural tendency towards intrinsic motivation, but this innate tendency is conditional on the support for psychological needs from the social environment (Ryan & Deci, 2017). Specifically, intrinsic motivation is thought to flourish if the context is supportive, yet can easily be impaired if it is not (Ryan & Deci, 2000).

*Organismic Integration Theory*

Unfortunately, to quote Ryan and Deci (2017) in their newest book on SDT, "...socialized life is not all fun and games" (p.197). Indeed, as humans we engage in a vast range of behaviors that may not be intrinsically motivating, but are an integral part of our lives. Examples of such behaviors in the context of sport can be warm-up, injury prevention, collecting equipment or training in cold or rainy weather. These behaviors are extrinsically regulated, as they are carried out because socializing agents expect, promote or compel them, or because they are instrumental for a valued outcome (Ryan & Deci, 2017). According to the organismic integration theory (OIT), these behaviors can be divided into qualitatively

different types of extrinsic regulations that differ in the degree of self-determination, reflective of volition and congruence (Ryan & Deci, 2017). Self-determination is dependent on internalization, which is defined as the process of assimilating, internalizing and integrating social regulations, essentially transforming the perceived locus of causality of a behavior from being external to the individual to being internal (Deci & Ryan, 2000).



*Figure 1.* The self-determination continuum, presenting the motivation, regulation and perceived locus of causality of behaviors as they vary in the degree of self-determination (adapted from Deci & Ryan 2000, p. 237).

The OIT framework identifies four distinct extrinsic regulations (depicted in Figure 1), that all differ in their antecedents, characteristics, and outcomes (Deci & Ryan, 2000; Ryan & Deci, 2017). The first is *external regulation*, which represents the least self-determined form of extrinsic motivation. Externally regulated individuals only perform because they are coerced or rewarded, and persistence is based on the availability of that external contingency. Further to the right is *introjected regulation*, reflecting a partly internalized regulation. In this instance, the contingent consequences are administered by the individual themselves, often characterized by shame or guilt. Although the regulation is within the person, it is still relatively external to the self. Next is *identified regulation*, which is a more self-determined



## Introduction

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form of extrinsic motivation. It involves an acceptance of the underlying value of the given behavior, and the person identifies with this value. Last is *integrated regulation*, which represents the most complete internalization. It differs from identified because the value of the behavior is integrated within the self, and is coherent with other aspects of the individual. However, as the behavior itself is instrumental to the outcome, it is differentiated from intrinsic motivation.

Located at the far left of Figure 1 is *amotivation*, a non-regulation, defined by a lack of intention to act (Deci & Ryan, 2000). It represents a void of self-determination for the given behavior, and is therefore in contrast to all other regulations. An amotivated person is not acting, or acting passively, due to a perception of being unable to achieve a desired outcome, or because the outcome itself is not valued (Ryan, 1995).

Researchers tend to study motivation in terms of a dichotomous divide between self-determined or controlled, or as indexed according to the relative level of autonomy (Ryan & Deci, 2017). Self-determined motivation is comprised of intrinsic, integrated and identified regulation, whilst controlled motivation is represented by external and introjected regulation. The index of relative autonomy offers a motivation score, with a higher score reflecting more self-determination. Research in the context of youth sport has shown that self-determined motivation is favorable, associating it with persistence, enjoyment, self-efficacy and positive attitudes towards healthy behavior (Alvarez, Balaguer, Castillo, & Duda, 2009; Inoue, Wegner, Jordan, & Funk, 2015; Pelletier et al., 2001; Sarrazin et al., 2002). In contrast, controlled motivation has been positively linked to post training negative affect and dropout (Gagne, Ryan, & Bargmann, 2003; Temple & Crane, 2015). However, the method of combining qualitatively distinct regulations has been scrutinized as research suggests that considering the quality of motivation adds explanatory value even when accounting for the amount of self-determination (Howard, Gagné, Morin, & Forest, 2016). Furthermore, a

primary interest in SDT research is to investigate how each regulation predicts outcomes as they all have their own specific sources, qualities and phenomenology and will differentially affect experiences and well-being (Ryan & Deci, 2017). Therefore, when examining motivational regulations, we elected look at them separately.

### *Basic Needs Theory*

The crux of SDT is basic psychological needs, in that the aforementioned innate tendency towards growth and personal coherence, reflected in both internalization and intrinsic regulation, is dependent on psychological need satisfaction (Vansteenkiste & Ryan, 2013). According to Deci and Ryan (2000), all humans have three basic psychological needs, namely the need for autonomy, competence and relatedness. Autonomy refers to self-regulated behavior and experiences, associated with a sense of volition and congruence (deCharms, 1968; Ryan & Deci, 2017). Competence is reflected in a feeling of effectance and mastery within important contexts (Ryan & Deci, 2017). Relatedness is defined as feeling integral to social structures outside oneself, akin to belonging and connectedness (Ryan & Deci, 2017). All three needs are essential, which means none can be neglected or thwarted without negative consequences for optimal development, and satisfaction does not lead to a reduction in the needs as they are by definition omnipresent (Deci, 1975; Deci & Ryan, 2000). Satisfaction of all three needs has been associated with positive outcomes in youth sport, such as enjoyment, subjective vitality and engagement (Balaguer et al., 2012; Curran, Hill, Ntoumanis, Hall, & Jowett, 2016; Quested et al., 2013). Furthermore, the needs are considered similar to physiological ones, in that they are universal (Ryan & Deci, 2017). However, Ryan and Deci (2000) maintain that their relative salience and manner in which they are satisfied can vary across the lifespan and contexts.

A recent distinction has been made between lack of fulfilment and experiencing the basic psychological needs as actively thwarted (Vansteenkiste & Ryan, 2013). The result of

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need thwarting is need frustration, which is expected to lead to significant psychological costs and accommodations for the individual, and must therefore be avoided (Deci & Ryan, 2000). This has gained empirical support with findings indicating that need frustration in sport is distinct from need satisfaction and dissatisfaction, and is a better predictor of maladaptive outcomes such as depression, burnout, negative affect and disordered eating (Balaguer et al., 2012; Bartholomew, Ntoumanis, Ryan, & Thogersen-Ntoumani, 2011).

Researchers have traditionally positioned need satisfaction before motivational regulation in the motivational sequence, because need satisfaction is thought to fuel intrinsic regulation as well as the internalization and integration of ambient values (Deci & Ryan, 2000; Vallerand & Losier, 1999). Alvarez et al. (2009) offered support for this sequence in the context of youth soccer. However, Ryan and Deci (2017) argued that the inherent tendency towards internalization and intrinsic motivation is also accompanied by need satisfaction in that self-determination allows athletes to better satisfy their basic psychological needs. This means that need satisfaction can be both an antecedent and an outcome of self-determined behavior (Vansteenkiste & Ryan, 2013). However, to our knowledge, basic psychological need satisfaction as an outcome of self-determined activity has not received a great deal of attention in youth sport research.

Vallerand and Losier (1999) argued that the coach is crucial in terms of the social psychological environment in sport, and can influence athletes' basic psychological needs. In the empirical study of coach behavior from a SDT perspective, this behavior is often conceptualized as perceived; *autonomy support* and *control*, respectively (Ryan & Deci, 2017; Vallerand & Losier, 1999). An autonomy supportive coaching style reflects the belief that athletes are deserving of self-determination and are not puppets to be controlled in order to obtain desired outcomes (deCharms, 1968). Mageau and Vallerand (2003) presented a set of autonomy supportive behaviors that in combination should facilitate need satisfaction. These

are: (1) providing choice within specific rules and limits, (2) providing a rationale for activities, rules and limits, (3) inquiring about and acknowledging other people's feelings and perspectives, (4) providing opportunity for initiative and independent work, (5) using non-controlling feedback, (6) avoiding overt control and (7) preventing ego-involvement in the athletes. In combination, these behaviors should facilitate autonomy by allowing athletes to be the initiator of their behavior, support competence by communicating trust in athletes' abilities, and promote relatedness by considering their perspectives (Mageau & Vallerand, 2003). This has been empirically supported, with results showing a positive relationship between this style and athletes' basic psychological need satisfaction (Balaguer et al., 2012; Curran et al., 2016; González, Tomás, Castillo, Duda, & Balaguer, 2016; Quedsted et al., 2013).

Unfortunately, contrary to being autonomy supportive, coaches may display controlling behaviors (Fraser-Thomas & Côté, 2009; Mageau & Vallerand, 2003; Shields, Bredemeier, LaVoi, & Power, 2005). Bartholomew, Ntoumanis & Thøgersen-Ntoumani (2010) defined a controlling coaching style as being pressuring, coercive and overbearing in order to ensure a specific way of thinking and behaving on the part of athletes. A caveat regarding this type of behavior is that it may appear adaptive because the athletes often behave the way the coach wants them to (Bartholomew, Ntoumanis, & Thøgersen-Ntoumani, 2009). However, the athletes will view the pressure from the coach as the origin of their behavior, acting because they feel compelled or forced even if it is not in accord with their own psychological needs. Over time, this will result in need frustration and subsequent psychological ill-being and disaffection (Balaguer et al., 2012; Bartholomew et al., 2009; Curran et al., 2016; González et al., 2016).

As with autonomy support, a controlling interpersonal style is conceptualized in terms of several behavioral strategies that all involve judging and devaluing athletes by treating

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them as objects that should be controlled (Bartholomew, Ntoumanis, & Thøgersen-Ntoumani, 2010). The strategies are: (1) controlling use of rewards, (2) negative use of conditional regard, (3) intimidation, and (4) excessive personal control. Each strategy is thought to undermine athletes' need for autonomy, competence and relatedness, although some (i.e. intimidation and negative conditional regard) may be particularly damaging to the well-being of those subjected to them (Bartholomew et al., 2009).

Alvarez et al. (2009) tested the full motivational process proposed by Vallerand and Losier (1999) in context of youth soccer. They reported that basic psychological need satisfaction mediated the relationship between coach autonomy support and self-determined motivation. Moreover, they also found that self-determined motivation partially mediated the relationship between basic psychological need satisfaction and enjoyment and boredom. However, this study is rare, as most examine either basic psychological need satisfaction or motivation, but not both. For example, Pelletier et al. (2001) found that coach autonomy support was related to intrinsic, identified and introjected regulation, all of which were positively linked to sport persistence. Conversely, controlling coach behavior was associated with introjected and external regulation, which were both negatively linked to persistence. In terms of psychological needs, Curran et al. (2016) observed that need satisfaction mediated the positive relationship between coach autonomy support and engagement in youth soccer. Moreover, need satisfaction also mediated the negative relationship between controlling coach behavior and engagement. In another study, Balaguer et al. (2012) reported that need satisfaction mediated the positive relationship between coach autonomy support and subjective vitality, and the negative relationship between coach autonomy support and burnout. Furthermore, need frustration mediated the positive relationship between controlling coach behavior and burnout.

The studies mentioned above made use of a composite measure of need satisfaction, which makes it impossible to discern the unique relationships associated with each of the three needs. Interestingly, studies that have investigated the needs separately have differed in terms of findings. González et al. (2016) found that all three needs mediated the relationship between autonomy supportive coaching and subjective vitality and burnout in youth athletes. In the same study, competence frustration was found to mediate the relationship between controlling coach behavior and subjective vitality and burnout, while relatedness frustration only mediated the relationship between controlling coach behavior and burnout. No mediation through autonomy frustration emerged. However, González and colleagues employed a time-lagged design, and did not control for previous levels of the needs. This is essentially a variant of a cross-sectional design (Ployhart & Vandenberg, 2010; Stenling, Ivarsson, & Lindwall, 2017). In contrast, research assessing residual change reported somewhat different results. Kipp and Weiss (2015), for instance, found that only competence satisfaction mediated the relationship between autonomy support (combined with a mastery climate) and general self-esteem in young gymnasts. In another study examining autonomy support by itself, only peer relatedness emerged as a mediator in the relationship between coach autonomy support and self-esteem in youth soccer (Cheval, Chalabaev, Quested, Courvoisier, & Sarrazin, 2017). Thus, based on the equivocal findings in previous longitudinal research, it appears pertinent to disaggregate these variables and control for previous levels in order to increase our understanding of how each of the needs relate to coach behavior and various outcomes.

Given that the present thesis is concerned with positive experiences and outcomes of youth sport participation, it was of interest to look at outcomes beyond the organized sports setting. A framework that allows for this is the trans-theoretical model (TCM; Hagger & Chatzisarantis, 2012, 2016). This is not a sub-theory of SDT, although it does draw from SDT. Originally positioned in the physical education domain, the model outlines the

processes by which motivation towards physical activity in one domain predicts motivation for, and engagement in, similar physical activity outside of that domain. Specifically, the model consists of three central propositions (Hagger & Chatzisarantis, 2016). These are: (1) perceptions of autonomy support predict self-determined motivation in the context it is offered, (2) self-determined motivation in a given context predicts self-determined motivation for similar activity in other contexts, and (3) self-determined motivation in the other context predicts actual behavioral engagement in that other context.

Fenton, Duda, Quested, and Barrett (2014) reported findings consistent with the aforementioned propositions of the trans-theoretical model, as self-determined motivation mediated the relationship between coach autonomy support and daily physical activity levels. The underlying mechanism for these relationships is thought to be the satisfaction of basic psychological needs. Specifically, a behavior that results in need satisfaction is perceived as a candidate for satisfying needs in the future (Deci & Ryan, 2000; Hagger & Chatzisarantis, 2016; Ryan, 1995). The behavior therefore becomes attractive to the individual, leading them to seek it out, regardless of context. Research from the physical education domain has offered support for this mechanism, showing that teacher autonomy support was associated with physical activity outside of school, by way of basic psychological need satisfaction (González-Cutre, Sicilia, Beas-Jiménez, & Hagger, 2014).

### ***Achievement Goal Theory***

Achievement Goal Theory (AGT) is based on a social-cognitive approach to human motivation, viewing individuals as intentional, rational and goal-directed (Nicholls, 1984, 1989). Accordingly, what a person wants in conjunction with their understanding of how they can achieve this in a given achievement setting allows for predicting their behavior in that

setting (Nicholls, 1989). AGT therefore incorporates individual differences variables with situational determinants in order to explain achievement behavior (Roberts, 2012).

*Conceptions of Competence and Goal Orientations*

According to AGT, the goal of achievement behavior is to develop or demonstrate competence (Nicholls, 1984). The concept of competence is central, and how the individual perceives competence becomes imperative to the subjective experience and overt behavior in an achievement setting (Nicholls, 1984). AGT has traditionally viewed competence in terms of two distinct conceptions, either a differentiated or a less differentiated one (Nicholls, 1989). The less differentiated conception of competence is self-referenced, and ability is considered in regard to mastery, effort and learning. The differentiated conception of competence is other-referenced. That is, competence is evaluated in terms of normative standards, and learning is insufficient for the demonstration of competence. Effort is seen as a capacity, assessed in relation to the effort of others. Thus, in addition to performing well in regard to normative levels, a valid inference of competence requires the effort exerted to be equal or less to others performing the same behavior.

A person's conception of competence creates the foundation for the relatively stable standards by which individuals evaluate their competencies, referred to as achievement goal orientations (Roberts, 2012). The achievement goal orientation based on the less differentiated conception is concerned with the task rather than the performance of others and is therefore referred to as a task goal orientation. Conversely, the achievement goal orientation based on the differentiated conception requires a relatively social self-evaluative perspective and has therefore traditionally been referred to as an ego goal orientation (Nicholls, 1984). While an ego goal orientation may not be problematic per se, particularly when perceived competence is high, there is a vulnerability that accompanies this orientation because it is difficult and sometimes outside of one's control to always be better than others (Nicholls, 1984; Roberts,



2012). In contrast, a task goal orientation is more attainable, and is associated with seeking challenges and exerting effort. A task goal orientation is therefore considered beneficial for functioning and behavior, in comparison to an ego goal orientation (Nicholls, 1989). This has garnered empirical support in the sport psychology literature, showing that a task goal orientation is related to positive aspects of youth sport participation, while an ego goal orientation appears linked to more negative aspects (Biddle, Wang, Kavussanu, & Spray, 2003). However, an important feature of achievement goal orientations is that they are orthogonal, meaning that a person can present high or low levels of both (Roberts, 2012).

### *The Hierarchical Model of Achievement Motivation*

In the past two decades there have been calls for a reconceptualization of AGT, in particular the hierarchical model of achievement motivation, concerned with the concept of valence (Elliot & Church, 1997; Elliot & Thrash, 2001). In this model, avoidance and approach dimensions were added to each of the aforementioned orientations, representing the distinction between wanting competence and wanting to avoid incompetence. However, the issue remains highly debated among AGT theorists (Midgley, Kaplan, & Middleton, 2001; Roberts, 2012; Senko, Hulleman, & Harackiewicz, 2011). For example, research has cast doubt over whether adolescents actually distinguish between approach and avoidance, and whether the dimensions truly represent separate psychological realities (for more information, see Roeser, 2004 and Roberts, 2012). As the present research is based in the youth sport context, we employed the traditional dichotomous distinction of ego and task goal orientation.

### *State of Involvement*

Achievement goal orientation is sometimes confused with the similar but distinct construct of goal involvement. According to theory, involvement refers to the goal state an individual experiences in a given achievement situation, while achievement goal orientation is

individual differences in the proneness for a certain goal involvement (Nicholls, 1989). As such, goal involvement is the antecedent of achievement behavior, and it is more conceptually coherent to view the effects of involvement rather than orientation (Roberts, 2012). However, based on the definition of state of involvement, Roberts (2012) argued that measuring the concept empirically is troublesome. It requires assessing an athlete's goal state and its outcome in a specific situation, for example during a training session or a competition. Unfortunately, this is not always feasible. For this reason, the present work focused on achievement goal orientations.

### *Motivational Climate*

One of the strengths of AGT is that it incorporates individual differences variables with situational determinants in order to explain achievement behavior (Roberts, 2012). The situational determinants are the achievement criteria that are perceived as salient in a given context, also referred to as the perceived motivational climate (Ames, 1992a). The motivational climate is characterized by the various structures within the context, such as the design of tasks and drills as well as the evaluation procedures (Ames, 1992b). According to Nicholls (1984), athletes' perceptions of the motivational climate are associated with their achievement behavior, cognition, and affective responses. In a seminal study on learning contexts from an AGT perspective, Ames and Archer (1988) made a distinction between a mastery motivational climate and a performance motivational climate. This distinction is similar to the aforementioned orientations, as they emphasize the same underlying conceptions of competence. Specifically, a mastery climate corresponds to a task goal orientation, and a performance climate corresponds to an ego goal orientation.

Due to their role in communicating the criteria for success, coaches represent a crucial feature of the motivational climate in youth sport (Ntoumanis & Biddle, 1999). A coach-created mastery climate focuses on individual improvement, mastery and effort, and has been

associated with positive aspects of participation, for example enjoyment, adaptive strategies, self-esteem and pro-social attitudes (Harwood, Keegan, Smith, & Raine, 2015). In contrast, a coach-created performance climate emphasizes normative comparison and competition, rewarding the most talented athletes and fostering within team rivalry. This type of climate has been empirically linked to less desirable outcomes, such as antisocial attitudes, negative affect and perfectionism (Harwood et al., 2015). According to AGT, individuals with an ego goal orientation may function well in a performance climate if they are also high in perceived competence. But as soon as perceived competence wavers the level of functioning is likely to be reduced (Roberts, 2012). In terms of motivational and affective patterns, a coach-created mastery climate, compared to a performance climate, is therefore considered adaptive (Duda & Treasure, 2015).

As evident by the preceding theoretical summary, AGT emphasizes the importance of both individual and social-contextual constructs (i.e. achievement goal orientations and the motivational climate) to the study of motivation. However, the relationship between the two is an area of ambiguity within the AGT literature (Wolters, 2004). For example, Ames (1992b) wrote about a socialization influence on young people's achievement goal orientations, indicating that exposure to a strong motivational climate can influence the salience and adoption of the related achievement goal orientation. This was supported by Roberts, Treasure, and Balague (1998), who argued that achievement goal orientations in sport are dynamic cognitive schemas that are subject to change. Dweck and Leggett (1988), on the other hand, argued that perceptions of a motivational climate may moderate the influence of an achievement goal orientation. Others have suggested that achievement goal orientations may cognitively bias athletes towards perceiving the achievement criteria that correspond to that specific achievement goal orientation (Harwood, Spray, & Keegan, 2008). Accordingly, there is no universal consensus on the nature of the exact relationship between the two

(Roberts, 2012). While we acknowledge this, we subscribe to the idea of a socialization effect in the present thesis.

### ***Combining SDT and AGT***

Some papers of the present thesis combine aspects of AGT and SDT. However, it is important to note that these combinations do not represent an attempt to integrate SDT and AGT. Integration would require the theories to be rooted in a similar view on human nature, which they are not (Vansteenkiste & Mouratidis, 2016). While SDT is based on an organismic-dialectical perspective, AGT is a social-cognitive theory. That is to say, SDT focuses on innate needs and AGT is concerned with goals. While needs are affectively based motivational dispositions that energize the individual and are a part of an individual's inherent psychological makeup, a goal is a cognitive representation that serves a directional function in terms of behavior (Elliot, McGregor, & Thrash, 2002). The present thesis is not an attempt to contribute to the needs versus wants debate but rather to combine the two theories at an empirical level in order to capture aspects beyond the operational utility of either theory alone. This reflects a multi-theoretical approach, which can offer useful insights particularly in terms of practical implications.

An example of such a multi-theoretical approach is the concept of empowering and disempowering coaching, which combines the social-environmental dimensions from both AGT and SDT to explain coach behavior (for more information see Duda, 2013). Another example is the recent combination of achievement goals and their underlying motivational regulations (Vansteenkiste, Lens, Elliot, Soenens, & Mouratidis, 2014). The latter example inspired the first paper included in the present thesis, and will be discussed more thoroughly in the next section.

## **The Present Thesis**

### ***Theme 1 - How youth athletes' motivation influences intrapersonal aspects pertaining to their participation as well as in general***

Guided by SDT and AGT research, we set out to investigate aspects of motivation in youth sport. As mentioned earlier, these aspects are reflected in three main themes. The first one concerns how athletes' motivation influences intrapersonal aspects pertaining to their participation as well as in general. The starting point for our investigation was achievement goal orientations. However, Vansteenkiste, Lens, et al. (2014) argued that while achievement goals are indicative of the direction of achievement strivings, the "what", they do not emerge from a vacuum. The goals must have an energizing basis that fuels them. This is reflected in the "why". According to Ryan, Sheldon, Kasser, and Deci (1996), both the "what" and "why" are crucial for understanding the effectiveness, persistence, and experiential qualities associated with achievement behavior, as well as the functional impact on personal well-being. Thus, our aim was to investigate the interaction of the "what" and "why" of youth sport participation.

AGT literature suggests that individuals with a high level of task goal orientation are optimally motivated (Biddle et al., 2003; Nicholls, 1989). This reasoning builds on a conglomeration of the "what" and "why", suggesting that each orientation is combined with one particular "why". From this perspective, a task goal orientation is always accompanied by a facilitative "why". In contrast to this view of achievement goal orientations, some argue that achievement behavior can be differentially regulated, presenting important nuances in the consequences of the behavior (Elliot & Thrash, 2001; Vansteenkiste, Lens, et al., 2014). This could explain why ego goal orientations sometimes appear to be non-related, or even positively related, to adaptive outcomes, which is an area of contention in the AGT literature (Midgley et al., 2001; Roeser, 2004; Senko et al., 2011). Therefore, inspired by Vansteenkiste,

Lens, et al. (2014), we combined achievement goal orientations from AGT with motivational regulations from SDT to empirically assess the interaction of the "what" and "why" of youth sport motivation.

A micro-approach is necessary when combining achievement goal orientations and motivational regulations, which requires differentiating the achievement aims from the underlying reasons for the achievement behavior (Vansteenkiste, Lens, et al., 2014). This calls for a narrower definition of achievement goal orientations than the traditional conceptualization proposed by the founders of AGT. Originally, achievement goal orientations encompassed several aspects of competence-based processes, such as aims, reasons, and feelings (Nicholls, 1984; Senko et al., 2011). However, researchers have argued that this agglomeration is problematic, mainly because conceptualization becomes difficult and it is hard to delineate which of the aspects are driving any observed effects (Elliot & Thrash, 2001; Vansteenkiste, Lens, et al., 2014). As a result, guiding practice and developing theory becomes difficult. Thus, in line with Vansteenkiste, Lens, et al. (2014) and Elliot and Thrash (2001), we defined achievement goal orientations as concrete cognitive representations of the directional component of achievement motivation. As such, all items referred to the standards of success and did not include validation concerns or choice components, more precisely reflecting competence standards. Yet, we kept the term orientation in order to distinguish it from the achievement goals within the hierarchical model of achievement motivation.

Removing reasons from the achievement goal orientation construct allows for a more systematic examination of the regulatory basis for which the achievement goal orientations is pursued (Vansteenkiste, Lens, et al., 2014). Specifically, it offers an opportunity to consider a diversity of reasons underlying both ego and task goal orientation. We agree with Vansteenkiste, Lens, et al. (2014) that such an approach fits better with what achievement

behavior looks like in reality, in that there may be athletes with the same achievement goal orientation being engaged in sports for a variety of reasons. To quote Elliot and Thrash (2001), this approach better accentuates the "idiographic flavor" (p.8) of achievement behavior.

The basic notion behind combining achievement goal orientations and motivational regulations is that the achievement goal orientations may have different consequences depending on the level of internalization, indicating how close the achievement behavior is to the core self (Roeser, 2004). Recent sport psychology research offers support for this idea, suggesting that how achievement goals are regulated matters. For instance, self-determined regulation of task-approach goals has been positively associated with game-specific pro-social behavior, enjoyment and performance satisfaction in volleyball players (Vansteenkiste, Mouratidis, Van Riet, & Lens, 2014). In terms of controlled motivation, Vansteenkiste, Mouratidis, and Lens (2010) reported a link between controlling reasons underlying ego-approach goals and unfair functioning in competition, higher negative affect, and lower positive affect (Vansteenkiste et al., 2010). Furthermore, another study reported that goals and regulations interact to predict outcomes (Gaudreau & Braaten, 2016). Specifically, both ego-approach and task-approach goals presented stronger relationships with goal attainment when the goals were regulated by self-determined reasons, while a stronger relationship to negative affective states was seen when the underlying regulation was highly controlled.

The aforementioned sport psychology research looked at the reasons underlying specific goals. However, the "what" and "why" should also exist in regard to sport participation in general, in that participation in a given youth sport can be differentially regulated. This is likely to represent important nuances in how the "what" will relate to outcomes. To illustrate, the differential experiences of athletes who adopt an ego goal orientation for a sport that they are coerced into by their parents (externally regulated) or they

participate in because of the inherent enjoyment they experience through the activity (intrinsically regulated) appears intuitive. Thus, extending previous research, we set out to examine whether the underlying regulation of participation in youth sport, rather than the achievement goal orientation itself, would moderate how the achievement goal orientations relate to outcomes.

According to SDT, the interaction of the "what" and "why" becomes meaningful when seen in relation to basic psychological need satisfaction (Deci & Ryan, 2000; Ryan et al., 1996). We therefore added the need for competence as a mediator in our model, with general self-esteem as the outcome. This led to a paper titled "*Both the "what" and "why" of youth sports participation matter; a conditional process analysis*", based on the following four research questions:

- (1) Is the relationship between task goal orientation, competence need satisfaction and self-esteem in youth soccer conditional on the level of intrinsic regulation for participation in youth soccer?
- (2) Is the relationship between task goal orientation, competence need satisfaction and self-esteem in youth soccer conditional on the level of external regulation for participation in youth soccer?
- (3) Is the relationship between ego goal orientation, competence need frustration and self-esteem in youth soccer conditional on the level of intrinsic regulation for participation in youth soccer?
- (4) Is the relationship between ego goal orientation, competence need frustration and self-esteem in youth soccer conditional on the level of external regulation for participation in youth soccer?



***Theme 2: The relationship between perceived coach behavior and various motivational outcomes***

While the first theme addressed in the present thesis focused on how motivation relates to outcomes, the second is concerned with an antecedent of youth sport motivation. Specifically, we were interested in the relationship between perceptions of coach behavior and various motivational outcomes. As the coach is considered critical in terms of athlete motivation (Duda, 2013; Ntoumanis & Biddle, 1999), it is imperative to continue to understand how coaches influence motivation, and although this has received extensive empirical attention, there are still questions that remain unanswered.

As evident from the literature reviewed earlier, facilitating a task goal orientation in sport is desirable, and previous research indicates that a coach-created mastery climate is related to a task goal orientation (Bengoechea & Streat, 2007; Harwood et al., 2015; Smoll, Smith, & Cumming, 2007). However, Keegan, Spray, Harwood, and Lavalley (2010) asked whether something as complex as the social environment in sport can be comprehensively represented by such a parsimonious model. Indeed, a more refined and useful understanding of a phenomenon requires us to not only assess the relationship between two variables, but also under what conditions this relationship exists, and does so strongly as opposed to weakly (Hayes & Preacher, 2013). Along those lines, Vallerand and Losier (1999) advocated the need for research investigating whether the effect of certain social factors on athlete motivation varies as a function of another social factor. They argued that these types of investigations could help uncover the complexity of the relationship between social factors and athletes' motivation.

For a coach-created mastery climate to facilitate athletes' adoption of a task goal orientation, internalization of the mastery values presented by the coach is required. Thus, a social factor that might influence how the coach-created motivational climate relates to

athletes' task goal orientation is the level of controlling coach behavior. The reason for this is that interpersonal control thwarts the need for autonomy, which is essential for internalization to occur (Bartholomew et al., 2010; Deci & Ryan, 2000). As such, controlling coach behavior may abate the socialization effect of a mastery climate on athletes' task goal orientation by undermining the active process of internalization. If so, the relationship between the coach-created mastery climate and task goal orientation would be conditional on low levels of controlling coach behavior, and Ntoumanis, Mouratidis, Ng., and Viladrich (2015) encouraged sport psychology researchers to test conditional relationships, arguing that findings may have implications for theory building.

According to Ames (1992b), the features of a mastery climate can be implemented in a controlling manner. However, to the best of our knowledge, a formal test of whether controlling coach behavior abates the socialization relationship between perceptions of a coach-created mastery climate and youth athletes' level of task goal orientation has yet to be conducted. As this is an interesting question with the potential for important practical implications it was addressed in our second paper, titled "*A conditional process analysis of the coach-created mastery climate, task goal orientation and competence satisfaction in youth soccer: the moderating role of controlling coach behavior*". The following research question was formulated:

- (1) Is the relationship between perceived coach-created mastery climate, task goal orientation and competence satisfaction in youth soccer conditional on the level of perceived controlling behavior from the coach?

The first two papers included in the present thesis were centered on motivation and psychological outcomes. However, one aim of the PAPA project was to understand how youth sport can serve as a vehicle for promoting physical activity. Thus, in paper III, we

investigated one of the ways in which coach behavior can promote additional physical activity outside of the organized team context.

Participation in organized sport can be a significant contributor to youths' physical activity levels (Wickel & Eisenmann, 2007). However, recent research suggests that a youth soccer practice does not meet daily physical activity recommendations, and includes periods of inactivity due to instruction and organizing (Leek et al., 2011). Furthermore, evidence suggests that there are great variabilities in day-to-day physical activity levels among youth soccer players, with around 80% not meeting the recommended levels (Fenton et al., 2016). Part of the reason for this is probably that a youth soccer training session is focused on skill development and not physical activity per se. It is our opinion that the unique features of sport, such as skill development, should not be substituted for a greater focus on physical activity. Therefore, one viable way of stimulating physical activity levels is to facilitate additional soccer activity outside of the organized context. Furthermore, additional soccer activity appears important for the progression to elite status in youth soccer, making it relevant from a talent development perspective as well (Ford, Ward, Hodges, & Williams, 2009).

Previous TCM research suggests that coach autonomy support can facilitate additional activity outside of the team context (Fenton et al., 2014). Building on this research we wanted to see if autonomy supportive coaching could promote additional soccer activity outside of the team context, by satisfying basic psychological needs. This led to the paper titled "*Promoting additional activity in youth soccer: a half-longitudinal study on the influence of autonomy-supportive coaching and basic psychological need satisfaction*". The following research question was formulated:

- (1) Does basic psychological need satisfaction mediate the relationship between perceptions of coach autonomy support within the team context and self-reported frequency of additional soccer activity outside of this context?

***Theme 3: The role of coach-team perceptual distance in the relationship between coach behavior and various motivational outcomes.***

A common theme for a majority of the research examining the link between coach behavior and athlete motivation, including the papers described above, is that only the perceptions of the athletes are considered. Yet, the coach and his/her athletes are inseparable entities, and the coach-athlete relationship is defined as a social situation, shaped by interpersonal thoughts, feelings, and behaviors (Jowett & Shanmugam, 2016). Thus, as the key to coaching lies in the connection between these two entities (Jowett, 2017), it is essential to consider both the coach *and* the athletes when attempting to understand the nature of coaching.

Nearly four decades ago, Curtis, Smith, and Smoll (1979) compared coaches' ratings of their own behavior to their athletes' ratings of the same behavior. Results showed little agreement, particularly concerning positive behaviors. Recently, Smith et al. (2016) supported these findings, showing that there were no significant correlations between coaches' and athletes' ratings of either a coach-created mastery or performance climate. Yet, despite observing that the perceptions of the coach may not always reflect those of his/her athletes, how such perceptual disagreements may influence athletes has rarely been studied. In organizational psychology, however, an emerging interest for what is referred to as perceptual distance looks specifically at the differences and similarities in the perceptions of leaders and their teams (Gibson, Cooper, & Conger, 2009).

Perceptual distance is defined as the level to which a leader and their team differ in their perceptions of the same social stimulus (Gibson et al., 2009). A large perceptual distance means that the coach and the team are in perceptual disagreement regarding the given social stimulus. In contrast, a small perceptual distance is reflective of perceptual agreement. Research from the organizational psychology domain suggests that perceptual distance in regard to a social stimulus may hold implications for team outcomes, beyond that of the main effects of the team perceptions (Tafvelin, von Thiele Schwarz, & Hasson, 2017). For example, Bashshur, Hernández, and González-Romá (2011) found that leader-team perceptual distance in regard to organizational support was related to team performance in the corporate domain. Specifically, performance was higher when leaders and their employees were in perceptual agreement, and lower when not. Similar results were seen with teams' affective responses. Moreover, in the only study to date that has investigated this phenomenon in the youth sport context, Rocchi and Pelletier (2017a) found that when coaches and athletes were in perceptual agreement regarding supportive behaviors, basic psychological need satisfaction was promoted. Rocchi and Pelletier also found that basic psychological need frustration was promoted when there was perceptual agreement between the coaches and the athletes regarding need thwarting behaviors. Furthermore, this study and others have found that team outcomes suffer the most when there is perceptual distance, and the leader (i.e. coach in the sporting context) perceives the social stimulus more positively compared to their team (Bashshur et al., 2011; Tafvelin et al., 2017).

Collective cognition has been forwarded as an explanation for the relationship between perceptual distance and various team outcomes, defined as knowledge that is shared between the members of a group, not residing within one individual but in the interrelations between members (Cannon-Bowers & Salas, 2001; Gibson, 2001). Specifically, collective cognition allows the group to interact effectively, such as taking coordinated action, predicting each

other's behavior, develop similar beliefs and provide relevant information, all without the need to communicate overtly (Cannon-Bowers & Salas, 2001). The process of collective cognition in a group is defined by several phases, namely the accumulation, handling, examination and accommodation of knowledge, and an effective transition from one phase to another reflects a higher level of collective cognition (Gibson, 2001). According to Gibson et al. (2009), perceptual agreement, as opposed to disagreement, allows for the use of various catalysts for moving a group from one phase of collective cognition to another, such as feedback and clarifying roles. Applied to the coach-created motivational climate, it could be that the effectiveness of a motivational climate is aided by collective cognition, which the coach can better facilitate if there is perceptual agreement between the coach and the team.

In sum, extrapolating the findings from previous research on perceptual distance, perceptual agreement may be important for an effective coach-created motivational climate. Understanding whether this phenomenon is related to important outcomes can offer important nuances to our knowledge of coaching. Thus, inspired by research from organizational psychology specifically, we wanted to investigate coach-team perceptual distance in regard to the coach-created motivational climate. We looked at how it related to various outcomes, namely achievement goal orientations, enjoyment and anxiety, all of which have been associated with the coach-created motivational climate previously (Harwood et al., 2015) and is thought to be important to the youth sport experience (Biddle et al., 2003; Duda et al., 2017; Roberts, 2012; Temple & Crane, 2015). This led to the paper titled "*A study of coach-team perceptual distance concerning the coach-created motivational climate in youth sport*", and the following research question was formulated:

- (1) Does coach-team perceptual distance in regard to the coach-created motivational climate relate to team-rated achievement goal orientations, enjoyment and anxiety?

**Summary**

In brief, the extensive body of literature reviewed here shows the importance of youth athletes' motivation and their perceptions of their coach's behavior. The present thesis attempted to build on this work by looking at potential nuances of previously established relationships. To do so, the thesis makes use of psychological outcomes, both affective and cognitive (papers I, II, III and IV) as well as behavioral ones (paper III). Moreover, we assessed outcomes within the organized youth sport context (papers I, II, III and IV) and outside of that context (papers I and III). Conditional process analyses were employed to examine under what conditions a relationship exists, strongly as opposed to weakly (papers I and II). Longitudinal data was used to model change (paper III), and polynomial regression with response surface methodology was applied to investigate the relationships between three variables (paper IV).

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## METHODS

The present thesis consists of four papers, all aimed at examining aspects of motivation in youth sport. This chapter outlines the methods employed in each of the four papers. First, an overview of the larger PAPA project is given, as well as the second sample collected as a part of a project funded by the Union of European Football Associations (UEFA). Thereafter the specific samples, designs and analyses for each of the four papers are presented consecutively.

### **The PAPA Project**

Three of the papers included in the present thesis are a part of the Norwegian arm of the larger multi-country PAPA project, in which data was collected from youth soccer athletes and their coaches (Duda et al., 2013). The PAPA-project was funded by the European Union under the 7<sup>th</sup> Framework Programme for Research - Health (grant no 223600). Although the present work draws mainly on the athlete sample, the coach sample is included in paper IV. Both samples are therefore described below. For more information regarding the data collected on coaches, we direct you to the work of Solstad and colleagues (Solstad, 2017; Solstad et al., 2017; Solstad, van Høye, & Ommundsen, 2015). Furthermore, the PAPA project also involved a coach education intervention called Empowering Coaching™ (Duda, 2013). As an assessment of this intervention is not a part of the present thesis, there will be no further account of the program. We direct you to Duda (2013) and Duda et al. (2013) for more information on this part of the project.

### ***Sample and Procedure***

The total athlete sample consisted of 1592 male ( $n = 950$ ) and female ( $n = 642$ ) youth athletes, divided into control ( $n = 527$ ) and intervention groups ( $n = 1065$ ). The athletes ranged in age from 9 to 15 years ( $M_{age} = 11.81$ ,  $SD = 1.19$ ) and reported to have been on



## Methods

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their respective teams for an average of 4.42 seasons ( $SD = 2.20$ ). Furthermore, the athletes reported six ( $SD = .93$ ) training sessions per week with the team, amounting to a mean of 14 hours ( $SD = 1.5$ ) per week.

The coach sample used in paper IV included 87 coaches (male = 83, female = 4, unspecified = 1), between the ages of 18 and 56 ( $Mage = 42$ ,  $SD = 5.70$ ). All reported having some type of coaching certification, and had 6.95 ( $SD = 4.15$ ) years of coaching experience. The coaches had been coaching their present team for an average of 4.16 seasons ( $SD = 1.91$ ), and were classified as the head coach for their team.

In collaboration with the Norwegian Football Association (see Appendix 2), a sample of soccer clubs in the southern part of Norway was contacted by email with an invitation to participate in the project. Clubs were recruited to ensure that both urban and rural areas, various sizes, male and female coaches and athletes, as well as diverse ethnic and socio-economic backgrounds were represented in the sample. The project included two measurement points, and both were carried out before or after a team training session. Trained research assistants carried out the data collection, and coaches and athletes were placed in different rooms when responding to the questionnaire (paper-and-pencil), which took an average of 20 minutes. The time 1 (T1) data was collected at the start of the competitive season, which is during the spring in Norway, ensuring that the coach had spent at least one month with the team. The time 2 (T2) data was collected at the end of the season, during the fall, resulting in a 20 to 25 week time lag between the two data collections.

### **The UEFA Project**

#### *Sample and Procedure*

Paper I is based on another sample of athletes, namely the Norwegian sample from the project "Intentions to drop-out in female footballers from 5 European countries: The role of

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the coach-created motivational climate", funded by UEFA and hereafter referred to as the UEFA project. The Norwegian sample consisted of 496 female soccer ( $n = 204$ ) and handball ( $n = 292$ ) athletes, ranging in age from 11 to 19 years ( $M_{age} = 14.10$ ,  $SD = 1.86$ ). The athletes had been on their respective teams an average of 4.80 seasons ( $SD = 3.10$ ), reporting six ( $SD = .93$ ) sessions per week with the team, amounting to a mean of 14 hours ( $SD = 1.5$ ) total per week. In terms of procedure, we contacted clubs directly, who upon agreeing to participate directed us to make appointments with the coaches for the data collection. The data collection itself took place at the end of the season for soccer and midseason for handball. Trained data collectors administered the questionnaire before or after a team training session, and completing them took an average of 20 minutes.

## **All Papers**

### ***Questionnaires***

To lessen the burden on the athletes and coaches the PAPA project made use of shortened versions of previously established scales on coach behavior. For more information on the process of generating short scales, see Appleton, Ntoumanis, Quested, Viladrich, and Duda (2016). For all scales, athletes/coaches responded to the questions on a 5-point Likert scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). The questionnaire was administered in Norwegian, after being translated from English to Norwegian in an extensive translation-back-translation procedure (Harkness, 1999). Specifically, two bilingual researchers translated the questionnaire to Norwegian, resulting in two drafts. These were then back-translated by two other bilingual colleagues, and compared to the original.

The Norwegian arm of the UEFA project made use of the same questionnaire as in the PAPA project. However, one additional scale was added, namely the Psychological Need

Thwarting Scale (PNTS; Bartholomew, Ntoumanis, Ryan, & Thøgersen-Ntoumani, 2011).

This scale was translated following the same procedure as explained above.

### ***Ethical Considerations***

In terms of the PAPA project, the data collection received approval from the University of Birmingham ethics committee prior to its commencement (see Appendix 3). Regarding the UEFA project, the Norwegian Centre for Research Data (NSD) approved the study (see Appendix 9 and 10). Due to the lack of sensitive health information in both data collections, the approvals required only passive consent, meaning that the athletes and parents/legal guardians had to give the project manager a verbal or written refusal of participation. For both projects, the coaches and athletes (with parents/legal guardians) were informed about the purpose of the project through an information sheet which also explained the voluntary nature of participation, as well as how we would maintain confidentiality (see Appendix 5 and 11). Moreover, the athletes and coaches were also informed verbally that participation was voluntary, and that they could withdraw their consent at any point.

The next section outlines the specific samples and statistical analyses employed in each of the four papers.

### **Paper I**

Research questions:

- (5) Is the relationship between task goal orientation, competence need satisfaction and self-esteem in youth soccer conditional on the level of intrinsic regulation for participation in youth soccer?
- (6) Is the relationship between task goal orientation, competence need satisfaction and self-esteem in youth soccer conditional on the level of external regulation for participation in youth soccer?

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- (7) Is the relationship between ego goal orientation, competence need frustration and self-esteem in youth soccer conditional on the level of intrinsic regulation for participation in youth soccer?
- (8) Is the relationship between ego goal orientation, competence need frustration and self-esteem in youth soccer conditional on the level of external regulation for participation in youth soccer?

In order to answer these research questions, we drew upon the UEFA-project sample.

### *Measures*

**Achievement goal orientation.** Based on work by Duda and Nicholls (1992), 13 items from the Task and Ego Orientation in Sport Questionnaire (TEOSQ)<sup>1</sup> were used to assess achievement goal orientation, following the stem "I feel most successful in soccer/handball when...". Seven items were drawn upon to measure *task goal orientation* (Coefficient  $\rho = .82$ ; 95% CI = [.79-.85]; S.E. = .02 (Raykov, 2009); e.g., "I do my very best"), and six items were employed to measure *ego goal orientation* (Coefficient  $\rho = .84$ ; 95% CI = [.82-.86]; S.E. = .01; e.g., "I'm the only one who can do the skill"). Previous research has demonstrated acceptable psychometric properties for the use of this scale with youth sport athletes (Fenton et al., 2014).

**Motivational regulation.** The Behavioral Regulation in Sport Questionnaire (BRSQ; Lonsdale et al., 2008) was used to assess athletes' *intrinsic* and *external regulation* for soccer. The athletes were asked to rate how well the statements fit with their reasons for participating. Four items measured *intrinsic regulation* (Coefficient  $\rho = .78$ ; 95% CI = [.74-.82]; S.E. = .03; e.g., "because I enjoy it"), and four items measured *external regulation* (Coefficient  $\rho =$

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<sup>1</sup> In papers II and IV this has been mistakenly referred to as the Motivational Orientation Scale (MOS), which the TEOSQ builds on.

## Methods

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.75; 95% CI = [.70-.80], S.E. = .03; e.g. "because people push me to play"). Previous research has demonstrated acceptable psychometric properties for the use of this scale with youth sport athletes (Fenton et al., 2014).

**Competence.** Perceptions of competence satisfaction and frustration were tapped by asking the athletes about their general feelings and experiences on the team during the past month. Satisfaction was assessed based on six items from the Intrinsic Motivation Inventory (IMI; McAuley et al., 1989; Coefficient  $\rho = .92$ ; 95% CI = [.91-.93]; S.E. = .01; e.g. "I think I did quite well"). McAuley et al. (1989) supported the psychometric properties of the scale in a sports context. Moreover, four items from the competence factor of the PNTS (Bartholomew et al., 2011) were employed to measure competence frustration (Coefficient  $\rho = .79$ ; 95% CI = [.77-.82], S.E. = .02; e.g. "I feel inadequate because I am not given opportunities to fulfill my potential"). Bartholomew et al. (2011) provided initial support for the reliability and validity of the scores attained from this measure.

**Self-esteem.** Self-reported self-esteem was assessed by asking the athletes how they generally felt in their everyday life during the past 3-4 weeks. Five items were tapped from the short version of the Self-Description Questionnaire (SDQ; Marsh, Martin, & Jackson, 2010; Coefficient  $\rho = .79$ ; 95% CI = [.76-.83], S.E. = .02; e.g. "overall, most things I did, I did well"). Previous research has supported the psychometric properties of this scale (e.g., Marsh et al., 2010; Papaioannou et al., 2013).

## *Data Analyses*

**Structural equation modelling.** Structural equation modeling (SEM) was the statistical method of choice for three of the four papers included in the present thesis, namely paper I, II and III. SEM is a statistical methodology based on a confirmatory approach to the analysis of a structural theory, which usually represents "causal" processes (Byrne, 2012). Similarly to

other statistical methods, the aim of SEM is to test a theory by specifying a model that represents the predictions of that theory, a path model, and determine the degree to which the model is consistent with the data (Kline, 2011). Key features of SEM include the confirmatory framework, the provision of explicit measures of error variance parameters, and the distinction between observed and latent variables (Byrne, 2012; Kline, 2011).

Latent variables are abstract phenomena that represent theoretical constructs that are not directly observable and cannot be measured directly (Byrne, 2012). Thus, investigating latent variables requires modeling the measurement theory, that is, a set of observed variables thought to be indicative of the latent construct. One method for inferring latent variables is through a confirmatory factor analysis (CFA) which focuses on the links between said observed variables and the latent variable, essentially examining the factor structure of the respective scales. A CFA is appropriate when the researcher has some knowledge of the underlying latent variable structure, as it requires postulating the relationship between the observed measures and the underlying factors a priori, and then testing them statistically (Byrne, 2012). If the CFA can confirm the measurement theory, a full SEM model can be created, with the regression structure among the latent variables specified (Byrne, 2012). However, the CFA cannot confirm the measurement theory if there are discrepancies between the proposed model and the estimated model. In such instances modification indices can offer information on specific areas of ill fit (Brown & Moore, 2012). This also indicates how the fit of the model can be improved, such as adding a link between the residual covariance associated with items that relate to the same content. This is an example of a post hoc fitting process that requires a shift from the confirmatory framework to an exploratory framework. Such a re-specification of the initial model, if theory-based, may be justified (Brown & Moore, 2012; Byrne, 2012).

Both a CFA and a full SEM model are evaluated on a statistical basis in order to determine the degree of model fit (Byrne, 2012). The question of model fit concerns how well the estimates implied in the specified model match the variances, covariances and means of the observed data (West, Taylor, & Wu, 2012). In order to assess this it is common to rely on fit indices, which represent either goodness-of-fit (GOF) or badness-of-fit (BOF). We relied on three such fit indices, namely the comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). While acknowledging that cut-off values for such fit indices is a highly debated matter among scholars (Brown & Moore, 2012), we followed the recommendation of Little (2013), namely that good fit is indicated by values close to or greater than  $CFI = .90$  and less than  $.08$  for RMSEA and SRMR.

***Testing indirect effects.*** Both papers I and II examined indirect effects. According to Ntoumanis et al. (2015), the accepted procedure for establishing the statistical significance of indirect effects is to use bootstrapping to construct confidence intervals (CI) around the estimate of the indirect effect. In line with the recommendations of Hayes and Scharkow (2013), we calculated bias-corrected bootstrap confidence intervals when testing for indirect effects. This involves generating a number of resamples, all with an estimate of the indirect effect, and the distribution of all these estimates functions as an empirical approximation of the sampling distribution of the indirect effect (Hayes, 2009). These are then bias corrected, and if the lower and upper bound based on the 95% percentile does not contain zero, a significant indirect effect can be inferred (Hayes, 2009).

***Conditional process analysis.*** In an attempt to the answer the research questions in paper I we employed conditional process analyses, which examines the contingent nature of a given process (Hayes, 2018). This allowed us to test whether the size, sign or strength of an indirect effect is conditional on the level of a moderator (Preacher, Rucker, & Hayes, 2007).

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In terms of specifics, we relied on latent conditional process analyses which are based on the latent moderated structural equations (LMS) approach (Hayes & Preacher, 2013; Sardeshmukh & Vandenberg, 2016). This approach produces unbiased, efficient estimates of interaction effects and accurate confidence intervals, robust toward departures from normality and non-linearity, while regression can substantially underestimate effects and provide inaccurate confidence intervals (Cheung & Lau, 2017; Hayes & Preacher, 2013; Sardeshmukh & Vandenberg, 2016). Traditional fit indices, as those mentioned above, are not applicable with LMS. Therefore, we relied on the Akaike information criterion (AIC) to compare the hypothesized model with a baseline model that did not include the interaction term. The AIC is a measure of lack of fit and the model with the smallest AIC is selected (Sardeshmukh & Vandenberg, 2016; West et al., 2012).

The index of moderated mediation was calculated to offer a quantification of the association between the indirect effect and the moderator (Hayes, 2015). A significant index is evidence for a conditional process, as it indicates that any indirect effects estimated at different values of the moderator are statistically different from each other (Hayes, 2015). Hayes (2015) recommended calculating bootstrap confidence intervals for the index. If the confidence interval based on the values that define the 2.5<sup>th</sup> and the 97.5<sup>th</sup> percentiles of the distribution does not include zero, the relationship between the indirect effect and the moderator is not zero. A conditional process is therefore inferred. Given a significant index of moderated mediation, additional tests can be carried out to probe the conditional process. One way to do so is to specify estimates of the indirect effect at low (-1SD), moderate (mean), and high (+1SD) levels of the moderator. Moreover, a less arbitrary approach is to apply the Johnson-Neyman technique which defines regions of moderator values at which the simple slope of the indirect relationship is significantly different from zero (Hayes & Preacher, 2013).



## Paper II

Research question:

- (1) Is controlling coach behavior a boundary condition for the relationship between perceptions of coach-created mastery climate, task goal orientation and competence satisfaction in youth soccer?

In paper II, we relied on a subsample of the baseline sample from the PAPA project. The reason for this was that the youngest athletes did not respond to the full scale for controlling coach behavior, and were therefore excluded. This sample consisted of 1119 athletes (474 female; 10-15 years,  $M_{age} = 12.18(1.00)$ ). The athletes belonged to 70 different soccer teams, with an average team size of 15.99, and had been involved with their current team for an average of 4.59 ( $SD = 2.31$ ) seasons.

### *Measures*

**Mastery climate.** Perceived *coach-created mastery climate* was assessed by nine items from the Perceived Motivational Climate in Sport Questionnaire (PMCSQ-2; Newton et al. 2000; Coefficient  $\rho = .82$ ; 95% CI = [.80-.85]; S.E. = .01; FS = .93; e.g. "my coach encouraged players to try new skills"). When responding to these questions the athletes were asked to think about what it had usually been like on their team during the past 3-4 weeks. Atkins, Johnson, Force, and Petrie (2015) supported the psychometric properties of this scale with youth athletes.

**Controlling coach behavior.** Perceived controlling coach behavior was measured based on eight items from the Controlling Coach Behaviors Scale (CCBS; Bartholomew, Ntoumanis, Thøgersen-Ntoumani, 2010; Coefficient  $\rho = .82$ ; 95% CI = [.80-.83]; S.E. = .01; FS = .92; e.g. "my coach was less friendly with players if they didn't make the effort to see things his or her way"). When responding to the items, the athletes were asked to think

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about what it had usually been like on their team during the past 3-4 weeks. The psychometric properties of this scale has been support in previous research (González et al., 2016).

**Achievement goal orientation.** Seven items from the TEOSQ (Duda & Nicholls, 1992) were employed to measure *task goal orientation*, following the stem "I feel most successful in soccer when..." (Coefficient  $\rho = .80$ ; 95% CI = [.78-.81]; S.E. = .01; FS = .90; e.g., "I do my very best").

**Competence.** Six items from the IMI (McAuley et al., 1989) were employed to measure *competence satisfaction*, asking the athletes about their general feelings and experiences on the team during the past month (Coefficient  $\rho = .90$ ; 95% CI = [.89-.91]; S.E. = .01; FS = .96; e.g. "I felt quite competent").

### **Data Analyses**

**Multilevel analyses.** As in paper I, we used SEM in all statistical analyses in paper II. Furthermore, because the motivational climate is an inherent group-level construct and the athletes were nested within teams, we examined the multilevel structure of the data before conducting the main analysis. Doing so has been strongly advocated by Papaioannou, Marsh, and Theodorakis (2004) who argued that pooling the responses of individuals without regard to their potential clustering is inappropriate. This essentially conflates the individual and team level effects, which may lead to model misspecification (Pornprasertmanit, Lee, & Preacher, 2014). To avoid this, we acknowledged the multilevel structure of the data by running multi-level CFA's for all factors. The aim of multilevel a CFA is to evaluate whether there is enough between-level variance to support multilevel analyses (Preacher, Zyphur, & Zhang, 2010). The intra-class correlation coefficient (ICC) is used to interpret the findings of the CFA, which represents the proportion of between-team variance compared to the total variance (Byrne, 2012). The ICC value ranges from 0.0 to 1.0, and a high value is indicative of a great

deal of between-team variability, and in such instances modeling the multilevel structure is imperative (Pornprasertmanit et al., 2014). Conversely, a low ICC value suggests only trivial levels of clustering, in which case modeling the within and between levels of the structure may not be needed (Byrne, 2012). Although there are no strict cut-offs for what is considered high or low ICC values, Muthén (1997) maintained that with a cluster size above 15 (i.e. a team size of 15 athletes or more) an ICC value of .10 or larger requires multilevel modeling.

**Conditional process analysis.** As in paper I we employed a conditional process analysis in paper II.

**Effect size.** Effect sizes offer important information on the practical significance of effects, independent of statistical significance and sample size. Unfortunately, an effect size measure for models that simultaneously analyze mediation and moderation has yet to be developed (Fairchild & MacKinnon, 2009). As our main interest in paper II was the interaction, we decided to calculate an effect size for the simple latent moderation, essentially examining how much of the variance in task goal orientation that was explained by the interaction between controlling coach behavior and coach-created mastery climate. This requires a comparison between the  $R^2$  value for the simple moderation model and the  $R^2$  value for a baseline model without an interaction term. As the LMS approach does not offer a  $R^2$  measure, Maslowsky, Jager, and Hemken (2015) recommended calculating it by hand for the simple moderation model ( $R^2_{Y1}$ ). Coefficients for the two main effects,  $\beta_{X1}$  and  $\beta_{X2}$ , coefficient for the interaction,  $\beta_{X1X2}$ , variances of each latent variable,  $\sigma^2_{X1}$  and  $\sigma^2_{X2}$ , a covariance between the latent variables,  $\sigma^2_{X1X2}$ , and a residual variance for the response  $\sigma^2_{Yres}$ , are offered in the *Mplus* output. These values can be used to estimate the  $R^2_{Y1}$ :

$$R^2_{Y1} = \frac{\beta_{YX1}^2 \sigma_{X1}^2 + \beta_{YX2}^2 \sigma_{X2}^2 + 2\beta_{YX1} \beta_{YX2} + \beta_{X1X2}^2 (\sigma_{X1}^2 \sigma_{X2}^2 + (\sigma_{X1X2}^2)^2)}{\beta_{YX1}^2 \sigma_{X1}^2 + \beta_{YX2}^2 \sigma_{X2}^2 + 2\beta_{YX1} \beta_{YX2} + \beta_{X1X2}^2 (\sigma_{X1}^2 \sigma_{X2}^2 + (\sigma_{X1X2}^2)^2) + \sigma_{Yres}^2}$$

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Furthermore, the  $R^2$  for the baseline model, with only main effects for the predictor and moderator modelled is obtained from the *Mplus* output ( $R^2_{Y0}$ ). Finally, the difference between the two ( $\Delta R^2 = R^2_{Y1} - R^2_{Y0}$ ) provides the portion of the  $R^2$  attributable to the interaction term. Evans (1985) argued that because interactions are difficult to detect, those explaining as little as 1% of the total variance can be considered important.

**Testing competing models.** Tomarken and Waller (2003) emphasized the importance of acknowledging the existence of plausible alternative models with differing causal assumptions that may provide meaningful explanations for the data. Doing so attempts to reduce the susceptibility to confirmation bias, which is the prejudice in favour of the hypothesized model (MacCallum & Austin, 2000). This is particularly important in research designs that cannot establish causality. There are two types of competing models, namely equivalent and alternative models. Equivalent models have different theories of the causal relations between the variables, yet have identical fit indices due to identical implied covariance matrices. They are therefore non-nested models of equal complexity that cannot be distinguished from the hypothesized model on the basis of statistical fit (Hershberger & Marcoulides, 2013). By contrast, alternative models are theoretically plausible models that are non-equivalent to the hypothesized one and can therefore be compared in terms of fit. We employed the AIC and CFI to decide between non-equivalent models (Byrne, 2012). While a larger AIC is indicative of a poorer fit, the opposite is indicated with a larger CFI. We refer you to paper II for more information on the specific competing models that were tested.

### **Paper III**

Research question:

- (1) Does the satisfaction of the psychological needs for autonomy, competence and relatedness in the context of youth sport mediate the relationship between perceptions

## Methods

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of coach autonomy support within the team context and self-reported frequency of additional soccer activity outside of this context?

The control group from the PAPA project was employed in paper III, and included both the T1 and T2 data. The sample therefore consisted of 527 male ( $n = 351$ ) and female ( $n = 176$ ) athletes, aged 10 to 15 years ( $M = 12.10$ ,  $SD = 1.16$ ), belonging to 29 different teams ( $Msize = 18.17$ ).

### *Measures*

**Autonomy support.** Perceptions of *coach autonomy support* were measured based on five items from the Health Care Climate Questionnaire (HCCQ; Williams, Grow, Freedman, Ryan, & Deci, 1996). The athletes were asked to think about what their main coach normally says or does, and the items were reflective of offering choice and rationale (Coefficient  $\rho = .74$ ; 95% CI = [.69-.80]; S.E. = .03; FS = .87; e.g., “the coach gave players choices and options”). The psychometric properties of the modified scale has been demonstrated with youth athletes previously (Adie, Duda, & Ntoumanis, 2012).

**Autonomy.** Five items based on work by Standage, Duda, and Ntoumanis (2005) were employed to measure *autonomy satisfaction*, asking the athletes about their general feelings and experiences in soccer during the past month (T1: coefficient  $\rho = .68$ ; 95% CI = [.60-.76]; S.E. = .04; FS = .83, T2: coefficient  $\rho = .72$ ; 95% CI = [.67-.76]; S.E. = .02; FS = .87; e.g., “I decided which activities I practiced”). The validity and reliability of these items have been supported in past research with youth athletes (Quested et al., 2013).

**Competence.** *Competence satisfaction* was assessed with six items from the IMI (McAuley et al., 1989), asking the athletes about their general feelings and experiences in soccer during the past month (T1: Coefficient  $\rho = .90$ ; 95% CI = [.86-.94]; S.E. = .02; FS =

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.95; T2: Coefficient  $\rho = .90$ ; 95% CI = [.87-.92]; S.E. = .01; FS = .95; e.g. "I was pretty good").

**Relatedness.** To measure *relatedness satisfaction*, we relied on four items from the l'Échelle du Sentiment d'appartenance Sociale, asking the athletes about their general feelings and experiences in soccer during the past month (Richer & Vallerand, 1998; T1: Coefficient  $\rho = .85$ ; 95% CI = [.81-.89]; S.E. = .02; FS = .93; T2: Coefficient  $\rho = .83$ ; 95% CI = [.79-.87]; S.E. = .02; FS = .92; e.g. "I felt like people understood me"). Previous youth sport research has supported the psychometric properties of this scale (Adie et al., 2012).

**Additional soccer activity.** A single-item measure was used to measure frequency of additional soccer activity, which can be a valid and reliable way to assess self-reported physical activity (Milton, Bull, & Bauman, 2011). Specifically, athletes were asked how often they partake in soccer activity outside of team trainings and games (1 = less than once a week, 2 = once a week, 3 = 2-3 times per week, 4 = 4-6 times per week, 5 = everyday).

### *Data Analyses*

**Multilevel analyses.** As in papers I and II, the analyses in paper III were carried out using SEM. Furthermore, similar to paper II, paper III measured a group-level construct on a sample nested within teams. A certain number of teams is needed when conducting multilevel structural equation models, because, according to Maas and Hox (2005), a small number of clusters (<50) can result in biased estimates of the second level standard errors. Multilevel structural equation modeling was therefore not appropriate with only 29 teams. However, one way to handle potential shared variance between teams is to employ a method that accounts for the nested data by adjusting standard errors and goodness-of-fit model testing (Muthén & Satorra, 1995). This accounts for any non-independence of observations, by uniquely

identifying all the different teams in a clustering variable. In *Mplus* this is done by specifying `TYPE=COMPLEX`.

**A half-longitudinal design.** In order to conduct a full longitudinal mediation, three waves of data are required. However, collecting three waves of data can be labor intensive and not feasible within all research projects. Thus, with only two waves of data, a half-longitudinal design can be applied, which is what we did in paper III. While this design cannot offer information on full mediation, it can test partial mediation (Little, 2013). Mediation concerns a statement of change, and a half-longitudinal model accounts for prior levels of the mediator and outcome in order to isolate the change variance (Little, 2013). The primary paths of interest is the relationship between the predictor and the mediator (path *a*), controlling for prior levels of the mediator, and the relationship between the mediator and the outcome (path *b*), controlling for prior levels of the outcome. Assuming stationarity, the product *ab* is an estimate of mediation, which is calculated in *Mplus* using the *model constraint* command (Cole & Maxwell, 2003; Muthén & Muthén, 1998-2012).

Stationarity means that the relationship between the mediator and outcome would hold at additional time points. A half-longitudinal design cannot test this, and according to Little (2013), stationarity is almost always violated to some degree in social and behavioral sciences. Still, Cole and Maxwell (2003) argued that failing to control for prior levels of the dependent variables creates greater problems than not accounting for violations in stationarity. Moreover, a half-longitudinal design cannot test for a direct effect between the predictor and the outcome, and directionality can only be inferred based on theory (Cole & Maxwell, 2003). Despite this, in terms of inferential power a half-longitudinal design is a significant improvement on a cross-sectional test of mediation (Little, 2013).

**Measurement invariance.** Measurement invariance (MI) is a prerequisite for longitudinal investigations (Byrne, 2012; Sass, 2011). Testing MI examines the psychometric

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equivalence of a construct across time, and invariance suggests that the construct has the same meaning to the respondents across those repeated measurements (Putnick & Bornstein, 2016). MI is evaluated based on whether increasing restrictions on the CFA significantly alter the model fit, and strong MI is presumed if it does not (Sass, 2011). Concretely, four CFA's with increasingly restrictive parameters are compared; each time point separately, *configural* invariance (model form invariance), *metric* invariance (factor loading invariance), and *scalar* invariance (intercept invariance), respectively. In terms of the acceptable fit for more restrictive invariant models, we relied on the criteria of  $\Delta\text{CFI} < .01$ ,  $\Delta\text{RMSEA} < .015$ , and  $\Delta\text{SRMR} < .03$  for metric invariance. For scalar invariance, we employed the criteria of  $\Delta\text{CFI} < .01$ ,  $\Delta\text{RMSEA} < .015$ , and  $\Delta\text{SRMR} < .01$ .

**Missing data.** A relevant issue with longitudinal research is missing data. If not handled appropriately, missing data can lead to biased inferences (Lang & Little, 2016). In paper III, 192 (36.4%) athletes responded at both time points, 140 (26.6%) at T1 only, and 195 (37%) at T2 only. The missing data was mainly a result of project management challenges in the Norwegian arm of the project. Specifically, at T1, the timeframe for collection was restricted because of the scheduled start of the PAPA project intervention. At T2, the long travelling distances and a short season made it difficult to match the data collectors with the respective teams' scheduled sessions. As a result, the data collectors did not succeed in following up on all pre-existing appointments. However, all teams accepted the invitation to partake at T1 and T2, and there were no withdrawals.

Powerful methods have been developed to deal with missing data that help recover the underlying inferential model, essentially maximising the validity even with high levels of missing data. One such missing data method is the Full Information Maximum Likelihood (FIML) technique. FIML does not replace the missing data directly, but it leverages all available information from the observed data to fit the statistical model (Lang & Little, 2016).



This technique is considered superior to more traditional techniques, such as listwise deletion, and has been shown to be effective in reducing biases due to non-random missing data (Dong & Peng, 2013; Hallgren & Witkiewitz, 2013).

It is important to note that FIML may produce biased parameter estimates in conditions where the data is not missing at random (Enders, 2010). It is therefore important to probe the data before employing FIML in order to determine whether the method is appropriate. Enders (2010) recommended running Little's missing completely at random (MCAR) test, and independent t-tests with bootstrapping to assess whether the data departs from the assumption of missing at random or missing completely at random. If there appears to be no systematic mechanism for the missing data, FIML can be employed to recover the missing data with no bias (Little, 2013).

**Testing competing models.** A half-longitudinal design is not a test of causality. As such, the susceptibility to confirmation bias is still present. Therefore, we tested a competing model to the hypothesized one. We refer you to paper III for more information on the specific competing model that was tested.

#### **Study IV**

Research question:

- (1) Does coach-team perceptual distance in regard to the coach-created motivational climate relate to team-rated achievement goal orientations, enjoyment and anxiety?

We drew upon the baseline sample of the PAPA-project in paper IV, and relied on both athlete and coach responses. Specifically, the athlete sample consisted of 1359 male ( $n = 783$ ) and female ( $n = 576$ ) athletes, belonging to 87 different soccer teams ( $M_{size} = 16.47$ ). The athletes' ages ranged from 9 to 15 years ( $M = 11.81$  years,  $SD = 1.18$ ). In order to estimate team ratings the individual scores for all athletes within one team were aggregated by

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averaging the team members' responses. All subsequent analyses made use of these aggregated scores. The coach sample included 87 coaches (83 males, 4 females, 1 unspecified), between the ages of 18 and 56 years ( $Mage = 42$ ,  $SD = 5.70$ ).

### *Measures*

**Motivational climate.** The PMCSQ-2 (Newton et al. 2000) was tapped to measure the perceived coach-created motivational climate. Nine items measured *mastery climate* (Omega coefficient = .89; e.g. "the coach made sure players felt successful when they improved"), and seven items assessed performance climate (Omega coefficient = .94 (Dunn, Baguley, & Brunsdn, 2014); e.g. "the coach substituted players when they made a mistake"). When responding to these questions the athletes were asked to think about what it had usually been like on their team during the past 3-4 weeks.

We also used the PMCSQ-2 to tap coaches' perceptions of the motivational climate they themselves create. The coaches were asked to indicate how well the items corresponded to their actual behavior in the past month, and the items were preceded by the stem "On my team..". Previous use of this scale to assess coach perceptions has noted somewhat low reliability scores (Smith et al., 2016), but the Omega coefficient for the coaches' rating was .81 for the mastery climate scale, and .75 for the performance climate scale.

**Achievement goal orientations.** The TEOSQ (Duda & Nicholls, 1992) was used to assess achievement goal orientations, and the items were preceded by the stem "I feel really successful in soccer when...". Seven items assessed *task goal orientation* (Omega coefficient = .82; e.g.; "I do my very best"), and six items measured *ego goal orientation* (Omega coefficient = .90; e.g.; "I'm the only one who can do the skill").

**Enjoyment.** We measured soccer enjoyment using the 4-item version of the enjoyment sub-dimension of the IMI (McAuley et al.1989). Athletes were asked about their

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general soccer experiences in the past month (Omega coefficient = .86; e.g., “I found that time flew by when I was playing soccer”). Previous research has supported the psychometric properties of this scale (McAuley et al., 1989).

**Anxiety.** Soccer-specific anxiety was assessed by five items from the worry factor of the revised Sport Anxiety Scale (SAS; Smith, Cumming & Smoll, 2006). The items were preceded by the stem “before or while I played in soccer matches for this team...” (Omega coefficient = .94; e.g., “I worried that I would not play well”). The use of this scale with youth athletes has been supported previously (Smith, Smoll, & Cumming, 2007).

### *Data Analyses*

**Polynomial regression.** To answer the research question in paper IV we relied on polynomial regression. This is a sophisticated statistical approach that allows for examining the extent to which the combination of two predictor variables relates to an outcome variable (Edwards, 1994; Shanock, Baran, Gentry, Pattison, & Heggstad, 2010). Specifically, this approach looks at three main aspects, namely (1) how does agreement between the two predictors relate to the outcome, (2) how does the degree of discrepancy between the two predictors relate to the outcome, and (3) how does the direction of the discrepancy between the two predictors relate to the outcome (Shanock et al., 2010). This provides a more nuanced picture compared to more traditional techniques such as moderated regression and difference scores (Edwards, 2007; Shanock et al., 2010).

With polynomial regression and response surface methodology we were able to model the joint effects of coach and team perceptions on the teams' achievement goal orientations, enjoyment and anxiety. We followed the procedure suggested by Shanock et al. (2010), which is similar to that done in previous perceptual distance research (Bashshur et al., 2011; Rocchi & Pelletier, 2017a; Tafvelin et al., 2017). The first step is to assess the level and the direction

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of the disagreement between the coaches and their teams (Fleenor, McCauley, & Brutus, 1996; Shanock et al., 2010). In situations where there is a lack of disagreement between the coaches and the teams, the practical value of exploring how perceptual distance is related to an outcome is very low. Specifically, Fleenor et al. (1996) argued that at least 10% of the coach ratings should be in disagreement with team ratings in order to warrant further analysis. Following suggestions in the literature (Fleenor et al., 1996; Shanock et al., 2010), we standardized (*z*-scores) each predictor variable and used half a standard deviation above or below the other predictor variable to indicate discrepant values.

The second step is to perform separate polynomial regressions for the predictors and each of the outcomes, using mean-centered predictor variables. Centering is recommended to support interpretation of the results and to reduce potential (non-essential) multicollinearity (Dalal & Zickar, 2012; Edwards, 1994; Shanock et al., 2010). Each outcome (i.e., task goal orientation, ego goal orientation, enjoyment, and anxiety) is regressed on teams' ratings, coaches' ratings, the cross-product of teams' and coaches' ratings, the square of teams' ratings, and the square of coaches' ratings of the motivational climate. If the predictors in the polynomial regression explain variance in the outcome variable that is different from zero, indicated by a statistically significant  $R^2$ , the pattern of the response surface is examined by looking at four surface test values. These are  $a_1$ ,  $a_2$ ,  $a_3$  and  $a_4$ , respectively (Shanock et al., 2010).

Shanock et al. (2010) outlined what each of the surface values represents. The first value,  $a_1$ , shows the slope of the line of perfect agreement between the two predictor variables as related to the outcome. Simply put, it reflects the linear relationship between coach-team perceptual agreement and the outcome. A significant and positive value suggests that higher levels of agreement are associated with higher levels of the outcome, whilst a negative value indicates that higher levels of agreement are associated with lower levels of the outcome. The

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second value,  $a_2$ , is related to the curvature along the line of perfect agreement, reflecting the nonlinear relationship between the degree of coach-team perceptual agreement and the outcome. A significant value suggests a non-linear relationship, with a positive value indicating that the effect of perceptual agreement on the outcome becomes more pronounced at higher levels of agreement. A negative value indicates the opposite. The third value,  $a_3$ , represents the slope of the line of disagreement in relation to the outcome, essentially indicating how the direction of the disagreement relates to the outcome. With a significant and positive value, higher team perceptions relative to coach perceptions are related to higher levels of the outcome. A significant negative value, however, suggests that higher team perceptions relative to coach perceptions are associated with lower levels of the outcome. The last value,  $a_4$ , offers information on the curvature of the line of disagreement as related to the outcome. That is, how the degree of disagreement relates to the outcome. A significant and positive value indicates that the outcome levels increase more sharply as the level of disagreement increases. The opposite is indicated with a negative value.

Interpreting the results of polynomial regression analyses is facilitated by response surface methodology, which offers three-dimensional plots of the raw data and estimated surfaces (Edwards, 1994, 2007; Shanock et al., 2010). The paired components, herein the teams' and coaches' perceptions of the coach-created motivational climate, constitute the two horizontal axes (i.e. the X and Y axes). The outcome constitutes the vertical axis (i.e. the Z axis), and the relationship between perceptual distance and the outcome can be seen as a three-dimensional response surface.

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## RESULTS

### **Paper I      Both the "What" and "Why" of Youth Sports Participation Matter; a Conditional Process Analysis**

Gjesdal, Appleton, and Ommundsen (2017)

**Objectives:** Grounded in both achievement goal theory and self-determination theory, the aim of this study was to assess the combination of the "what" and "why" of youth sport activity, and how it relates to the need for competence and self-esteem. Specifically, conditional process modeling was employed to examine whether the indirect relationship between ego or task goal orientation (i.e. the "what") and self-esteem was conditional to intrinsic or extrinsic regulation (i.e. the "why"). Four models were tested, namely ego/intrinsic, ego/extrinsic, task/intrinsic and task/extrinsic.

**Design:** A cross-sectional, quantitative study.

**Method:** Participants were 496 female soccer and handball athletes, ranging in age from 11 to 19 years ( $M_{age} = 14.10$ ,  $SD = 1.86$ ).

**Results:** Simple mediation analyses supported the sequences of task goal orientation - competence satisfaction - self-esteem, and ego goal orientation - competence frustration - self-esteem. This included significant indirect effects from task goal orientation to self-esteem ( $\beta = .22$ , 95%  $CI_{BC} : .14, .31$ ), and between ego goal orientation and self-esteem ( $\beta = -.05$ , 95%  $CI_{BC} : -.11, -.06$ ).

The latent conditional process modeling demonstrated a significant moderated mediation index for intrinsic regulation on the relationship between task goal orientation and competence satisfaction ( $B = .06$ , 95%  $CI_{BC} : .02, .12$ ). Specifically a conditional indirect effect of task goal orientation on self-esteem through competence was significant and

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increasing from low (-1SD;  $B = .22$ , 95% CI<sub>BC</sub>: .11, .39), to moderate (Mean;  $B = .29$ , 95% CI<sub>BC</sub>: .16, .47), to high levels of intrinsic regulation (+1SD;  $B = .35$ , 95% CI<sub>BC</sub>: .20, .56). This indicated that the existence of an association between task goal orientation and self-esteem was not conditional upon intrinsic regulation, but the strength of the association was. Furthermore, compared to a baseline model without an interaction term, the hypothesized conditional process model was statistically favoured (AIC baseline = 19948.454 > AIC hypothesized model = 19942.036).

The moderated mediation index for intrinsic regulation on the relationship between ego goal orientation and competence frustration was significant ( $B = -.07$ , 95% CI<sub>BC</sub>: -.13, -.03). Specifically, the conditional indirect effect between ego goal orientation and self-esteem was only significant when self-reported intrinsic regulation was equal to, or higher than, 4.87 ( $B = -.05$ , 95% CI<sub>BC</sub>: -.10, -.01). Although this is a high number, on a scale of 5, it reflected the responses of 44.15% of the sample. As such, there was enough data within this region of significance to offer a reliable finding. The results therefore suggest that the existence of an association between ego goal orientation and self-esteem, through increased competence frustration, is conditional upon high levels of intrinsic regulation. In comparison to a baseline model without an interaction term, the hypothesized conditional process model was statistically favoured (AIC baseline = 21763.384 > AIC hypothesized model = 21756.935).

The conditional process models presented non-significant moderated mediation indexes for extrinsic regulation on the task goal orientation – self-esteem link, as well as the ego goal orientation – self-esteem link. This suggests that external regulation did not act as a moderator on either of these relationships.

**Limitations:** The limitations of this study include the cross-sectional design, the exclusion of male youth sport athletes and the use of competence related goals only.

**Conclusions:** Findings demonstrated that task goal orientation was associated with general self-esteem, through competence satisfaction, and the relationship appeared stronger with higher levels of intrinsic regulation. Conversely, ego goal orientation was negatively related to general self-esteem, through competence frustration, for those who reported the highest level of intrinsic regulation. This suggests that being intrinsically regulated for the activity may not aid against the potential implications of an ego goal orientation. As such, the study suggests that both the "what" and "why" of youth sport participation matter for self-perceptions, and the most positive pattern of self-perceptions was seen with high levels of both task goal orientation and intrinsic regulation.



**Paper II      A conditional process analysis of the coach-created mastery climate, task goal orientation and competence satisfaction in youth soccer: the moderating role of controlling coach behavior**

Gjesdal, Haug, and Ommundsen (2018)

**Objectives:** The aim of this study was to examine whether perceptions of controlling coach behavior was a boundary condition for the relationship between the perceived coach-created mastery climate, task goal orientation and competence satisfaction.

**Design:** A cross-sectional, quantitative study.

**Method:** Participants were 1119 youth soccer athletes (474 female), ranging in age from 10 to 15 years (*Age* = 12.18, *SD* = 1.00).

**Results:** The simple mediation analyses supported the sequences of coach-created mastery climate - task goal orientation - competence satisfaction. This included a significant positive indirect effect from mastery climate to competence through task goal orientation ( $\beta = .24$ , 95% *CI*<sub>BC</sub>: .18, .30), and a significant positive direct effect ( $\beta = .17$ , 95% *CI*<sub>BC</sub>: .07, .26).

The latent conditional process analysis demonstrated a significant moderated mediation index for perceptions of controlling coach behavior on the relationship between mastery climate and competence satisfaction ( $B = -.06$ , 95% *CI*<sub>BC</sub>: -.11, -.02). Specifically, the conditional indirect effect of mastery climate on competence through task goal orientation was significant and decreased from low (-1SD;  $B = .40$ , 95% *CI*<sub>BC</sub>: .28, .52), to moderate (Mean;  $B = .35$ , 95% *CI*<sub>BC</sub>: .26, .46), to high levels of controlling coach behavior (+1SD;  $B = .31$ , 95% *CI*<sub>BC</sub>: .22, .41). This indicated that the existence of an association between the coach-created mastery climate and competence was not conditional upon perceptions of controlling coach behavior, but the strength of the association was. Furthermore, compared to a baseline model without an

interaction term, the hypothesized conditional process model was statistically favoured (AIC baseline = 74716.611 > AIC hypothesized model = 74705.388).

**Limitations:** The limitations of this study include the cross-sectional design and the low levels of perceived controlling coach behavior.

**Conclusions:** Findings demonstrated that perceptions of a coach-created mastery climate were associated with competence satisfaction, mainly through the athletes' task goal orientation, and the relationship appeared to be strongest for those who perceived the lowest level of controlling coach behavior. Thus, perceptions of controlling coach behavior appeared as a boundary condition for the relationship between the coach-created mastery climate and competence.

**Paper III Promoting Additional Activity in Youth Soccer: a Half-Longitudinal Study on the Influence of Autonomy-Supportive Coaching and Basic Psychological Need Satisfaction.**

Gjesdal, Wold, & Ommundsen, (Re-Submitted)

**Objectives:** The purpose of this study was to examine whether the satisfaction of the basic psychological need for autonomy, competence and relatedness mediated the relationship between coach autonomy-support and frequency of additional soccer activity outside of the team context.

**Design:** A quantitative study with a two-wave design.

**Method:** Participants were 527 male ( $n = 351$ ) and female ( $n = 176$ ) youth soccer athletes, aged 10 to 15 years ( $M = 12.10$ ,  $SD = 1.16$ ).

**Results:** Out of the sample of 527 athletes, 192 (36.4%) responded at both time points, 140 (26.6%) at T1 only, and 195 (37%) at T2 only. Missing data analyses, including both Little's MCAR test and independent t-tests with bootstrapping, showed that the data did not meet the requirements for data missing completely at random. The results of the independent t-tests with bootstrapping indicated that the only difference was that those who responded at T2 only reported significantly higher levels of additional soccer activity at T2. As it is not likely that this difference had any bearing on why these athletes did not respond at T1, we employed the full information maximum likelihood technique to provide accurate estimates that recover the missing data with no bias (Little, 2013).

Multi-level confirmatory factor analyses showed some level of between team variability for the frequency of additional soccer activity at T1 and T2, with intraclass correlations coefficients of .20 and .22, respectively. As the small number of teams ( $N = 29$ ) did not allow

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for multilevel modelling, TYPE=COMPLEX was specified in the *Mplus* input to handle the shared variance between teams.

Measurement invariance testing showed equivalence of number of factors and corresponding items, factor loadings and intercepts across the two time points. With strong invariance indicated, a half-longitudinal model was created. The model presented acceptable fit to the data ((S- B  $\chi^2$ ) = [df = 611, N = 527] = 996.985,  $p < .000$ ; CFI = .92 and RMSEA = .04[.03-.04], and SRMR = .07). The autoregressive paths for autonomy ( $\beta = .77$ , 95% CI<sub>BC</sub>: .59, .94), competence ( $\beta = .62$ , 95% CI<sub>BC</sub>: .43, .80), relatedness ( $\beta = .54$ , 95% CI<sub>BC</sub>: .25, .83) and frequency of additional soccer activity ( $\beta = .56$ , 95% CI<sub>BC</sub>: .41, .72) were significant. This suggests that the T1 measures were predictive of the corresponding T2 level. Furthermore, a significant temporal link emerged between autonomy at T1 and additional soccer activity at T2 ( $\beta = .26$ , 95% CI<sub>BC</sub>: .11, .41). This suggests that experiencing autonomy in the team setting was related to positive changes in self-reported frequency of additional soccer activity 20 weeks later. All other paths were non-significant.

**Limitations:** The limitations of this study include the inability to test for directionality or a direct effect, the sample size and the self-report measure for additional activity.

**Conclusions:** Autonomy-supportive coaching was not related to residual changes in satisfaction of any of the three basic psychological needs. It is likely that the stability of the needs played a role in the null findings. Furthermore, findings indicate that when youth soccer athletes experience a sense of autonomy in the team context, they are more likely to increase their engagement in additional soccer activity. This highlights the importance of autonomy in stimulating activity.

**Paper IV**     **A study of coach-team perceptual distance concerning the coach-created motivational climate in youth sport**

Gjesdal, Stenling, Solstad, & Ommundsen, (Re-Submitted)

**Objectives:** The aim of this study was to examine coach-team perceptual distance in regard to the coach-created motivational climate, and how it relates to team-rated achievement goal orientations, enjoyment and anxiety. To this end, polynomial regression with response surface was employed to examine how different levels of perceptual distance related to the various outcomes.

**Design:** Cross-sectional, quantitative study.

**Method:** Participants were 1359 youth soccer athletes (576 female), ranging in age from 9 to 15 years ( $M_{age} = 11.81$ ,  $SD = 1.18$ ), belonging to 87 different teams, and 87 coaches (83 males, 4 females, 1 unspecified), between the ages of 18 and 56 years ( $M_{age} = 42$ ,  $SD = 5.70$ ).

**Results:** Ratings of the coach-created mastery climate revealed that 32% of the coaches were in agreement with their teams, whereas 32% of the coaches rated higher, and 36% rated lower. Similarly, ratings of the coach-created performance climate showed that while 40% of the coaches were in agreement with their teams, 31% rated higher and 29% rated lower. These large discrepancies warranted further analyses.

Results from the polynomial regressions showed significant  $R^2$  values for task goal orientation (.20,  $p < .05$ ) and enjoyment (.36  $p < .05$ ) when teams' and coaches' ratings of the coach-created mastery climate were the predictors. Interpreting the surface test values revealed significant  $a_1$  values, suggesting that as the agreement in mastery climate perceptions increased between the team and the coach, so did team-rated task goal orientation and enjoyment. A positive and statistically significant  $a_2$  value indicated a non-linear relationship,

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in that the effect of perceptual agreement on task goal orientation became more pronounced at higher levels of agreement. Furthermore, significant  $a_3$  values indicate that higher team perceptions relative to coach perceptions were associated with higher task goal orientation and enjoyment.

With teams' and coaches' ratings of the coach-created performance climate as predictors, the  $R^2$  was statistically significant for ego goal orientation (.38,  $p < .05$ ), enjoyment (.24,  $p < .05$ ), and anxiety (.16,  $p < .05$ ). The statistically significant  $a_1$  values indicate that as the agreement in performance climate perceptions increased between the team and the coach, so did team-rated ego goal orientation and anxiety, whereas team-rated enjoyment decreased. The statistically significant  $a_3$  values indicate that higher team perceptions relative to coach perceptions of the performance climate were associated with higher team-rated ego goal orientation and lower enjoyment.

**Limitations:** The limitations of this study include the cross-sectional design, the relatively low number of teams, the low number of female coaches, and not testing the potential mechanisms that can explain how perceptual distance develops and why it is associated with outcomes.

**Conclusions:** The outcomes that were theoretically expected to be associated with each of the climates were generally higher when there was perceptual agreement between the coach and the team regarding the specific climate. Findings suggest that considering the perceptions of both coaches and the athletes can offer nuance to our understanding of how the coach-created motivational climate relate to outcomes.

## DISCUSSION

The main aim of the present thesis was to examine different aspects of motivation in youth sport. As specific findings are addressed in the four papers, this chapter focuses on the main findings in relation to the three overarching themes guiding the research. We discuss each of the three themes consecutively with respect to relevant research and theory as well as methodological concerns. A general discussion of elements applicable to several of the themes follows this. Theoretical implications and suggestions for future research are discussed throughout, and limitations, practical implications, and conclusions are included at the end.

### **Theme 1: how athletes' motivation influences intrapersonal aspects pertaining to their participation as well as in general**

Vansteenkiste, Lens, et al. (2014) argued that achievement goals can be differentially regulated, which presents important nuances in the goal pursuit. This notion has received empirical support in the context of adult sport (Delrue et al., 2016; Gaudreau & Braaten, 2016). Extending this type of research to the investigation of reasons underlying the sporting activity as a whole, we found (paper I) that the underlying regulation for participation in youth sport seemed to moderate the relationship between achievement goal orientation and general self-esteem. Specifically, the strength of the relationship between a task goal orientation for sport and general self-esteem, through competence satisfaction, was stronger with higher levels of intrinsic regulation. On the other hand, a significant indirect relationship between ego goal orientation and self-esteem, through competence frustration, was only seen in conditions of very high levels of intrinsic regulation.

Being engaged in youth sport activity for intrinsic reasons appeared to boost the positive indirect relationship between task goal orientation and self-esteem in that activity.

This is line with SDT. First, intrinsic regulation reflects behavior that emanates from an individual's integrated sense of self, and therefore any sporting activities regulated such are more connected to the need for competence, compared to externally regulated ones (Deci & Ryan, 1995). Second, self-determined activity is afforded more effort leading to activity absorption and better skill development. An actual increase in sport specific competence is therefore more likely (Sheldon & Elliot, 1999; Vansteenkiste, Lens, et al., 2014). Third, SDT posits that self-esteem is facilitated through activities that are enacted in an agentic and volitional manner (Deci & Ryan, 1995). However, goal content also seemed important, as the positive effect of a task goal orientation was seen regardless of the level of intrinsic regulation.

Elliot et al. (2002) suggested that the combination of intrinsic regulation and task goal orientation is more likely than the combination of intrinsic regulation and ego goal orientation. Going even further, Frederick and Ryan (1995) indicated that task-involvement is somehow inherently intrinsic. Empirically, there has often been an overlap in the measurement of a task goal orientation and intrinsic motivation, with both being measured with items relating to interest, importance and enjoyment (Hulleman, Schragar, Bodmann, & Harackiewicz, 2010). Our measurement did not include such wording, yet task goal orientation and intrinsic regulation were moderately correlated with each other. Relevant to this, Murphy and Alexander (2000) warned that there is no true independence among many of the various motivational constructs that can be found in the literature. However, Pintrich (2000) described it as "a major conceptual step backward" (p.101) to take this to mean that these construct are one and the same. He urged researchers to view different motivational constructs as independent and add them as moderators or mediators to our research, as positive empirical relations do not preclude us from understanding how they may interact.



Similar to previous research (Atkins et al., 2015; Biddle et al., 2003), results from the present thesis indicate that holding a task goal orientation in youth sport is associated with perceptions of competence (papers I and II). This is consistent with the notion that a focus on effort and mastery leads to feelings of competence (Nicholls, 1989). One possible explanation for this relationship is the different levels of controllability that accompany the two orientations. Effort is more controllable compared to normative ability, and a task goal orientation is therefore associated with stronger perceptions of control in terms of reaching the achievement aim compared to an ego goal orientation (Biddle, 1999). This may lead task goal oriented athletes to put in more effort into reaching their achievement aim, but also to attribute any such attainment to their own behavior. Furthermore, previous research has associated a task goal orientation with active engagement, the use of effort-based strategies and failure-tolerance, all of which should facilitate mastery and development (Ames, 1992b; Biddle et al., 2003).

Understanding how we can facilitate youth athletes' perceptions of competence is important as it is thought to be imperative for psychological well-being (Deci & Ryan, 2000). Moreover, competence satisfaction has been a consistent negative correlate of youth sport dropout (Balish, McLaren, Rainham, & Blanchard, 2014; Schlesinger, Löbig, Ehnold, & Nagel, 2018). A possible reason for this is that youths tend to attach value to activities that they master and to devalue activities they do not master (Wigfield et al., 2015). In fact, research shows that competence beliefs in sport declined across adolescence and explained most of the simultaneous decreases in the perceived value of the given sport (Jacobs, Lanza, Osgood, Eccles, & Wigfield, 2002). This process may be a form of self-protection in order to maintain general self-esteem (Wigfield et al., 2015), but it could also be a result of incomplete internalization of the value of sport due to a lack of competence need satisfaction (Deci & Ryan, 2000).

Another positive aspect of competence satisfaction is that it appeared to mediate the positive relationship between task goal orientation and general self-esteem, while competence frustration mediated the negative relationship between ego goal orientation and self-esteem (paper I). Esteeming oneself is considered important for mental health, and has been positively associated with emotional stability, life satisfaction and happiness, and negatively linked with clinical depression, suicidal tendencies and low assertiveness (for review see Fox, 2002). The association between competence satisfaction in the youth sport context and general self-esteem suggests that the athletes valued the youth sport context. According the psychological centrality hypothesis (Marsh, 1986), a specific facet of self-perception contributes to general self-esteem only to the degree that there is importance assigned to that specific facet. This suggests that youth sport participation may have the potential for facilitating general self-perceptions, and that potential should be maximized. This is particularly important as puberty has been presented as a developmental marker associated with female athletes' lowered self-perceptions (Monsma, Malina, & Feltz, 2006).

Self-determination has been forwarded as a possible explanation for why ego goal orientation sometimes appears to be positively associated with adaptive outcomes (Roeser, 2004). Our findings do not offer support for this, as an ego goal orientation was positively associated with competence frustration under conditions of high intrinsic regulation. Specifically, higher levels of ego goal orientation were associated with higher levels of competence frustration and lower levels of self-esteem only in conditions of high intrinsic regulation. This underlines the importance of the type of competence that intrinsically regulated youth athletes are striving for. It also reminds us that the level of self-determination cannot change the objective aspects that make it challenging to reach the type of competence that an ego goal orientation is based on. Moreover, intrinsic regulation may even make an ego goal orientation more meaningful, because intrinsically regulated activities are closely related

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to the self (Ryan & Deci, 2017). Consequently, an ego goal orientation may not have the power to influence competence and self-esteem if the sporting activity itself is not intrinsically regulated. However, this is purely speculative, and more research is needed to see if the results can be replicated.

Looking more closely at the numbers revealed that for over half of our sample, an increase in the level of ego goal orientation was not associated with an increase in competence frustration. It is important to note, however, that these athletes were higher in competence frustration at all levels of ego goal orientation, compared to those with the highest reported level of intrinsic regulation. Furthermore, the main effect of intrinsic regulation to competence frustration was significant and negative. In line with SDT (Ryan & Deci, 2017), this finding speaks to the negative implications of being low in intrinsic regulation, regardless of the level of ego goal orientation.

A critical issue is whether an athlete who is intrinsically motivated for sport can have an ego goal orientation. According to Frederick and Ryan (1995), ego-involvement in sport is reflective of an internally controlling state. However, they define ego-involvement as feeling pressure to reach normative standards in order to enhance or sustain self-esteem. A relevant distinction here is between what Senko et al. (2011) called a normative goal and an appearance goal. We consider our ego goal orientation measurement reflective of a normative goal, meaning that the aim is to do well in comparison to others. An appearance goal, however, reflects the aim of demonstrating normative ability to others. The difference is therefore between normative and self-presentation aims. Logically, self-presentation aims are related to external contingencies (Ryan & Deci, 2017). As such, a self-presentation goal would be a normative standard of competence coupled with an extrinsic regulation, an agglomeration of the "what" and "why" similar to that of the original goal orientation construct (Nicholls, 1984; Senko et al., 2011; Vansteenkiste, Lens, et al., 2014). In contrast, a

normative goal is simply a differentiated competence standard, only reflective of how competence is defined. Elliot et al. (2002) argued that the pursuit of a normative goal can be associated with intrinsically regulated activity, and this is supported by the non-significant correlation between intrinsic regulation and ego goal orientation in paper I.

External regulation did not emerge as a moderator in paper I. This may be due to the low levels reported by the athletes, resulting in a limited range of external regulation. Although Ryan and Deci (2017) referred to external regulation as a common type of motivation, our results suggest it is not a big part of the sampled athletes' motivation for sport. This is consistent with what is reported in previous youth sport research (Gagne et al., 2003). An interesting similarity between our paper and the study by Gagne and colleagues is that both samples were all girls. We know from previous work that boys, compared to girls, are more likely to perceive participation and competence in sport as important to their parents (Eccles & Harold, 1991). If this importance can lead to external pressure to participate and perform, external regulation in the form of parental pressure may be more prevalent among boys. This warrants an examination of external regulation as a moderator in a sample of male youth athletes. Furthermore, Gagne et al. (2003) found that the level of introjected regulation was higher than the level of external regulation. It could be that introjected regulation is a more relevant type of controlled motivation in the youth sport context, particularly considering the voluntary aspect of this activity. We therefore encourage researchers to test whether introjected regulation might be a moderator in the relationship between achievement goal orientation and competence.

The findings of paper I support the idea that youth sport motivation is more idiographic than nomothetic (Elliot & Thrash, 2001). As such, focusing on either the "what" or the "why" may limit our understanding of how motivation relates to outcomes. However, despite being an attempt at contributing to a more complex understanding of motivation for

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youth sport, paper I can be criticized for oversimplifying achievement goal orientations. By investigating each orientation separately their orthogonality is ignored. Eccles et al. (1998) voiced their concerns regarding categorizing goals as either ego or task, arguing that this does not account for the complexity of achievement motivation. A more theoretically sound way of investigating goal orientations is to look at profiles defined by the relative level of each. Research on achievement goal profiles in youth sport suggests that a combination of moderate to high levels of both task and ego goal orientation is associated with the most adaptive outcomes (Cumming, Hall, Harwood, & Gammage, 2002; Harwood, Cumming, & Fletcher, 2004; Smith, Balaguer, & Duda, 2006). Therefore, future research should continue this line of inquiry by investigating the potential moderating influence on such achievement goal profiles, moving even further towards an idiographic understanding of youth sport motivation.

Some methodological aspects of paper I deserve attention. First, the athletes reported a high level of intrinsic regulation across the board. It therefore it seems pertinent to reflect on the difference between those who reported a 4.87 or above for intrinsic regulation (the level of intrinsic regulation at which ego goal orientation appeared significantly linked to competence frustration and self-esteem) and those who reported below a 4.8. These values are arbitrary, as it is not known how a given score corresponds to the actual underlying psychological construct or how a one-unit change on the observed score reflects the magnitude of change in the underlying psychological construct (Blanton & Jaccard, 2006). We therefore do not know whether these differences represent substantive differences in actual motivation, and it is important to interpret the comparisons between levels with caution. Our findings merely point to a trend, and more research is needed to tie these arbitrary metrics to real-world events in order to increase the applied value of such findings (Blanton & Jaccard, 2006).

Instruments are imperfect representations of the theoretical constructs that we want to measure (Hulleman et al., 2010). AGT researchers have therefore underlined the importance

of carefully inspecting the scales used to measure the "what" in order to interpret the results accurately (Elliot & Thrash, 2001). We claim to have measured a re-conceptualized concept of task and ego goal orientations, and our measurement did not include self-presentation aims (i.e. wanting to show competence to others) or aspects pertaining to interest and enjoyment (i.e. enjoying being number one). However, an argument can be made that the scale we used measured achievement-related affect in relation to the achievement aims rather than the striving itself (Hulleman et al., 2010). The reason for this is a matter of semantics, in that the stem used in this scale is "I feel most successful when...". According to Hulleman et al. (2010), the word "feel" makes it difficult to decipher whether the results are due to affect or the goal itself. This may be, yet it could also be that the word "feel" pertains more to the athletes' subjective view of when they themselves are successful, and that changing it to the stem "I think I am successful when..." could probe the same response. Furthermore, an inherent assumption throughout this thesis is that all athletes are striving to achieve a sense of competence, which is why we asked how they view competence rather than whether they are striving for competence. Regardless, this is an interesting area in need of more research, and it could be that our results would be different if our measurement of achievement goal orientation was even more constrained, as recommended by Hulleman et al. (2010).

## **Theme 2: the relationship between perceived coach behavior and various motivational outcomes**

Findings from paper I underline the relevance of a task goal orientation in terms of competence satisfaction and general self-esteem. Understanding how to facilitate this achievement aim should therefore be of importance to coaches. Findings from this doctoral work (papers II and IV) suggest that there is a relationship between perceptions of coach behavior and athletes' achievement goal orientations. However, findings also indicated that perceptions of controlling coach behavior might be a boundary condition for the relationship

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between coach-created mastery climate and task goal orientation, and this moderating influence extended to the indirect relationship to competence satisfaction (paper II).

The findings concerning the coach-created mastery climate (paper II and IV) are in line with previous sport psychology research in that perceptions of a mastery climate appear to have a consistent relationship with positive outcomes in sport (Harwood et al., 2015). Furthermore, the results in paper II indicate that there is interactivity between the coach-created mastery climate and controlling coach behavior in relation to athletes' task goal orientation and competence satisfaction. The idea of interactivity between the two is not new, as both Ames (1992b) and Epstein (1988, 1989) argued that a mastery climate must be implemented in a supportive rather than a controlling way. However, to our knowledge, paper II is the first to provide empirical support for this in the context of youth sport.

Ryan and Deci (2017) are explicit in stating that truly internalized values are those that individuals assimilate and adhere to by their own volition, without any external contingencies or surveillance. On the other hand, if the social context does employ such strategies, the circumstances for socializing athletes to internalize and integrate values are sub-optimal at best. Consistent with this, results from paper II suggest that a coach who is perceived as controlling may be less effective in transferring mastery values to the athletes. Furthermore, support for the directionality can be drawn from an experimental study published by Grolnick and Ryan (1987) more than three decades ago, showing that children's interest in learning and the maintenance of academic performance was significantly reduced when evaluations based on progression and mastery were used as an attempt to control and not to inform. This led the authors to argue that it is best to emphasize learning and mastery in conditions where there is self-determined involvement on the part of the learner. Extrapolated to the present work, when exposed to controlling coach behavior, the athletes place themselves in an evaluative stance, concerned about how the coach is watching and judging their behavior (Ryan & Deci,

2017). Thus, the climate has a controlling functional significance to them rather than an informational one. This speaks to the importance of coaches being aware of both the content and the process of internalization.

The moderating influence of controlling coach behavior extended to the level of competence satisfaction reported by the athletes. This is also in line with SDT, as values that are imposed by way of interpersonal control should not satisfy psychological needs (Ryan & Deci, 2017). Although the indirect relationship between mastery climate and competence was significant also for those with the highest reported level of controlling coach behavior, this was not a particularly high level of controlling coach behavior. As controlling coach behavior did not appear to be a big part of the present sample's youth soccer experience, the reported range may have been limited. This means that comparisons between levels must be done with caution. Future research should try to replicate the present model in a context characterized by a larger range of perceived controlling coach behavior.

Based on the findings from paper II, controlling coach behavior should be avoided. However, we know that it is not uncommon for coaches to display such behavior (Fraser-Thomas & Côté, 2009; Shields et al., 2005). In their model of the coach-athlete relationship, Mageau and Vallerand (2003) described three determinants of coach behavior, one of them being the coaching context. For instance, coaches appear to rely on controlling strategies to meet expectations, perhaps because they become more sceptical about athlete involvement when they experience a lot of pressure (Mageau & Vallerand, 2003; Occhino, Mallett, Rynne, & Carlisle, 2014). The context may also influence the coach's motivation. Rocchi and Pelletier (2017b) reported that when coaches perceived their context as non-supportive, characterized by time constraints and non-supportive colleagues, they experienced need frustration and controlled motivation. This made them more likely to display controlling



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behaviors. It therefore appears crucial that the context surrounding youth sport coaches is supportive and facilitates their motivation.

Mageau and Vallerand (2003) also specified two other determinants of coach behavior, namely perceptions of athletes' motivation and the coach's personal orientation. Rocchi and Pelletier (2017b) showed that perceiving poor quality motivation in their athletes led to need frustration and controlled motivation in the coaches, resulting in higher levels of controlling behavior. This suggests that athlete motivation and coach behavior may have some type of reciprocal relationship. Furthermore, the personal orientation of the coach relates to personality traits or dispositions that influence the type of behavior that the coach displays (Mageau & Vallerand, 2003). In a recent study, Matosic et al. (2017) found that narcissism was positively related to controlling coach behavior, partly (negatively) mediated by empathic concern. Although this is just an initial study of personality traits that may influence coach behavior, considering who the coach is may prove important in coach education programs.

The findings in papers II and IV do not offer any information regarding directionality. Our inferences are based on our view of the theory, which is that the achievement goal orientation the athletes have for their youth sport activity is at least partly due to a socialization influence in that context (Ames, 1992b; Nicholls, 1989; Roberts et al., 1998). The underlying notion is that achievement aims are cognitive representations of what constitutes competence, and are therefore sensitive to the information available in the given context (Pintrich, 2000). Smoll et al. (2007) offered empirical support for the socialization hypothesis. Specifically, Smoll and colleagues conducted an intervention aimed at teaching coaches how to create a mastery climate. Results showed that athletes perceived the trained coaches as creating a more mastery-oriented climate, compared to the coaches in the control group. Furthermore, the athletes who played for the trained coaches increased in their task goal orientation across the season, while those who played for the coaches in the control

group reported no changes. These findings provide some evidence of a causal relationship, and suggest that it is possible to teach youth sport coaches how to create a mastery climate.

Interestingly, the coach-created motivational climate had a direct effect on athletes' competence satisfaction, not operating through task goal orientation and not moderated by controlling coach behavior. This implies that the value of a mastery climate is not just the transference of a facilitative view of competence but also a structure that allows the athletes the opportunity to develop their competencies regardless of their achievement goal orientation. A recent systematic review indicated that creating a mastery climate when teaching motor skills to young children (<13) was an effective theoretical approach (Palmer, Chinn, & Robinson, 2017). Specifically, interventions teaching children motor skills in a mastery climate lead to immediate and sustained improvement in motor skills. This shows that a mastery climate can facilitate actual learning, and future research should examine if this is also the case with learning sport-specific skills in organized youth sports.

We reported higher-order perceptions of the motivational climate in both papers II and IV. While assessing higher-order perceptions is common in AGT research (Harwood et al., 2015), Harwood et al. (2008) criticized this trend, noting that the apparent purpose of motivational climate measures is to understand how specific elements of a motivational climate relate to various outcomes. Moreover, it could be argued that the mastery climate measure employed in paper II included elements that relate more to relatedness than achievement cues. The measure included the lower-order factors of cooperative learning, important role, and emphasis on effort and improvement and Ntoumanis (2001) showed that while the emphasis on effort and improvement factor was associated with competence in physical education, the cooperative learning factor was related to relatedness. Although purely speculative, the pattern that emerged in paper II could perhaps have been even stronger if the

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measurement of a mastery climate was unmitigated, representing only the lower-order factors that expressly tap the achievement criteria.

The cross-sectional design in paper II does not allow for any conclusions regarding change. Moreover, as mediation is a statement of change, change information should be an explicit part of the model explaining the relationships between the variables (Little, 2013). Thus, to increase the quality of findings in paper III we employed a half-longitudinal design, and we created a model that accounted for prior levels of the mediator and outcome in order to isolate the change variance (Little, 2013). Results from this paper showed that satisfaction of the need for autonomy, competence and relatedness did not mediate the relationship between perceptions of coach autonomy support and frequency of additional soccer activity outside of the team context.

Perceived autonomy support from the coach did not predict residual changes in the perceived fulfilment of any of the three needs across the competitive season (paper III). Although this is not what we expected, it is not that surprising in light of previous longitudinal research in youth sport showing a lack of relationship between coach autonomy support and several of the needs (Cheval et al., 2017; Kipp & Weiss, 2015). Moreover, similar to this past work, residual changes in basic psychological need satisfaction across the competitive soccer season were rather small. This may explain the non-significant links in paper III, as according to Jose (2016), significant longitudinal links are difficult to discern when there is little unexplained variance for the predictor to explain.

As there appeared to be little change in the variables we wanted to predict across time, an important question to ask is whether our temporal design was appropriate (Jose, 2016). We based the design on how the youth sport context is organized, in that the two measurements points corresponded to the start and the end of the competitive season. However, determining the temporal design based on practical reasons rather than a theoretical model of change can

limit the correspondence between the theory and the statistical model (Stenling et al., 2017). Just adding time in order to isolate change is not sufficient as time itself does not cause change, and crucial to the temporal design is the appropriate conceptualisation of the change you want to predict (Little, 2013; Ployhart & Vandenberg, 2010). The conceptualization of change requires an idea of when change occurs, how it occurs and the pattern at which it occurs (Stenling et al., 2017). Applied to paper III, our temporal design may not have captured the change phenomena we wanted to predict. For example, as previous research in youth sports has reported changes in need satisfaction from practice to practice (Gagne et al., 2003), it could be that our design would have benefitted from more frequent measurements. Future research should aim to investigate the pattern of change in basic psychological need satisfaction in youth sport, which can then be used to develop high quality longitudinal research more apt at predicting change (Ployhart & Vandenberg, 2010).

Another possible explanation for the null findings is the rather narrow measurement of autonomy support, limited to only the provision of choice and rationale strategies. An autonomy-supportive coaching style is defined by several other behavioral strategies as well, such as acknowledging other people's feelings and perspectives (Mageau & Vallerand, 2003). One might therefore question whether we actually captured autonomy support with such a limited measure. Moreover, while the link between autonomy support and the need for autonomy is logical, the link to competence and relatedness is less so. Measuring a more multifaceted perception of coach behavior, including autonomy support, competence support and relatedness support (Rocchi, Pelletier, & Desmarais, 2017; Standage et al., 2005) might have increased the predictive ability in regard to competence and relatedness.

Finally, the same notion applied to paper II may also be relevant to the findings in paper III. Specifically, that the effect of autonomy support on athlete motivation may vary as a function of another social factor (Vallerand & Losier, 1999). Researchers have for example

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emphasized that autonomy support and controlling coaching are not at the opposite ends of a continuum, and a coach can display both (Bartholomew et al., 2009; Pelletier et al., 2001). Recent research on youth athletes suggests that perceptions of autonomy support and controlling behavior from the coach interact, with findings indicating that the benefit of increasingly higher levels of autonomy support were greater when the athletes also perceived their coaches as low in controlling behavior (Amorose & Anderson-Butcher, 2015). Another important aspect is coach involvement, as research in youth soccer indicates that the relationship between coach autonomy support and athletes' intrinsic motivation is conditional on the level of coach involvement. Although this seminal study failed to show a moderation between autonomy support and basic psychological needs, it still points to the importance of a close and emotionally supportive relationship between coaches and athletes. Another aspect is the level of structure offered by the coach (Curran, Hill, & Niemiec, 2013). Moving forward, longitudinal research should examine how such different aspects of coach behavior relate to need satisfaction in youth sport, both concurrently and interactively.

That autonomy satisfaction emerged as a predictor of frequency of additional soccer activity outside of the organized team context supports the idea that basic psychological need satisfaction has an energizing role in relation to sporting behavior that reaches beyond the context in which it is satisfied (Deci & Ryan, 2000; Hagger & Chatzisarantis, 2016; Ryan, 1995). It is also in line with the definition of autonomy as a propensity towards self-regulated action (Deci & Ryan, 1995; Deci & Ryan, 2000). However, competence and relatedness did not seem to be associated with changes in the frequency of additional soccer activity. This unexpected finding is likely due to there being very little unexplained variance left for the two to predict after accounting for previous levels and autonomy satisfaction (Jose, 2016). According to Ryan and Deci (2017), it is possible for one of the needs to take the lead in terms of a specific outcome, or in a specific context. This might be the case in paper III, and it

could be that if there had been greater changes in the frequency of additional soccer activity, competence or relatedness may have emerged as a predictor. Regardless, the findings of paper III add to the growing number of studies that underline the importance of examining the needs separately, as they may relate differently to outcomes (Cheval et al., 2017; Kipp & Weiss, 2015).

Ryan and Deci (2017) argued that autonomy is the vehicle through which other needs can be satisfied. Interestingly, in testing the alternative model, frequency of additional soccer activity outside of the team context emerged as predictor of competence satisfaction. This is an indication of what Curran et al. (2016) described as an "amplifying cycle of proactivity" (p. 24), referring to the mutually reinforcing interplay between basic psychological need satisfaction and engaged behavior in sport. In paper III, this is evident in the positive relationship between autonomy and an increased frequency of additional activity, and the positive relationship between the frequency of additional activity and an increased satisfaction of competence. This further emphasizes the importance of experiencing autonomy in the organized team context.

### **Theme 3: The role of coach-team perceptual distance in the relationship between coach behavior and various outcomes**

Results from paper II suggest that a coach-created mastery climate is related to a task goal orientation. Consistent with this, findings from paper IV showed that the coach-created motivational climate, either mastery or performance, is related to the corresponding achievement goal orientation. However, paper IV extends the findings from paper II by demonstrating that coach-team perceptual distance is related to the strength of these relationships. Moreover, it also appeared to be related to the relationship between the coach-created motivational climate and affective responses.

In accordance with the work of Smith et al. (2016), there appeared to be some perceptual distance between the coaches and their teams. There was an almost even distribution between the groups of coaches that over-reported, under-reported and agreed relative to their teams, similar to that found in previous youth sport research (Rocchi & Pelletier, 2017a). These numbers suggest that coaches may not be very good at judging their own behavior. This lack of awareness seemed to influence how effective the coach-created motivational climate was. Specifically, coach-team perceptual disagreement appeared to weaken the negative implications associated with a coach-created performance climate as well as the positive implications associated with a coach-created mastery climate.

Consistent with the findings of Rocchi and Pelletier (2017a), higher levels of coach-team perceptual agreement in regard to the coach-created motivational climate was related to higher levels of the outcomes that were theoretically expected with each climate. We forwarded collective cognition as a possible explanation for why coach-team perceptual distance seems to influence how strongly the coach-created motivational climate relates to outcomes. The general idea is that the level of perceptual distance impacts the degree to which the coach is able to make use of various catalysts for collective cognition which will allow the coach to communicate and transfer the achievement cues more effectively (Gibson, 2001; Gibson et al., 2009). As we did not test for the use of such catalysts or collective cognition per se, this is still just a hypothesis.

Another, albeit related explanation for the findings in paper IV is that the level of perceptual distance says something about how close the coach is with the team. According to Jowett (2017), closeness is an important determinant of the quality of the coach-team relationship, defined by trust and appreciation. The quality of the relationship is crucial for coaching effectiveness, and is also thought to influence the extent to which athletes actually internalize the values presented by the coach (Deci & Ryan, 2000; Felton & Jowett, 2013;

Jowett, 2017). These aspects (i.e. closeness and catalysts for collective cognition) should be included in future research attempting to understand the process of how perceptual distance occurs and why it relates to outcomes.

In all, the results of paper IV indicate how important it is for coaches to be aware of their behavior, which requires an understanding of how their achievement cues are interpreted by the team. This goes beyond verbal feedback. Keegan et al. (2010) reported that youth athletes are able to infer the evaluation criteria the coach makes salient without necessarily receiving direct feedback. This is consistent with Ames' (1992b) warning that the different structures of a mastery climate must work in concert, directed towards the same achievement criteria. A mastery focus within one structure may be undermined if another structure is geared towards a performance focus, for example if the coach gives mastery-oriented feedback but plays only the normatively best athletes in matches. Not only can this scenario lead to confusion regarding what achievement criteria is salient, but it may also lead to perceptual distance between the team and the coach.

Some methodological concerns regarding paper IV must be mentioned. First, we carried out the analyses with team-ratings of the motivational climate, created by aggregating the individual scores for all athletes within one team. Although some argue that the motivational climate is an inherent group-level construct (Papaioannou et al., 2004), this method did not allow us to say anything about the relationship a coach may have with individual athletes. Rocchi and Pelletier (2017a), on the other hand, investigated perceptual distance between the coach and individual athletes, and found that perceptual distance mattered in terms of outcomes. Moreover, the number of teams included was not as large as we would have liked. For example, we were unable to examine whether there were differences between teams of different genders, or between teams with coaches of different genders. This seems pertinent to examine in light of previous organizational psychology



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research reporting that female leaders have less perceptual distance to their subordinates regarding their own leadership behavior, in comparison to male leaders (Yang & Li, 2017).

An interesting avenue for future research is investigating perceptual distance and collective cognition within the team (Gibson et al., 2009), and findings from the present thesis (paper II) suggest that there can be a great deal of within-team variability regarding how the athletes perceive their coach. Such differences may be caused by variability in the coach's behavior towards individual athletes, or the result of individual interpretations of the coach's behavior. As collective cognition between team members is likely to be of importance (Cannon-Bowers & Salas, 2001; Gibson, 2001), investigating why such perceptual distance occurs and how it relates to team outcomes is of interest. Along those lines, previous research has indicated some incongruence between youth sport athletes and their parents regarding the level of pressure and support offered by parents (Kanters, Bocarro, & Casper, 2008). As parent behavior is important for athletes' motivation (Atkins et al., 2015; Keegan et al., 2010), examining parent-child perceptual distance in the context of youth sport seems pertinent.

### **General Discussion**

The preceding sections discussed the three themes of the present thesis in light of relevant theoretical and methodological aspects. However, also deserving of attention are some larger points of discussion that are relevant across these themes. The following section will therefore touch on two such points, namely developmental perspectives and the combination of two different theories of motivation.

#### ***Developmental perspectives***

Developmental psychology suggests that younger and older children may have different understandings of the nature of ability, effort and performance (Wigfield et al., 2015). According to Nicholls (1989), it is not until age 12 that children are able to clearly

differentiate between effort and ability and can adopt a differentiated conception of competence. There is no consensus regarding the reason for this, whether it be cognitive development or social-contextual influences (Cimpian, 2017; Wigfield et al., 2015). Regardless, Wigfield et al. (2015) warned that using the same questionnaire to measure aspects related to competence for youths of different ages may be problematic. As the athletes in our sample were between the ages of 9 and 15, our results may have been influenced by developmental differences. However, Smith, Balaguer, et al. (2006) reported that youth sport athletes as young as 9 years old appeared to present similar dispositional achievement goal orientation profiles to adults, although fewer of the youth athletes reported high levels of ego goal orientation compared to the adult sample. Comparison between profile groups were in line with theoretical expectations in that the athletes who reported lower levels of task goal orientation were found to present less adaptive responses. This led the authors to argue that the young athletes may have sufficient cognitive development to reflect on questions regarding the two conceptions of competence.

The present work (papers II, III and IV) contributes to the issue of over-emphasizing the coach in studies on athlete motivation (Harwood et al., 2015). By not including peers and parents we are not able to offer a comprehensive picture of the social agents that may influence motivation or any potential interactions between them. Previous research suggests that coaches, parents and peers are all influential to youth athletes' motivation, but in different ways (Keegan et al., 2010). Furthermore, how significant others relate to athlete motivation seems to depend on the age of the athletes (Atkins et al., 2015; Chan, Lonsdale, & Fung, 2012). For instance, parents seem to be more influential when the athletes are young, while the importance of peers and coaches increases as the athletes get older. Applied to the present work, it could be that the relationships between coach behavior and athlete motivation had been stronger if we had employed an older sample.

Development can also be seen in relation to the larger social-contextual environment surrounding the youth sport activity. Specifically, not only are the youth sport athletes developing, but their sporting context also changes as they progress. In Norwegian youth soccer, for example, the talent development objective becomes more pertinent as the athletes age (Football Association of Norway, 2005). As such, the soccer context that the sampled athletes belonged to may have varied in terms of the structure and value-based objectives. Extrapolating from educational research offers evidence for the impact of the context, as findings have shown that the apparent decline in motivation and perceptions of a supportive environment in middle school is not a general feature of early adolescence, but rather a reflection of changes in the learning environment (Eccles et al., 1993; Madjar & Cohen-Malayev, 2015). Sallis, Owen, and Fisher (2008) forwarded a behavior-specific ecological model, emphasizing the importance of acknowledging that social and personal variables are occurring within distinct settings, and that they should be investigated specifically as they relate to the structure of these settings. Indeed, ecological reasoning highlights the need to investigate the actual context of sport participation, and to provide analyses of contextual contrasts (Bengoechea, 2002). This type of research will protect against overgeneralizing results and add diversity to the research.

### ***Combining different theories of motivation***

As mentioned in the introduction, the present thesis takes a multi-theoretical approach, linking AGT and SDT at the empirical level to capture aspects beyond the operational utility of either theory alone. In doing so we attempted to avoid what Roeser (2004) referred to as the "intellectual parochialism" (p. 288). That is, refusing to employ different theories to explain equivocal findings or to further our understanding of motivation. In a qualitative study on how significant others influence youth athletes' motivation, Keegan et al. (2010) reported that aspects from many motivational theories appeared to be of importance, leading them to

caution against having a single dominant theory guiding the research on what they referred to as motivational atmosphere in youth sport.

In the present thesis, the contribution of AGT was the definition of competence, at both the individual and context level. The inclusion of SDT, on the other hand, brought in the aspects of self-determination, internalization and need satisfaction. Findings offer support for both SDT and AGT, suggesting that aspects from both theories are relevant to the youth sport experience. Vansteenkiste and Mouratidis (2016) have however warned that a mere empirical linking of two theories can result in an epistemologically fragmented and inconsistent approach if the underlying assumptions of the theories are not considered. We acknowledge the different meta-theoretical foundations of the two theories, and realize that our approach is not readily compatible with the social-cognitive perspective of AGT (Nicholls, 1984, 1989; Roberts, 2012). Indeed, our approach is more consistent with the meta-theoretical foundations of SDT, which considers both wants and needs (Ryan & Deci, 2017).

### **Strengths and Limitations**

The present thesis has several strengths. First, we consider the attention to nuance that underlines this work a considerable strength, and we hope that researchers will continue to examine aspects related to moderation, change and perceptual distance. Second, given the particular risk of confirmation bias in cross-sectional research, we met this challenge by acknowledging competing models. Third, the use of advanced statistical approaches to help answer the research questions is also a strength. Last, the large samples allowed for the use of these approaches and give merit to the results.

Despite its strengths the present thesis is not without its limitations. Although some have been discussed under each theme, a few larger limitations deserve attention. First, the cross-sectional design employed in three of the four papers (I, II, and IV) is a major

limitation. Seen in light of the non-significant findings in paper III, it could be that not all of the relationships that emerged with the cross-sectional designs would have been present if we had controlled for previous levels. Second, paper III only included two measurement points, which did not allow for testing stationarity or the significance of a potential direct effect between autonomy support and frequency of additional soccer activity (Cole & Maxwell, 2003). Third, all the papers are based on self-report measures, which can suffer from method bias. That is any variance caused by methodological issues rather than the constructs being measured, and can offer a different explanation for the relationship between variables (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). Examples of potential method biases with self-report measures are social desirability, scale length, item complexity, scale format and item valence. Along the same line, most of this work relied on the perceptions of the athletes when measuring coach behavior. Ames (1992b) argued that it is the perceptions of those who are exposed to a climate that matters in terms of the outcomes that they experience. However, as we did not include any objective measures of coach behavior, care must be taken when making recommendations for practice (Harwood et al., 2015). Particularly seen as recent research has found discrepancies between coach, athlete and observer reports of coach behavior (Smith et al., 2016). Last, we did not control for gender based on the belief that it does not confound the main relationships in papers II and III. This precludes us from making any inferences regarding gender.

### **Practical Implications**

Combined, the results from the present thesis offer a nuanced picture of motivation in the youth sport context. Although more research is needed to see if the results can be replicated, some tentative practical implications are offered. First, to facilitate positive self-perceptions in youth athletes, it appears that a combination of intrinsic regulation for sport and task goal orientation is favorable. That is, athletes should be engaged in the sporting activity

because of the inherent enjoyment they experience and judge their competencies based on effort and mastery. It is therefore crucial that coaches strive to create a mastery climate. However, this should not be done in a controlling manner, using a mastery focus as a way to control rather than inform. A coach who purposely ignores athletes who are preoccupied with normative standings exemplifies this. With that said, coaches must also be aware of the fact that athletes may experience the coach behavior differently from them. Such perceptual distance might diminish the positive outcomes of a mastery climate. It is therefore important that coaches are aware of the motivational climate they create, beyond just self-awareness, allowing them to detect whether their behavior is received how it is intended. Moreover, one manner in which organized youth sport can contribute to physical activity levels is through allowing youth athletes a sense of autonomy. Indeed, it appears that experiencing volition within the team context is related to the frequency at which youth athletes engage in sporting activity outside of that context.

The TARGET acronym (Epstein, 1988; Epstein, 1989) may be helpful for coaches in creating a structure that can do all this. The TARGET dimensions (i.e. task, authority, recognition, grouping, evaluation and time) focus on making the mastery values salient in all aspects of the sporting environment while at the same time respecting the autonomy of the athletes. Research on youth sport shows that an intervention aimed at teaching coaches how to create a mastery climate based on the TARGET dimensions had significant positive effects on athletes' competence, autonomy, self-determined motivation and persistence (Cecchini, Fernandez-Rio, Mendez-Gimenez, Cecchini, & Martins, 2014).

Finally, coach education programs should focus on both the "what" and "why" of athletes' motivation, as well as the process in which individuals assimilate and integrate ambient values. A program that might prove fruitful in this regard is the recently devised Empowering Coaching™. This program is based on SDT and AGT, and teaches coaches how

## Discussion

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to create an environment characterized by mastery values and low control through a workshop in which learning activities and video clips are used actively to try to develop coaches' understanding of motivation and motivational processes (Duda, 2013; Duda et al., 2017).

## Conclusion

The research presented in this thesis has investigated various aspects of motivation in youth sport, with a focus on how participation in youth sport can be a positive experience for athletes. Viewing motivation in a more idiographic manner may correspond to how motivation is in real life, but it also complicates its empirical study. However, we believe that this is crucial for developing theories that can guide practice, and research must benefit those we rely on to do our research; the youth athletes. This should guide our work, with an emphasis on carrying out investigations with the power to influence research, policy and practice alike.

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doi:10.1016/j.emj.2017.03.013



## **Paper I**

Gjesdal, S., Appleton, P.R. & Ommundsen, Y. (2017). Both the “what” and “why” of youth sports participation matter; a conditional process analysis. *Frontiers in Psychology*, 8, 659, 1-

12. doi: 10.3389/fpsyg.2017.00659.





# Both the “What” and “Why” of Youth Sports Participation Matter; a Conditional Process Analysis

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### Edited by:

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### Specialty section:

This article was submitted to  
Movement Science and Sport  
Psychology,  
a section of the journal  
Frontiers in Psychology

**Received:** 22 February 2017

**Accepted:** 12 April 2017

**Published:** 26 April 2017

### Citation:

Gjesdal S, Appleton PR and  
Ommundsen Y (2017) Both  
the “What” and “Why” of Youth Sports  
Participation Matter; a Conditional  
Process Analysis.  
*Front. Psychol.* 8:659.  
doi: 10.3389/fpsyg.2017.00659

This study builds on previous research combining achievement goal orientation from Achievement Goal Theory and motivational regulation from Self-Determination Theory. The aim was to assess the combination of the “what” and “why” of youth sport activity, and how it relates to the need for competence and self-esteem. Achievement goal orientation, specifically task and ego, was employed to represent the “what”, whilst intrinsic and external regulation reflected the “why”. Based on a sample of 496 youth sports participants, structural equation modeling with a bootstrapping procedure was used to examine whether the indirect relationship between achievement goal orientation and self-esteem was conditional to motivational regulation. The results show partial support for the conditional process models. Specifically, task orientation was indirectly linked with self-esteem through competence need, and the relationship was stronger with higher levels of intrinsic regulation for sport. Furthermore, ego orientation was negatively associated with self-esteem through a positive relationship with competence frustration. However, this relationship emerged only for those higher in intrinsic regulation. External regulation did not emerge as a moderator, but presented a positive relationship with competence frustration. Findings are discussed in light of both Achievement Goal Theory and Self-Determination Theory, and underline the importance of considering both the “what” and “why” when attempting to understand motivation in youth sport.

**Keywords:** youth sport, motivational regulation, goal orientation, self-esteem, competence, conditional process analysis

## INTRODUCTION

Understanding motivation requires addressing both the direction of behavior; the “what”, and its energizing aspect; the “why” (Deci and Ryan, 1985). Thus, inspired by Vansteenkiste et al. (2014a), the purpose of the present study was to combine two prominent theories of motivation; namely Self-Determination Theory (SDT; Deci and Ryan, 2000) and Achievement Goal Theory (AGT; Nicholls, 1984), in order to investigate both aspects of motivation in the context of youth sports. The conceptual basis for the study included motivational regulations from SDT, reflecting “why” one is participating, and goal orientation from AGT to represent the “what” one is trying to achieve. Specifically, we asked whether the relationship between youth sports participants’ achievement goal orientation and self-esteem, through competence, is conditional upon motivational regulation.

Elliot and Thrash (2001) described the “why” as the energizing element of achievement behavior. We drew upon SDT as a theoretical basis for the “why”, which posits that motivation varies in the degree of self-determination. This can be seen on a continuum from extrinsic to intrinsic, along several distinct dimensions of motivation differing in quality depending on the underlying regulatory processes (Deci and Ryan, 2000). Extrinsic motivation consists of four different regulations. The first is external regulation, representing a highly controlled form of motivation, occurring when the source of motivation is alien to the person (e.g., being forced by a parent to participate in sports). Introjected regulation is also controlling, but the control is internal, often characterized by shame or guilt. Identified regulation is a more self-determined dimension, involving accepting and identifying with the underlying value of a given behavior. The final dimension of extrinsic motivation is integrated regulation, occurring when the value of a behavior is integrated within the self. Intrinsic regulation reflects complete self-determination, i.e., acting due to interest and enjoyment inherent in the activity itself, also in the absence of external prompts and rewards.

Previous investigations on the “what” and “why” of motivation have relied on a dichotomy of self-determined regulation (identified, integrated and intrinsic regulation) and controlled regulation (introjected and external regulation) (Vansteenkiste et al., 2014a). Self-determined regulation, compared to controlled, should lead to more facilitative outcomes through increased effort and persistence, less internal conflict, challenge appraisals, and protection from task-irrelevant temptations (Sheldon and Elliot, 1999; Deci and Ryan, 2000; Koestner, 2008; Ntoumanis et al., 2014). However, this method of combining qualitatively distinct regulations has been scrutinized as research suggests that considering the quality of motivation adds explanatory value even when accounting for the amount of self-determination (Howard et al., 2016). Thus, we employed intrinsic and external regulation, representing completely self-determined and non-self-determined regulation, to examine their unique contribution to outcomes.

Both AGT and SDT researchers have highlighted the importance of goal content when studying the implications of achievement behavior (Ryan et al., 1996; Elliot and Thrash, 2001). We elected to base the “what” on competence dimensions due to the achievement focus within sports. As AGT emphasizes the concept of competence, the theory offers a theoretically sound basis for the “what”. AGT is concerned with conceptions of competence, and posits a dichotomy in how it is construed (Nicholls, 1984). A task conception of competence is self-referenced, and ability is considered in regard to mastery, effort and learning. Conversely, an ego conception is other-referenced. Competence evaluation is based on normative standards. Further, a valid inference of ability requires exerting equal or less effort compared to others (Nicholls, 1984). Generally, the conceptions are thought to differentially relate to outcomes. Task orientation is linked with positive outcomes, whilst ego orientation relates to more

adverse ones, particularly when perceived competence is low (Roberts, 2012). Vansteenkiste et al. (2014a) proposed the use of the hierarchical model of achievement goals, including avoidance and approach dimensions, to study the “what”. However, research has cast doubt over whether adolescents actually distinguish between approach and avoidance, and if they represent separate psychological realities (Roeser, 2004). Therefore, we employed the traditional dichotomous distinction of ego and task orientation.

Vansteenkiste et al. (2014a) acknowledged that the pursuit of a given goal can be differentially regulated, presenting important nuances in the consequences of its pursuit. Initial research offers support for this in the context of sports. For example, self-determined regulation of task-approach goals positively predicted game-specific pro-social behavior, enjoyment and performance satisfaction in volleyball players (Vansteenkiste et al., 2014b). Furthermore, controlling reasons underlying ego-approach goals have been linked with unfair functioning in competition, higher negative affect, and lower positive affect (Vansteenkiste et al., 2010). Conversely, self-determined regulation of ego-approach goals was associated with positive affect and subjective vitality (Vansteenkiste et al., 2010). Interestingly, a recent study on student athletes showed that goals and regulations interact to predict outcomes (Gaudreau and Braaten, 2016). Results showed stronger relationships between task-approach goals and goal attainment, and between ego goals and goal attainment, sport satisfaction, and positive affect for those with self-determined reasons. Moreover, both ego-approach and task-approach goals presented stronger relationships with negative affective states when high in controlled reasons.

Inspired by the aforementioned work, we wanted to investigate this combination using a contextual level of motivation for youth sports. The notion herein is that the “what” and “why” also exists in regard to sport participation in general. Specifically, participation in youth sports can be differentially regulated, reflecting important nuances in how the “what” will relate to outcomes. This approach is likely to have greater predictive value, as reasons for participation encompass more information compared to the reasons for specific goals. Eligibility criteria state that a moderator must precede the independent variable (Kraemer et al., 2008). As it is the energizing basis for achievement behavior (Elliot and Thrash, 2001), we placed motivational regulation as the moderator in our models. Furthermore, Vansteenkiste et al. (2014a) assessed the regulation, or reasons, underlying specific achievement goals. With this method, the “what” and “why” becomes inextricably linked with each other. However, we found it appropriate to measure regulation and orientation separately, adhering to the rule that the moderator and predictor should not be associated if one is to present a true conditional analysis (Kraemer et al., 2008). Thus, the aim of the current study was to investigate whether the underlying regulation of participation would moderate how achievement goal orientation related to outcomes.

A majority of the research investigating how the combination of the “what” and “why” relates to outcomes has neglected to

offer an explanation on the mechanisms by which the influence operates through. According to SDT, it is in terms of basic psychological need satisfaction that the combination becomes meaningful (Deci and Ryan, 2000). Basic psychological needs are defined as innate psychological nutrients, fundamental to well-being (Deci and Ryan, 2000). SDT posits three separate needs; autonomy, competence and relatedness, respectively. Although universality is a feature of basic psychological needs, their relative salience can vary, for example by cultural factors dynamically contributing to their importance (Ryan and Deci, 2000). Competence is highly emphasized in sports, and perhaps the most pertinent in regard to self-perceptions (Kipp and Weiss, 2015). Furthermore, as goal orientations reflect the standards by which participants evaluate their competencies, the need for competence is very relevant. For this reason, competence was investigated solely, defined as an innate and appetitive desire to feel competent in one's actions and interactions (Deci and Ryan, 2000). We also assessed competence need frustration, i.e., perceiving the need for competence actively obstructed, as it has independent relationships with antecedents and outcomes (Bartholomew et al., 2011).

A task orientation should lead to competence need satisfaction, as self-referenced standards have an internal locus of control. Conversely, ego orientation reflects a standard more dependent on aspects external to the self, making it more challenging to reach. Furthermore, the external locus of control may lead to competence frustration when faced with failure (Nicholls, 1984). However, we hypothesize that the "why" of participation presents important nuances in how the "what" relates to outcomes. Therefore, the relationship between goal orientation and competence should be considered in light of how the activity is regulated. Although need satisfaction has traditionally been seen as an antecedent of motivational regulation, recent longitudinal research suggests that regulations may in fact facilitate need satisfaction (Gunnell et al., 2014). As intrinsic regulation reflects a representation of an individual's integrated sense of self, any activities regulated such are more connected to the need for competence, compared to externally regulated ones (Deci and Ryan, 1995). Additionally, as self-determined activity is afforded more effort, leading to activity absorption and better skill development, increases in actual competence are more likely (Sheldon and Elliot, 1999; Vansteenkiste et al., 2014a).

We aimed to move beyond only assessing the type or strength of goal orientation and regulation, by combining the two. Previous research has offered no support for an interaction of self-determined regulation and achievement goals on need satisfaction (Gillet et al., 2014; Delrue et al., 2016). However, moderation requires a great deal of power. Thus, by using less sophisticated analyses, i.e., multiple regression (versus structural equation modeling; SEM), and a lower number of participants, the ability to identify interactions may have been reduced in these studies (Hayes and Preacher, 2013). Furthermore, these investigations focused on the reasons underlying specific goals, not the regulation for participation in general. Therefore, extending previous research, we attempted to

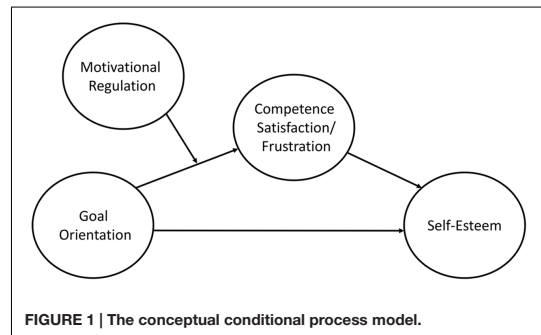


FIGURE 1 | The conceptual conditional process model.

detect an interaction between goal orientation and motivational regulation when employing SEM with a larger sample and the regulations underlying participation *per se*.

Self-esteem is an evaluative component of self-perception, representing affective appraisals of one's worth and importance (Fox, 2002). Unfortunately, puberty has been presented as a developmental marker associated with female athletes' lowered self-perceptions (Monsma et al., 2006). As it is imperative to understand how self-esteem can be promoted in this period, we added self-esteem as an outcome in our model. Self-esteem is determined by specific concepts of competence (Marsh, 1986; Wagnsson et al., 2014), and recent work has shown competence to be the only basic psychological need to predict self-esteem (Kipp and Weiss, 2015). Furthermore, SDT posits that true self-esteem can only be facilitated through acting agentically and volitionally, and having one's basic needs met (Deci and Ryan, 1995). Accordingly, goal orientations should contribute to self-esteem only to the extent that they are able to satisfy the need for competence. Therefore, we wanted to investigate if the relationship of goal orientation to competence is moderated by regulation, and if this extends to the indirect association from goal orientation to self-esteem. With this aim in mind, we deemed a conditional process analysis as the appropriate manner in which to test these relationships.

We tested several conditional process models (Figure 1), based on two different mediation sequences; *task goal orientation – competence satisfaction – self-esteem*, and *ego goal orientation – competence frustration – self-esteem*, respectively. We expected ego goal orientation to negatively relate to self-esteem through a positive relationship with competence frustration, and task goal orientation to positively relate to self-esteem through competence. We hypothesized that the relationship between task orientation and competence satisfaction would be stronger for those with high levels of intrinsic regulation, whilst the opposite was expected for the relationship between ego orientation and competence frustration. We also hypothesized that the relationship between task orientation and competence satisfaction to weaken with high levels of external regulation, whilst seeing a strengthening of the relationship between ego orientation and competence frustration.



## MATERIALS AND METHODS

### Participants

Participants were 496 female soccer and handball players, ranging from 11 to 19 years of age ( $M$  age = 14.10,  $SD$  = 1.86). The Norwegian Centre for Research Data (NSD) approved the project prior to its commencement. The participants were recruited by contacting clubs directly. An information letter was sent to coaches, who upon accepting the invitation forwarded an information sheet to players and their parents/legal guardians. Parents or legal guardians as well as participants above the age of 18 were asked to indicate consent through a passive consent approach, which entailed giving the project leader a verbal or written refusal if they did not consent to participation. Participants were informed that participation was voluntary and consent could be withdrawn at any point. The data collection took place at the end of the season for soccer and midseason for handball, and the questionnaire was administered before or after a team training session, and took on average 20 min to complete.

### Measures

Participants responded to all items on a 5-point Likert-Scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). All scales were administered in Norwegian, following an extensive translation-back-translation procedure from English (Harkness, 1999).

*Achievement goal orientation* was measured based on work by Duda and Nicholls (1992), and items were preceded by the stem "I feel really successful in football/handball when...". All items referred to the standards for feeling successful, and did not include validation concerns or choice components, thus more precisely reflecting competence standards. Six items measured *ego goal orientation* (e.g., "I'm the only one who can do the skill"), whilst seven items were used to assess *task goal orientation* (e.g., "I do my very best"). Previous research (e.g., White and Duda, 1994) has demonstrated acceptable psychometric properties for the use of this scale with youth sports participants.

The Behavioral Regulation in Sport Questionnaire (BRSQ) (Lonsdale et al., 2008) was used to measure *motivational regulation*. Participants were asked to rate how well the statements fit with their reasons for participating. Four items assessed *intrinsic regulation* (e.g., "Because I enjoy it"), and four items measured *external regulation* (e.g., "Because people push me to play"). Viladrich et al. (2013) offered support for the use of this scale with youth athletes in several European countries including Norway.

In regard to competence, the participants were asked about their general feelings and experiences on the team during the past month. *Competence need satisfaction* was assessed based on six items from the Intrinsic Motivation Inventory (IMI) (McAuley et al., 1989) (e.g., "I was pretty good"). McAuley et al. (1989) supported the psychometric properties of the scale in a sports context. *Competence need frustration* was measured with four items from the competence factor of the Psychological Need Thwarting Scale (PNTS) (Bartholomew et al., 2011) (e.g., "There were situations where I was made to feel useless"). Bartholomew

et al. provided initial support for the reliability and validity of the scores attained from this measure.

Five items from the Short Version of the Self-Description Questionnaire (Marsh et al., 2010) were used to measure general *self-esteem*. The participants were asked how they generally felt in the past 3–4 weeks (e.g., "Overall, most things I did, I did well"). Previous research (e.g., Marsh et al., 2010; Papaioannou et al., 2013) has presented acceptable psychometric properties for the self-esteem items with youth athletes.

### Data Analyses

While most of the research to date has investigated conditional processes using regression analyses (Curran et al., 2013; Sardeshmukh and Vandenberg, 2016), we extended this work by employing SEM, with *Mplus* 7.2 statistical software. To evaluate model fit, we relied on common goodness-of-fit indices, including comparative fit index (CFI), the root mean square error of approximation (RMSEA), and the standardized root mean square residual (SRMR). According to Little (2013), good fit is indicated by values close to or greater than CFI = 0.90, and less than 0.08 for RMSEA and SRMR, respectively.

As recommended by Hayes (2013), we first tested mediation, thereafter moderation, and subsequently all parameters were estimated simultaneously to test the moderated mediation. Interaction terms were created in *Mplus* using the XWITH command. With this command, *Mplus* employs the latent moderated structural equations approach which offers unbiased, efficient estimates of interaction effects, robust toward departures from normality and non-linearity (Hayes and Preacher, 2013; Sardeshmukh and Vandenberg, 2016). An analysis of the index of moderated mediation was requested, which reflects the slope of the line representing the relationship between the moderator and the mediation link (Hayes, 2015). Estimates of the indirect effect were specified at low (−1SD), moderate (Mean), and high (+1SD) levels of the moderator. Furthermore, as these values are of an arbitrary nature, we also employed regions of significance, i.e., the Johnson–Neyman technique, by loop plotting the conditional indirect relationships in *Mplus* (Hayes and Preacher, 2013; Muthén et al., 2016). This technique defines regions of moderator values at which the simple slope of the indirect relationship is significantly different from zero. All analyses were carried out with bias-corrected bootstrapping, with 5000 samples, reporting significance based on 95% bias-corrected confidence intervals for all effects.

The aforementioned fit indices are not applicable when running models with the XWITH interaction term in *Mplus*. We therefore relied on the method presented by Sardeshmukh and Vandenberg (2016) to assess model fit. Baseline models were computed, where only main effects were specified for the moderator. Thereafter the Akaike Information Criterion (AIC) was compared between the baseline model and the model with the interaction term. A smaller AIC suggests less information loss, indicating a better fit to the data.

Interaction tests are low in statistical power (Hayes, 2015). Furthermore, SEM analyses with interactions rely on numerical integration and raw data, requiring great capacity for the computations. Combined with 5000 bootstrap samples, running

simpler models was deemed more appropriate. Thus, we opted to analyze the achievement goal orientations separately, with two models for ego (ego/intrinsic and ego/external) and two models for task (task/intrinsic and task/external). This also favors parsimony, and attempts to reduce the likelihood of multicollinearity and potential type 2 errors. Furthermore, it facilitates interpretation, and is similar to that done in previous studies (Gaudreau and Braaten, 2016).

## RESULTS

### Descriptive Statistics

Inspection of skewness and kurtosis revealed that all items met with the cut-off values of  $\pm 2$  for skewness (George and Mallery, 2010). However, intrinsic regulation, external regulation, and task goal orientation presented numbers exceeding this for kurtosis. As suggested by Byrne (2012), we assessed changes in the  $\chi^2$ -value when conducting confirmatory factor analysis (CFA) with both maximum likelihood (ML) and maximum likelihood estimation method with robust standard errors (MLR), for all three variables. The changes were substantial, suggesting non-normality. Based on this, the MLR estimator was applied, due to it being robust to non-normality (Muthén and Muthén, 1998–2012). All items loaded on their respective latent constructs (unstandardized estimates ranging from 0.67 to 1.24, all being statistically significant at  $p < 0.001$ ). As Cronbach's alphas are recognized as limited estimators of reliability, the latent variable model composite reliability, denoted by Rho ( $\rho$ ), was computed to provide a less biased estimate (Raykov, 2009). Means, standard deviations, Rho and bivariate correlations are presented in **Table 1**. Correlations generally revealed an expected pattern between variables.

### Confirmatory Factor Analyses

Initial CFA for ego orientation did not yield acceptable fit indices [(S-B  $\chi^2$ ) = (df = 9,  $N = 495$ ) = 69.377,  $p < 0.001$ ; CFI = 0.93, RMSEA = 0.12[0.09–0.14] and SRMR = 0.05]. Modification indices (MI) revealed high residual covariance between item 5 and 6, respectively. Item phrasing indicated redundancy due to item overlap (Podsakoff et al., 2012); item 5 “I am the best player in my position”, and item 6 “I’m the best”. We therefore considered it acceptable to add a covariance link between the residual covariance associated with both items, as they relate to similar content. This resulted in excellent fit indices [(S-B  $\chi^2$ ) = (df = 8,  $N = 495$ ) = 27.656,  $p < 0.001$ ; CFI = 0.98 and RMSEA = 0.07[0.04–0.09], and SRMR = 0.03].

The initial CFA for self-esteem showed non-acceptable fit indices [(S-B  $\chi^2$ ) = (df = 5,  $N = 488$ ) = 47.877,  $p < 0.000$ ; CFI = 0.92, RMSEA = 0.13[0.10–0.17], and SRMR = 0.04]. Again, MI revealed high residual covariance, between item 2 and 4, respectively. Both items were negatively phrased, and thereafter turned in SPSS. Item 2 stated “I was worthless” and item 4 stated “Little of what I did turned out well”. Adding a covariance link between item 2 and 4 yielded excellent fit indices [(S-B  $\chi^2$ ) = (df = 4,  $N = 488$ ) = 10.669,  $p < 0.05$ ; CFI = 0.99, RMSEA = 0.06[0.00–0.06] and SRMR = 0.02]. This

is consistent with the approach employed by Papaioannou et al. (2013) when examining the factor structure of the scale across five European countries, including Norway. The remaining CFAs for task goal orientation, competence satisfaction, competence frustration, external regulation and intrinsic motivation yielded acceptable fit indices.

### Mediation

Results revealed a significant sequence for task orientation – competence need – self-esteem [(S-B  $\chi^2$ ) = (df = 131,  $N = 496$ ) = 176.817,  $p = 0.00$ ; CFI = 0.99, RMSEA = 0.03[0.02–0.04], and SRMR = 0.04]. Specifically, a significant total positive effect of task goal orientation on self-esteem was observed ( $\beta = 0.24$ , 95% CI<sub>BC</sub>:0.12,0.35), which included a positive indirect path ( $\beta = 0.22$ , 95% CI<sub>BC</sub>:0.14,0.31). The direct path between task goal and self-esteem was non-significant.

The ego goal orientation – competence frustration – self-esteem model showed acceptable fit indices [(S-B  $\chi^2$ ) = (df = 85,  $N = 496$ ) = 233.599,  $p = 0.00$ ; CFI = 0.94, RMSEA = 0.06[0.05–0.07] and SRMR = 0.06]. The total effect of ego orientation on self-esteem was non-significant. However, an indirect negative path via competence frustration emerged ( $\beta = -0.05$ , 95% CI<sub>BC</sub>:-0.11,0.06), whilst the direct link was non-significant. According to Hayes (2013), neither the direct or total effect must be significant to support mediation. Thus, as the present results supported the hypothesized indirect relationships, we were confident in conducting further analyses. However, the direct paths were omitted from the conditional process models.

### Moderation

Conditional effects for both task orientation ( $B = 0.67$ , 95% CI<sub>BC</sub>:0.45,0.93) and intrinsic regulation ( $B = 0.19$ , 95% CI<sub>BC</sub>:0.08,0.29) were significant, as was the interaction term ( $B = 0.15$ , 95% CI<sub>BC</sub>:0.04,0.26) (**Table 2**). Simple slopes analyses, presented in **Figure 2**, showed that the association between task orientation and competence need were significant at all levels, but increased in strength from low ( $-1SD$ ;  $B = 0.61$ , CI<sub>BC</sub>:0.39,0.88), to moderate (Mean;  $B = 0.67$ , CI<sub>BC</sub>:0.45,0.93), to high levels of intrinsic regulation ( $+1SD$ ;  $B = 0.73$ , 95% CI<sub>BC</sub>:0.50,1.00). Further, the interaction term in the task goal/external model was non-significant.

Only the link from intrinsic regulation to competence frustration was significant in the ego/intrinsic model ( $B = -0.28$ , 95% CI<sub>BC</sub>:-0.40,-0.18), yet a significant interaction term emerged ( $B = 0.19$ , 95% CI<sub>BC</sub>:0.06,0.31) (**Table 3**). Simple slopes analyses (**Figure 3**), showed that the path between ego orientation and competence frustration was only significant at high levels of intrinsic regulation ( $+1SD$ ;  $B = 0.27$ , 95% CI<sub>BC</sub>:0.08,0.47). In the ego/external regulation model, only external regulation presented a significant relationship with competence frustration ( $B = 0.31$ , 95% CI<sub>BC</sub>:0.20,0.43), whilst the interaction term was non-significant.

### Moderated Mediation

The moderated mediation index for intrinsic regulation on the association between task orientation and self-esteem was significant ( $B = 0.06$ , 95% CI<sub>BC</sub>:0.02,0.12). A conditional

**TABLE 1 | Descriptive statistics, Rho, and bivariate correlations for latent variables.**

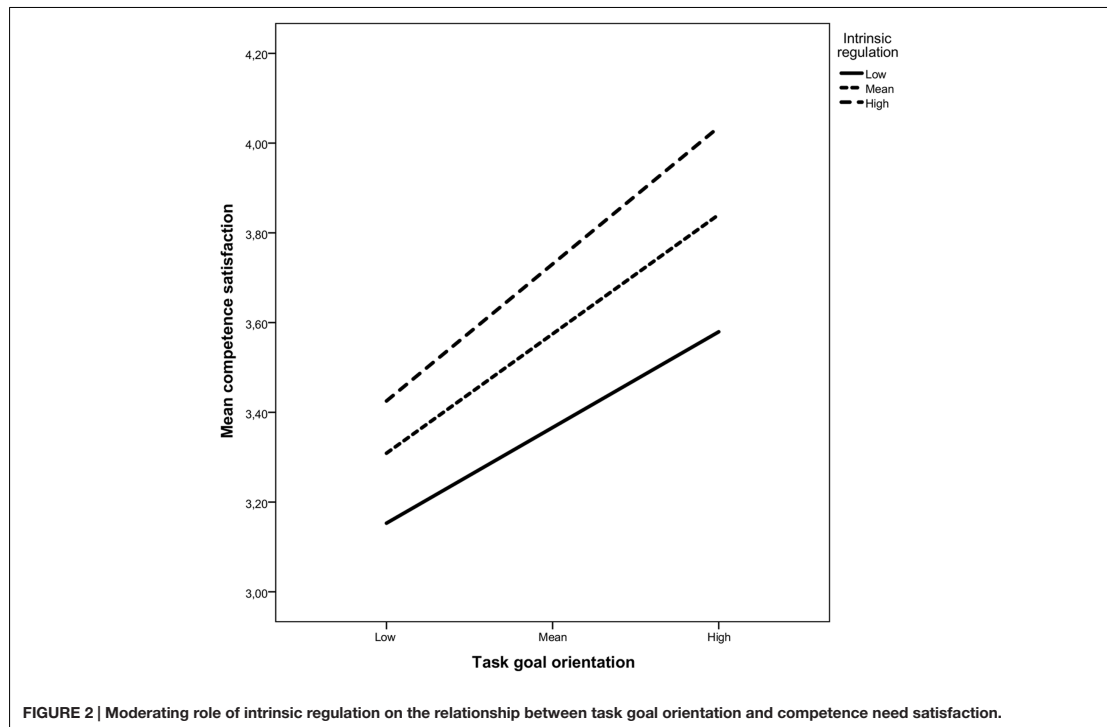
	Raikov <sup>1</sup>	M (SD)	2	3	4	5	6	7
1 T-G-O	0.82 (0.79–0.85)	4.49 (0.51)	0.03	0.45**	-0.22**	0.61**	-0.25**	0.19**
2 E-G-O	0.84 (0.82–0.86)	3.07 (0.90)		0.07	0.14**	-0.09	0.21**	0.01
3 C-Sat	0.92 (0.91–0.93)	3.60 (0.76)			-0.34**	0.40**	-0.17**	0.37**
4 C-Fru	0.79 (0.77–0.82)	2.34 (0.92)				-0.21**	0.24**	-0.44**
5 I-Reg	0.78 (0.74–0.82)	4.69 (0.41)					-0.29**	0.13**
6 E-Reg	0.75 (0.70–0.80)	1.45 (0.59)						-0.17**
7 SE	0.79 (0.76–0.83)	3.84 (0.70)						

\*\* $p \leq 0.01$ ; <sup>1</sup>Confidence intervals for Rho in parentheses. T-G-O = task goal orientation, E-G-O = ego goal orientation, C-Sat = competence need satisfaction; C-Fru = competence need frustration, I-Reg = intrinsic regulation, E-Reg = external regulation, SE = self-esteem.

**TABLE 2 | Simple moderation for task goal orientation models.**

	Unstandardized coefficients (95% CI <sub>BC</sub> )			
	Task	Intrinsic	External	Interaction
Competence	0.67 (0.45,0.93)**	0.19 (0.08,0.29)**	–	0.15 (0.04,0.26)*
Competence	0.76 (0.58,0.90)*	–	-0.06 n.s.	-0.08 n.s.

\* $p < 0.05$ , \*\* $p < 0.001$ , n.s. = non-significant.



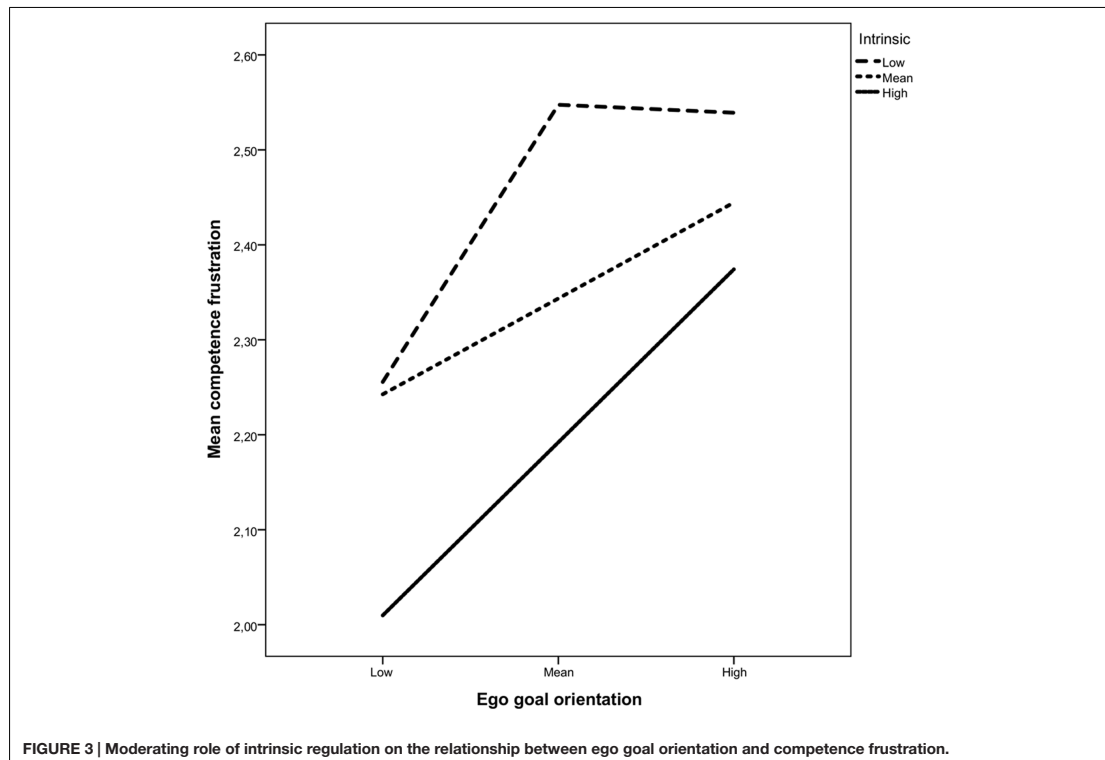
indirect effect of task goal on self-esteem through competence need emerged, significant at low (-1SD;  $B = 0.22$ , 95% CI<sub>BC</sub>:0.11,0.39), moderate (Mean;  $B = 0.29$ , 95% CI<sub>BC</sub>:0.16,0.47), and high levels of intrinsic regulation (+1SD;  $B = 0.35$ ,

95% CI<sub>BC</sub>:0.20,0.56). This was supported by the loop plot results, showing that the conditional indirect relationship was significant at all levels of intrinsic regulation, as such the regions of significance was the entire samples range of intrinsic

**TABLE 3 | Simple moderation for ego goal orientation models.**

	Unstandardized coefficients (95% CI <sub>BC</sub> )			
	Ego	Intrinsic	External	Interaction
Competence-Frustration	0.03 n.s.		0.31 (0.20, 0.43)**	-0.12 n.s.
Competence-Frustration	0.09 n.s.	-0.29 (-0.38, -0.20)*	-	0.19 (0.08, 0.31)*

\* $p < 0.05$ , \*\* $p < 0.01$ , n.s. = non-significant.



**FIGURE 3 | Moderating role of intrinsic regulation on the relationship between ego goal orientation and competence frustration.**

regulation (range = 2.5–5). Furthermore, the slope was positive, showing an increase in the strength of the indirect effect with increasing levels of intrinsic regulation. The association between task orientation and self-esteem therefore appears not to be conditional upon intrinsic regulation, but the strength of the association is.

The interaction term for task goal/external regulation was non-significant. However, this does not reflect a quantification of the relationship between the moderator and the indirect effect and therefore one cannot infer that the indirect effect is not conditional upon the moderator (Hayes, 2015). Thus, moderated mediation analyses were conducted, revealing a non-significant index of moderated mediation ( $B = -0.03$ , n.s.). Accordingly, it appears that the relationship between task orientation and self-esteem through competence satisfaction was not conditional to external regulation.

The moderated mediation index for intrinsic regulation on the relationship between ego orientation and competence frustration was significant ( $B = -0.07$ , 95% CI<sub>BC</sub>: -0.13, -0.03). Simple slopes, depicted in Table 5, revealed a conditional indirect effect of ego orientation on self-esteem, through competence frustration but only at high levels of intrinsic regulation (+1SD;  $B = -0.06$ , 95% CI<sub>BC</sub>: -0.12, -0.01). The regions of significance test showed that the conditional indirect relationship was significant when intrinsic regulation was equal to, or higher than, 4.87 ( $B = -0.05$ , 95% CI<sub>BC</sub>: -0.10, -0.01). Although this is a high number, on a scale of 5, it does reflect the responses of 44.15% of the sample. As such, there is enough data within this region of significance to offer a reliable finding. The results therefore suggest that the negative association between ego goal orientation and self-esteem, through increased competence frustration, is conditional upon high levels of intrinsic regulation.

**TABLE 4 | Conditional indirect effects models with task goal orientation.**

Moderator value (intrinsic regulation)	Conditional indirect effect of task goal orientation on self-esteem at mean and $\pm 1$ SD levels of intrinsic regulation					
	Bootstrap indirect effect	Boot SE	95%L CI <sub>BC</sub>	95%U CI <sub>BC</sub>	Baseline AIC	Interaction AIC
Index of mod-med	0.06	0.03	0.02	0.12	19948.454	19942.036
-1SD intrinsic	0.22	0.08	0.11	0.39		
Mean intrinsic	0.29	0.08	0.16	0.47		
+1SD intrinsic	0.35	0.09	0.20	0.56		
Moderator value (external regulation)	Conditional indirect effect of task goal orientation on self-esteem at mean and $\pm 1$ SD levels of external regulation					
	Bootstrap indirect effect	Boot SE	95%L CI <sub>BC</sub>	95%U CI <sub>BC</sub>	Baseline AIC	Interaction AIC
Index of mod-med	-0.03	0.03	n.s.	n.s.	21938.905	21939.405

Bootstrap  $N = 5000$ . Unstandardized coefficients are depicted. 95%L CI<sub>BC</sub> = 95% confidence interval lower limit. 95%U CI<sub>BC</sub> = 95% confidence interval upper limit. Bias corrected confidence intervals are reported. AIC = Akaike Information Criterion.

**TABLE 5 | Conditional indirect effects models with ego goal orientation.**

Moderator value (intrinsic regulation)	Conditional indirect effect of ego goal orientation on self-esteem at mean and $\pm 1$ SD levels of intrinsic regulation					
	Bootstrap indirect effect	Boot SE	95%L CI <sub>BC</sub>	95%U CI <sub>BC</sub>	Baseline AIC	Interaction AIC
Index of mod-med	-0.07	0.03	-0.13	-0.03	21763.384	21756.935
-1SD intrinsic	-0.01	0.03	n.s.	n.s.		
Mean intrinsic	-0.03	0.03	n.s.	n.s.		
+1SD intrinsic	-0.06	0.03	-0.12	-0.01		
Moderator value (external regulation)	Conditional indirect effect of ego goal orientation on self-esteem at mean and $\pm 1$ SD levels of external regulation					
	Bootstrap indirect effect	Boot SE	95%L CI <sub>BC</sub>	95%U CI <sub>BC</sub>	Baseline AIC	Interaction AIC
Index of mod-med	0.04	0.03	n.s.	n.s.	23591.448	23590.311

Bootstrap  $N = 5000$ . Unstandardized coefficients are depicted. 95%L CI<sub>BC</sub> = 95% confidence interval lower limit. 95%U CI<sub>BC</sub> = 95% confidence interval upper limit. Bias corrected confidence intervals are reported. AIC = Akaike Information Criterion.

Similarly, to the task model, external regulation showed no interaction with ego orientation in the simple moderation. Furthermore, the moderated mediation index was non-significant ( $B = 0.04$ , n.s.), indicating that external regulation did not moderate the relationship between ego orientation and competence frustration.

## Baseline Models

Results, depicted in Tables 4, 5, showed that only the task goal/external regulation model presented a larger AIC when including the interaction term. This indicates that the presence of the interaction is favored in the task/intrinsic, ego/intrinsic, and ego/external models, statistically speaking (Sardeshmukh and Vandenberg, 2016).

## DISCUSSION

The present study examined several conditional process models in which the association between achievement goal orientation

and self-esteem functioned through competence need satisfaction or frustration, conditional upon the levels of intrinsic or external regulation for sport. The results offered partial support for the hypothesized conditional relationships. Specifically, intrinsic regulation appeared to moderate the relationship between task orientation and competence need, and the relationship between ego orientation and competence frustration, respectively.

## Task Goal Orientation Models

Self-esteem has been shown as an outcome of more specific concepts of competence (Marsh, 1986; Wagnsson et al., 2014; Kipp and Weiss, 2015). Consistent with this, the simple mediation analysis indicated that task goal orientation was related to self-esteem, completely through competence satisfaction. First, this supports the notion that competence satisfaction is readily facilitated with a task orientation, potentially due to a more internal locus of control making the standard more attainable (Rotter, 1966). Second, it suggests that the need for competence in youth sport contributes to a general positive sense of self. According to the psychological centrality hypothesis, the

participants appear to value sport-specific competence, which is why it contributes to their general self-esteem (Marsh, 1986). However, the result is not consistent with previous research reporting a direct association between task orientation and self-esteem (Kavussanu and Harnisch, 2000). The equivocal findings may be explained by how competence is measured. Kavussanu and Harnisch (2000) relied on normative-based perceptions of ability. In light of this, their findings seems logical, as the self-perceptions of someone high in task orientation should not, at least not fully, depend on normative standings. However, the present study shows that when the participants report competence level according to how they define it themselves, the relationship between task orientation and self-esteem operated completely through the need for competence.

Contrary to previous work, the present results showed an interaction of task orientation and regulation on the need for competence (Gillet et al., 2014; Delrue et al., 2016). Indeed, conditional process analyses indicated that the strength of the indirect link between task orientation and self-esteem was conditional on the level of intrinsic regulation. More specifically, whilst the positive indirect effect was significant at all reported levels of intrinsic regulation, the association was stronger with increasing levels of intrinsic motivation. Thus, how strongly task orientation in sports is related to general self-esteem through competence is conditional to the degree that participation is regulated intrinsically. This is consistent with SDT, suggesting that self-esteem is facilitated through acting agentically and volitionally (Deci and Ryan, 1995). A possible explanation is that intrinsically regulated participation is likely to spur sustained effort over time, leading to activity absorption and greater skill development (Sheldon and Elliot, 1999; Koestner, 2008; Vansteenkiste et al., 2014a). This is consistent with previous findings in sports, as the interaction of autonomous reasons and high levels of task-approach goal has been associated with higher perceptions of self-reported goal attainment (Gaudreau and Braaten, 2016).

The indirect association between task orientation and self-esteem was not conditional to the level of external regulation. Furthermore, no main effects of external regulation were found, and comparison to the baseline model did not offer support for the interaction. These findings may in part be due to the low levels of external regulation reported by the participants, suggesting that this is not a big part of their motivation for sport. Nevertheless, the result does corroborate previous research, reporting that controlled motives for goal pursuit did not relate to positive outcomes such as need satisfaction and effort (Delrue et al., 2016). Indeed, it has been suggested that external regulation may primarily relate to need frustration and not need satisfaction (Deci and Ryan, 2000; Delrue et al., 2016).

### Ego Goal Orientation Models

Ego orientation emerged as negatively associated with self-esteem through competence frustration. This extends previous research by showing that self-esteem is related to the frustration of specific concepts of competence (Marsh, 1986; Kipp and Weiss, 2015). Furthermore, consistent with the assumptions of AGT (Nicholls,

1984), the results suggest that high levels of ego orientation are likely to contribute to feelings of competence need frustration. The explanation for this relationship may lie in the nature of an ego orientation, and the increased challenge associated with the other-referenced criteria for success. First, the increased difficulty reduces the likelihood of meeting the criteria for success. Second, the normative nature of the criteria means that attainment is dependent on external factors (e.g., the performance of others, the opportunity to compete and competitive conditions). Therefore, not only is failure more likely, the failure itself is prone to be attributed externally (Nicholls, 1984). Competence frustration is defined as perceiving the need for competence actively obstructed (Bartholomew et al., 2011). Thus, if failure is attributed to external factors, these factors are likely to be perceived as actively obstructing the pursuit of success. This will be experienced as competence frustration rather than a lack of competence.

The conditional process analysis showed that the indirect relationship between ego orientation and self-esteem was conditional on the level of intrinsic regulation. Interestingly, the results of the Johnson-Neyman technique showed that the negative relationship between ego orientation and self-esteem was apparent for those with the highest level of intrinsic regulation, specifically a level of 4.87 or higher. Somewhat counter to what we would expect, this warrants further discussion, and the findings are threefold. First, those low or moderate in intrinsic regulation were higher in competence frustration at all levels of ego orientation, compared to those high in intrinsic regulation. This points to the implications of being lower in intrinsic regulation for feelings of competence, regardless of level of ego orientation. This was supported by a negative main effect of intrinsic regulation to competence frustration. Second, at moderate and low levels of intrinsic regulation, increases in ego orientation were not significantly influential in terms of competence frustration, and subsequent self-esteem. Intrinsic regulation is a representation of, and emanating from, an individual's integrated sense of self, and is closely connected to psychological needs (Deci and Ryan, 1995; Deci and Ryan, 2000). Thus, goal orientation is more likely to be meaningful to someone who is highly intrinsically regulated. Indeed, according to Deci and Ryan (1995), for something to contribute to true self-esteem, it must be reflective of such an integrated sense of self. It follows therefore that lower levels of intrinsic regulation may indicate that the activity is not representing the self, and an ego orientation may not have the power to influence competence and self-esteem.

The third point of discussion is that higher levels of ego orientation were associated with higher levels of competence frustration under conditions of high intrinsic regulation. Thus, it seems that *what* type of competence you are striving for in an intrinsically regulated activity matters. This is not consistent with SDT, which posits that if an activity represents the values and interest of the inner self, the achievement process will lead to positive outcomes (Sheldon and Elliot, 1999). However, even if intrinsic regulation is inherently positive, it cannot affect the objective aspects that make the standards of success that accompany an ego orientation more challenging. The

forementioned effort, activity absorption and skill development that intrinsic regulation promotes (Sheldon and Elliot, 1999; Deci and Ryan, 2000; Koestner, 2008) will only matter for ego-oriented individuals if it equates to normative performance. Additionally, high levels of effort in combination with failure is perhaps the most detrimental event, in terms of perceived competence, for those high in ego orientation (Nicholls, 1984).

Results suggest that the quality of regulation alone may not be sufficient to ensure positive outcomes. Furthermore, it appears that intrinsic regulation may even increase sensitivity toward less facilitative definitions of competence (i.e., ego orientation), due to the increased importance that the activity holds for the person (Deci and Ryan, 2000). However, the relatively high mean score for intrinsic regulation suggests that the majority of the participants seemed to be self-determined in their engagement. This means that comparisons between levels must be interpreted with caution. Accordingly, further research is needed to see if the results can be replicated, particularly in context where regulation is less likely to be so positively skewed.

Similar to the task/extrinsic model, the relationship between ego orientation and self-esteem was not conditional to the level of external regulation. Again, this could be in part due to the low levels of external regulation reported. Nevertheless, main effects for external regulation showed a positive relationship with competence need frustration, suggesting that external regulation operates independently to predict competence frustration, regardless of the level of ego goal orientation. Furthermore, this supports previous findings suggesting that external regulation relates primarily to need frustration and not need satisfaction (Deci and Ryan, 2000; Delrue et al., 2016).

### Limitations, Strengths, and Conclusion

The current study is not without limitations. First, the very goal of moderation and mediation analyses is to detect possible causal processes (Hayes and Preacher, 2013). The cross-sectional design of the present study is therefore a limitation, as no causality inferences can be made. Second, the sample included only female team sports athletes, which limits generalizability. Additionally, although the relatively large age span can be seen as a strong point, we do not know whether it affected the results through differences in understanding of the aspects measured. Third, the present study measured goal orientation to represent the standards by which the participants judge their competencies, with an assumption that competence demonstration is of importance. However, there may be several other salient aims, such as social ones (Urda and Maehr, 1995). Last, the measure of competence need satisfaction employed herein is reflective of perceived competence. We acknowledge that, theoretically, one can be satisfied in terms of competence without being high in perceived competence. As such, our measurement may not appropriately capture the complexity of competence need satisfaction, and results should be interpreted with this in mind.

Notwithstanding the aforementioned limitations, the present study has several strengths. First, the use of SEM is a strong point (Sardeshmukh and Vandenberg, 2016). One of the principal benefits of using SEM is the ability to correct for the attenuating effects of measurement error by using latent variables (Hayes and

Preacher, 2013). This may have allowed us to identify previously undetected relationships. Also, a conditional process analysis is an appropriate manner in which to assess the combination of the “what” and “why” of motivation. Here the large sample size is particularly pertinent. Furthermore, using need satisfaction and frustration to explain the mechanism by which the combination of the “what” and “why” contributes to outcomes appears theoretically attractive. Finally, to our knowledge, this is the first study to investigate this conditional process with youth sports participants.

In sum, this study demonstrates that task goal orientation is associated with general self-esteem, through the facilitation of competence, and the relationship appears to be stronger with higher levels of intrinsic regulation. Conversely, ego goal orientation seems to oppose self-esteem levels, by contributing to competence frustration, and being highly intrinsically regulated for the activity may not aid against it. Further, the results have practical implications for coaches and parents, particularly pointing to the importance of considering both the “what” and “why” of participation when attempting to optimize self-perceptions. For example, participants who are highly intrinsically regulated may be at risk of reduced self-esteem if they are highly ego oriented. As such, it is important to promote *both* intrinsically regulated activity and a task goal oriented view of competence. A recently devised training program for coaches, entitled the Empowering Coaching™, is based on postulates of both SDT and AGT, and may prove fruitful in facilitating both (Duda, 2013). Lastly, future research should seek to replicate these findings, employing longitudinal data. The results of such investigations can improve our understanding of athletes' participation in sports and thereby help us make it more psychologically beneficial.

### ETHICS STATEMENT

This study was carried out in accordance with the recommendations of the Norwegian Centre for Research Data (NSD) with informed consent from all subjects. The ethical review did not require us to obtain written consent, due to the complete anonymity of the responses and lack of sensitive health data collected. Thus, and in accordance with the guideline put forward by the NSD, we employed a passive consent form requiring participants and parents/legal guardians to give the project leader verbal or written refusal if they did not consent to participation. The study was carried out in accordance with the Declaration of Helsinki, and the protocol was approved by the NSD.

### AUTHOR CONTRIBUTIONS

SG is the first author, and has been involved in all aspects of the study, from the conception of the work, data collection, data analyses, interpretation of the data, and drafting and revising the manuscript. PA has contributed to the design, acquisition and interpretation of the data. He has also contributed to

drafting and revising the manuscript. YO has contributed to the conception of the study, as well as the acquisition and interpretation of the data. He has also engaged in drafting the work and revising it. All three authors have given final approval for submission, and are in agreement regarding the accountability of the work.

## FUNDING

Union of European Football Associations (UEFA) supported the data collection for the present study, as a part of the project “Intentions to drop-out in female footballers from 5 European countries: The role of the coach-created motivational climate”.

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- Conflict of Interest Statement:** The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.
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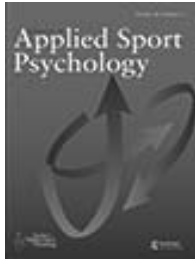
## **Paper II**

Gjesdal, S., Haug, E.M. & Ommundsen, Y. (2018). A conditional process analysis of the coach-created mastery climate, task goal orientation, and competence satisfaction in youth soccer: The moderating role of controlling coach behavior. *Journal of Applied Sport Psychology*, 1-15. doi: 10.1080/10413200.2017.1413690.

This research received funding from the European Commission's Seventh Framework

Programme FP7/2007-2013 under grant agreement number 223600





## A Conditional Process Analysis of the Coach-Created Mastery Climate, Task Goal Orientation, and Competence Satisfaction in Youth Soccer: The Moderating Role of Controlling Coach Behavior

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To cite this article: Siv Gjesdal, Ellen M. Haug & Yngvar Ommundsen (2017): A Conditional Process Analysis of the Coach-Created Mastery Climate, Task Goal Orientation, and Competence Satisfaction in Youth Soccer: The Moderating Role of Controlling Coach Behavior, Journal of Applied Sport Psychology, DOI: [10.1080/10413200.2017.1413690](https://doi.org/10.1080/10413200.2017.1413690)

To link to this article: <https://doi.org/10.1080/10413200.2017.1413690>



Accepted author version posted online: 11 Dec 2017.  
Published online: 24 Jan 2018.



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# A Conditional Process Analysis of the Coach-Created Mastery Climate, Task Goal Orientation, and Competence Satisfaction in Youth Soccer: The Moderating Role of Controlling Coach Behavior

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The purpose of this study was to investigate controlling coach behavior as a boundary condition for the relationship between a mastery climate, task goal orientation, and competence satisfaction in youth soccer. Latent conditional process modeling was conducted with a sample of 1,119 female and male youth soccer players 10–15 years of age. Results indicated that the interaction between controlling coach behavior and coach-created mastery climate accounted for 4% variance in task goal orientation. Furthermore, the indirect link between coach-created mastery climate and competence, through task goal orientation, was significant at all levels of controlling coach behavior, yet decreased from low ( $-1 SD$ ;  $B = .40$ , 95% confidence interval [ $CI_{BC}$ ] [.28, .52]), to moderate ( $M$ ;  $B = .35$ , 95%  $CI_{BC}$  [.26, .46]), to high levels ( $+1 SD$ ;  $B = .31$ , 95%  $CI_{BC}$  [.22, .41]). Findings are interpreted as supporting the idea that controlling coach behavior abates the internalization of mastery values, thereby undermining the relationship between the coach-created mastery climate and players' competence satisfaction.

## INTRODUCTION

Sport psychology experts encourage coaches to create what is known as a mastery climate (Duda & Treasure, 2015). Characterized by self-referenced criteria for success and failure, and the promotion of effort and learning, a mastery climate has been linked to numerous outcomes such as perceived competence, self-esteem, objective performance, and positive affective states (Harwood, Keegan, Smith, & Raine, 2015). However, there is a paucity of studies investigating potential boundary conditions of the relationship between the

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Received 17 August 2017; accepted 1 December 2017.

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coach-created mastery climate and positive outcomes. According to Hayes and Preacher (2013), a better and more useful understanding of a phenomenon requires us to assess not only the relationship between two variables but also under what conditions this relationship exists, and does so strongly as opposed to weakly. Therefore, the purpose of the present study was to examine whether the relationship between perceptions of the coach-created mastery climate and competence need satisfaction, through task goal orientation, was conditional on perceived controlling coach behavior. To do so, we relied on self-determination theory (SDT; Ryan & Deci, 2017) and achievement goal theory (AGT; Nicholls, 1984).

AGT defines the motivational climate as the situational achievement cues that appear salient to the individual, representing the criteria for success and failure within the given context (Ames, 1992; Roberts, 2012). AGT identifies two motivational climates, based on the dominant achievement cues: mastery or performance (Ames & Archer, 1988). As aforementioned, a mastery climate is characterized by self-referenced criteria for success and failure and focuses on cooperation, individual development, and ensuring important roles for all team members (Newton, Duda, & Yin, 2000). In contrast, a performance climate is focused on normative competition, fostering rivalry and rewarding superiority (Roberts, 2012). In the youth sport setting, the coach-created mastery climate, compared to a performance climate, is considered adaptive (Harwood et al., 2015).

AGT is also concerned with individual difference variables, namely, achievement goal orientations. These are defined as the standards by which individuals evaluate their competencies and has traditionally been separated into two conceptions of competence: task and ego goal orientation (Nicholls, 1989). A task goal orientation refers to a self-referenced view of ability, believing that competence is demonstrated through effort, mastery and improvement. Conversely, an ego goal orientation represents a more differentiated view of competence, and competence is demonstrated when outperforming others, with equal or less effort (Nicholls, 1984). The level and type of goal orientation are thought to be imperative for the affective, cognitive, and behavioral experiences in achievement settings (Nicholls, 1984). A high level of task goal orientation in youth sport has been associated with enjoyment, positive peer relations, and a belief that effort is the cause of success (Biddle, Wang, Kavussanu, & Spray, 2003; Jaakkola, Ntoumanis, & Liukkonen, 2015; Ommundsen, Roberts, Lemyre, & Miller, 2005). Conversely, an ego goal orientation has been associated with unsportsmanlike behavior, associating normative ability with success, and social status as the purpose of sport (Biddle et al., 2003).

The hierarchical model of achievement motivation is a recent revision of AGT, in which the valence (i.e., approach or avoidance) of achievement goals is considered (Elliot & Church, 1997). However, empirical evidence suggests that adolescents may not distinguish between approach and avoidance goals (Roeser, 2004). As the present sample consists of adolescents, we chose to focus on the seminal conceptualization of achievement goal orientations. Also, research suggests task-oriented psychological states and mastery climates are influential to positive outcomes in sport, not performance and ego-oriented ones (Biddle et al., 2003; Harwood et al., 2015). As we were interested in the boundary conditions of positive effects, we elected to focus solely on mastery climate and task goal orientation.

As of now there is no consensus regarding the nature of the relationship between motivational climate and task goal orientation (Roberts, 2012). Indeed, several explanations have been forwarded to explain the relationship, for example, that a task goal orientation may cognitively bias players toward perceiving a mastery climate (Harwood, Spray, & Keegan, 2008), that the motivational climate may moderate the influence of task goal orientation (Dweck & Leggett, 1988), or that achievement goal orientation is a predictor alongside the motivational climate, not a mediator (Roberts, 2012). However, the present study is based on the work of Ames (1992), who argued that there is a socialization influence on young people's achievement goal orientations, and exposure to a strong motivational climate can influence the salience

and adoption of the related achievement goal orientation. Indeed, Nicholls (1989) described achievement goal orientations as internalizations of the contextual achievement cues. As they have yet to firm up their personal achievement beliefs, adolescents are particularly receptive to such cues (Roberts & Treasure, 1992). The socialization effect has been supported by empirical research on youth sport participants, showing that perceptions of a coach-created mastery climate is associated with a task goal orientation (Atkins, Johnson, Force, & Petrie, 2015; Harwood et al., 2015; Jaakkola et al., 2015; Smoll, Smith, & Cumming, 2007). Building on this research, we wanted to examine a potential boundary condition to this socialization link in the youth sport setting. Yet, acknowledging that there are other possible explanations for how this relationship operates, we also aimed to test the aforementioned alternatives, comparing them to our socialization hypothesis before conducting additional analyses.

A socialization process from the coach-created mastery climate to players' task goal orientation requires internalization. This occurs when an individual assimilates previously external values, integrating them as one's own (Ames, 1992; Deci & Ryan, 2000). According to Ames (1992), elements of a mastery climate are not inherently autonomous and can be implemented in a controlling manner. Yet she warned that the impact of a mastery climate is subverted if considerable external control is exerted. This is due to external control limiting the internalization of social-contextual values (Bartholomew, Ntoumanis, & Thøgersen-Ntoumani, 2009). It is believed that coaches may exhibit controlling behaviors due to the stress and pressure that often accompany this role (Mageau & Vallerand, 2003). Such behaviors are aimed at ensuring desirable outcomes, defined by several behavioral strategies, such as negative conditional regard, intimidation, excessive personal control, and the controlling use of rewards (Bartholomew et al., 2009).

To our knowledge, no study to date has formally investigated the interaction of a mastery climate and controlling coach behavior. Accordingly, we chose to examine whether controlling coach behavior moderates the relationship between mastery climate and task goal orientation. If the actions of the coach are contingent upon the participants behaving or thinking in line with mastery values, the internalization of these values will be at best partial (Ryan & Deci, 2017). That is, participants may partly internalize the values and may act upon them. However, as autonomy is limited, the values will not be integrated within the self (Deci & Ryan, 2000). We therefore hypothesized the relationship between mastery climate and task goal orientation as conditional on the level of perceived controlling coach behavior.

We investigated achievement goal orientations, rather than goal involvement, which refers to a dynamic moment-to-moment goal state (Roberts, 2012), as they are more reflective of a socialization process contingent on the internalization of situational cues. Furthermore, as they represent the standards by which individuals evaluate their competencies, they are inevitably linked to the psychological need for competence. SDT defines a basic psychological need as an innate psychological nutriment, fundamental to well-being (Ryan & Deci, 2017). All individuals are thought to have three separate psychological needs: autonomy, competence, and relatedness. Although universality is a feature of basic psychological needs, their relative salience can vary and may differ in how central they are to personal goals (Ryan & Deci, 2000, 2017). AGT posits that the main motive in achievement settings is to develop and demonstrate competence (Nicholls, 1984). This may be particularly true in sport, where competence is highly valued and very prominent (Duda, 2005), and Balish, McLaren, Rainham, and Blanchard (2014) forwarded perceived competence as an important target for mitigating youth sport dropout. Thus, competence satisfaction was investigated as an outcome, defined as an innate and appetitive desire to feel competent in one's actions and interactions (Deci & Ryan, 2000).

Previous research suggests that a coach-created climate can facilitate perceived competence through ensuring a task goal orientation (Atkins et al., 2015). The competency standard of a task goal orientation allows for a great deal of controllability and is readily attainable

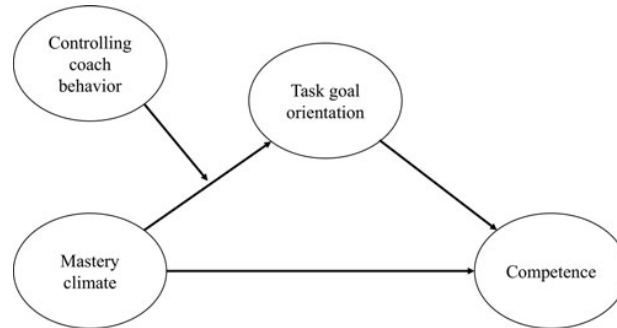


Figure 1. Proposed conditional process model.

due to its self-referenced nature. In addition, a task goal orientation is associated with the use of effort-based strategies, active engagement, failure-tolerance, high intrinsic interest, and a more adaptive response to social comparisons, all of which should facilitate mastery and progression (Ames, 1992; Kamarova et al., 2017). However, as we hypothesized the relationship between mastery climate and task goal orientation to be conditional on controlling coach behavior, we wanted to see if this extended to the indirect relationship to competence. This seems important, because some players might score high on task goal orientation when experiencing controlling coaching because they feel obligated to do so. However, only a true task goal orientation should be linked to competence satisfaction, one that is adopted in the absence of external pressure and reflects some internal value (Vansteenkiste & Ryan, 2013). Therefore, testing if the indirect link between a mastery climate and competence satisfaction is moderated by controlling coach behavior offers a more rigid test of the socialization hypothesis.

It should also be acknowledged that a mastery climate can be directly relevant for players' competence need satisfaction by facilitating actual increases in skills (Ames, 1992). As this is likely to occur irrespective of task goal orientation, we added a direct link between mastery climate and competence to our model. However, whether this link is moderated by controlling coach behavior appears somewhat ambiguous. Although the relationship does not involve internalization, SDT states that need satisfaction is undermined in contexts characterized by external control (Deci & Ryan, 1985). The same argument applies to the relationship between task goal orientation and competence. Yet this association is also not a reflection of internalization, and if a player has adopted a task standard of success, it is likely that this should be the basis for his or her competency judgments, regardless of the level of coach control. Thus, we wanted to explore this further by testing whether each of the associations were moderated by controlling coach behavior.

The main aim of the present study was to examine whether a mastery climate—task goal orientation—competence satisfaction sequence in youth soccer was conditional on perceptions of controlling coach behavior (Figure 1). For this purpose, conditional process modeling was considered the appropriate statistical method (Hayes & Preacher, 2013). Based on the preceding literature, it was expected that perceived mastery climate would be positively linked to competence satisfaction directly as well as indirectly through a positive relationship with task goal orientation. We expected the indirect relationship between mastery climate and competence to be conditional on controlling coach behavior, functioning through a moderation of the mastery climate—task goal orientation relationship. Specifically, it was hypothesized that the mastery climate—task goal orientation—competence effect would be stronger among players who perceive their coach as less controlling.



## METHODS

### Participants and Procedures

Participants were 1,119 youth grassroots soccer players (474 female; 10–15 years,  $M_{\text{age}} = 12.18$ ,  $SD = 1.00$ ) who were partaking in the baseline measurement of the Norwegian arm of the Promoting Adolescent Physical Activity project (Duda, 2013). Participants reported to have been involved with their current team for an average of 4.59 ( $SD = 2.31$ ) seasons. The Norwegian Centre for Research Data approved the project prior to its commencement. The approval required only passive consent, and parents and legal guardians were therefore instructed to give the project leader a verbal or written refusal if they did not want their child to participate. Coaches, parents, and players were given information sheets prior to the data collection, and the option to opt out was given directly to the players. They were also informed that consent could be withdrawn at any point. The data collection took place at the start of the competitive season, which is during the spring in Norway. This meant that all teams either had played their first games of the season or were about to play their first game. Furthermore, the data collection was carried out before or after a training session and took around 20 min.

### Measurements

Scales were administered in Norwegian, following an extensive translation–back-translation procedure from English (Harkness, 1999). Participants responded to all items on a 5-point Likert-scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).

When tapping perceived coach behavior, players were asked to think about what it had usually been like on their team in the past 3 to 4 weeks. Furthermore, to lessen the burden on the participants, the Promoting Adolescent Physical Activity project made use of shortened versions of previously established questionnaires on coach behavior (for more information, see Appleton, Ntoumanis, Quested, Viladrich, & Duda, 2016). To assess perceptions of *controlling coach behavior* we relied on eight items (“My coach was less friendly with players if they didn’t make the effort to see things his or her way”) from the Controlling Coach Behaviors Scale (CCBS; Bartholomew, Ntoumanis, & Thøgersen-Ntoumani, 2010). The items covered four strategies: negative conditional regard, intimidation, controlling use of rewards, and excessive personal control. The confirmatory factor analysis (CFA) showed good fit to the data, (S-B  $\chi^2[20, N = 1,114] = 142.169, p < .000$ ; comparative fit index [CFI] = .95, root mean square error of approximation [RMSEA] = .07, CI [.06, .09], and standardized root mean square residual [SRMR] = .04). Specifically, all items loaded on the latent construct (unstandardized estimates ranging from .42 to 1.17,  $p < .000$ ). The latent variable model composite reliability, denoted by rho, was computed to offer an estimate of reliability (Raykov, 2009) and indicated acceptable internal reliability for the CCBS ( $\rho = .82$ , 95% CI [.80, .83],  $SE = .01$ ). Furthermore, the factor score was .92, and the scale met with the cutoff values of  $\pm 2$  for skewness and kurtosis (George & Mallery, 2010).

Perceptions of the *coach-created mastery climate* was assessed by nine items (e.g., “My coach made sure players felt successful when they improved”) from the Perceived Motivational Climate in Sport Questionnaire (CCBS; Newton et al., 2000). Three lower order factors were tapped, namely, cooperative learning, important role, and effort/improvement. The CFA showed good fit to the data, (S-B  $\chi^2[27, N = 1,118] = 95.890, p < .000$ ; CFI = .96, RMSEA = .05, [.04, .06], and SRMR = .03). All items loaded on the latent construct (unstandardized estimates ranging from .47 to 1.09,  $p < .000$ ). The rho was .82 (95% CI [.80, .85],  $SE = .01$ ), and the factor score was .93. However, the scale exceeded the cutoff for kurtosis (2.89). We assessed changes in the chi-square value when employing the maximum

likelihood estimator and the maximum likelihood estimation method with robust standard errors (MLR) estimator. The changes were substantial, suggesting non-normality (Byrne, 2012). Accordingly, the MLR estimator was applied, due to it being robust to non-normality (Muthén & Muthén, 1998–2012).

Based on work by Duda and Nicholls (1992), seven items from the Motivational Orientation Scale were used to assess *task goal orientation* (e.g., “I do my very best”), preceded by the stem “I feel really successful in football when ...” Previous research has demonstrated acceptable psychometric properties for the use of this scale in youth sport (Atkins et al., 2015). The CFA provided support for the scale, (S-B  $\chi^2[14, N = 1,116] = 76.891, p < .000$ ; CFI = .97, RMSEA = .06 [.05, .08], and SRMR = .03). All items loaded onto the latent construct (unstandardized estimates ranging from .87 to 1.33,  $p < .000$ ). The rho was .80 (95% CI [.78, .81],  $SE = .01$ ), and the factor score was .90. Moreover, the cutoff values for skewness and kurtosis were met.

Competence need satisfaction was measured based on six items from the Intrinsic Motivation Inventory (McAuley, Duncan, & Tammen, 1989; e.g., “I was satisfied with what I did”). The participants were asked about their general feelings and experiences on the team during the past month. McAuley et al. (1989) previously validated the psychometric properties of the scale. The CFA showed good fit to the data, (S-B  $\chi^2[9, N = 1,107] = 40.109, p < .000$ ; CFI = .99, RMSEA = .06 [.04, .07], and SRMR = .02). All items loaded on the latent construct (unstandardized estimates ranging from .74 to 1.09,  $p < .000$ ). The rho was .90, (95% CI [.89, .91],  $SE = .01$ ), and the factor score was .96. Furthermore, the cutoff values for skewness and kurtosis were met.

### Data Analyses

In terms of the plan of analysis, we tested mediation first, thereafter moderation, and subsequently all parameters simultaneously to test the moderated mediation (Hayes, 2013). One issue with testing structural models, particularly with cross-sectional data, concerns the aspect of alternative and equivalent models (Tomarken & Waller, 2003). Equivalent models present very different theories on causal relations between the variables yet have identical fit indices due to identical implied covariance matrices. Simply put, they are non-nested models of equal complexity that cannot be distinguished from the hypothesized model on the basis of statistical fit (Hershberger & Marcoulides, 2013). Alternative models are theoretically plausible models that are nonequivalent to the hypothesized one. Tomarken and Waller (2003) emphasized the importance of acknowledging the existence of plausible alternative and equivalent models in order to reduce the susceptibility to confirmation bias of cross-sectional data. We therefore tested competing models to the hypothesized mediation sequence that were based on the other possible explanations for the relationship between mastery climate and task goal orientation mentioned in the introduction.

We employed structural equation modeling (SEM) to create the conditional process model. This allowed us to correct for the attenuating effects of measurement error (Hayes & Preacher, 2013; Sardeshmukh & Vandenberg, 2016). To this end, we employed *Mplus* 7.3 statistical software. The interaction term was created in *Mplus* using the XWITH command. This command employs the latent moderated structural equations (LMS) approach, which offers unbiased, efficient estimates of interaction effects, robust toward departures from normality and non-linearity (Hayes & Preacher, 2013; Sardeshmukh & Vandenberg, 2016). We also assessed the index of moderated mediation, which reflects the slope of the line representing the relationship between the moderator and the mediation link (Hayes, 2015). Probing the interaction was

done by specifying estimates of the indirect effect at low ( $-1 SD$ ), moderate (mean), and high ( $+1 SD$ ) levels of controlling coach behavior. Due to the arbitrary nature of these values, the Johnson–Neyman technique was also employed (Hayes & Preacher, 2013; Muthén, Muthén, & Asparouhov, 2016). This approach helps define regions of moderator values at which the simple slope of the indirect relationship is significantly different from zero. All analyses were conducted with bias-corrected bootstrapping with 1,500 samples, basing the significance on 95% bias-corrected CIs for all effects.

To evaluate model fit, we relied on common goodness-of-fit indices, including the CFI, RMSEA, and SRMR. According to Little (2013), good fit is indicated by values close to or greater than  $CFI = .90$  and less than  $.08$  for RMSEA and SRMR, respectively. However, these fit indices are not applicable when running models with the LMS approach in *Mplus*. To assess the fit of the conditional process model, Sardeshmukh and Vandenberg (2016) recommended using the Akaike Information Criterion (AIC) for comparison. Therefore, we compared the AIC between a baseline model, in which only the main effects were specified for the moderator, to a model with the interaction term specified. A smaller AIC suggests less information loss, indicating better fit to the data, and according to Burnham and Anderson (2002), a difference of 10 or more can rule out the worse-fitting model.

An effect size measure for models that simultaneously test mediation and moderation is not yet fully developed (Fairchild & MacKinnon, 2009). Therefore, to provide some information on the amount of variance explained by our hypothesized moderation we focused on the simple moderation model. Specifically, we reported the  $R^2$  for the interaction. As the LMS approach does not offer a  $R^2$  measure, this was done by following the procedure recommended by Maslowsky, Jager, and Hemken (2015). With this procedure the  $R^2$  is calculated by hand for the simple moderation model ( $R^2_{y1}$ ). Furthermore, the  $R^2$  for a baseline model, with only main effects for the predictor and moderator modeled, is obtained from the *Mplus* output ( $R^2_{y0}$ ). Finally, the difference between the two ( $\Delta R^2 = R^2_{y1} - R^2_{y0}$ ) provides the portion of the  $R^2$  attributable to the interaction term.

Researchers have strongly emphasized the importance of acknowledging the hierarchical structures inherent in sports teams (Duda, 2001; Papaioannou, Marsh, & Theodorakis, 2004). As the players included in the present sample were nested within teams (teams = 70,  $M_{size} = 15.97$ ), we examined the dependencies between observations by conducting multilevel CFAs for all factors. The intraclass correlation coefficients (ICCs), for task goal orientation, mastery climate, competence need satisfaction, and controlling coach behavior ranged from  $.02$  to  $.08$ . This indicated that the items present only trivial levels of team variability, indicating limited clustering (Byrne, 2012). Muthén (1997) argued that ICC values of  $.10$  or larger for cluster sizes above 15 suggests a need to model the hierarchical structure. As the present ICCs were below  $.10$ , with three being at or below  $.05$ , we employed a conventional SEM approach to the statistical analyses.

## RESULTS

### Descriptive Statistics

Means, standard deviations, rho, and bivariate correlations for all variables are presented in Table 1. Reported levels of coach-created mastery climate, task goal orientation, and competence were high, whereas the players reported lower levels of controlling coach behavior. In terms of the latent variable correlation matrix, results revealed an expected pattern of correlations between the variables, all significant.

**Table 1**  
**Descriptive Data, Rho, and Bivariate Correlations**

	Raikov's rho	M (SD)	Factor scores	2	3	4
1. Mastery climate	.82 [.80, .85]	4.15 (.59)	.93	-.51***	.48***	.40***
2. Controlling behavior	.82 [.80, .83]	2.10 (.73)	.92		-.20***	-.13**
3. Task goal orientation	.80 [.78, .81]	4.43 (.50)	.90			.57***
4. Competence	.90 [.89, .91]	3.77 (.73)	.96			

Note. Confidence intervals for rho in brackets. \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

### Mediation

Results revealed a significant sequence for mastery climate–task goal orientation–competence satisfaction, (S-B  $\chi^2[206, N = 1,119] = 634.054, p < .000$ ; CFI = .95, RMSEA = .04, [.04, .05], and SRMR = .04). Specifically, a significant total positive effect of mastery climate on competence satisfaction was observed ( $\beta = .40, 95\% \text{ CI}_{\text{BC}} [.33, .47]$ ), which included a positive indirect path ( $\beta = .24, 95\% \text{ CI}_{\text{BC}} [.18, .30]$ ), and a positive direct effect ( $\beta = .17, 95\% \text{ CI}_{\text{BC}} [.07, .26]$ ). Furthermore, task goal orientation presented a strong relationship with competence ( $\beta = .81, 95\% \text{ CI}_{\text{BC}} [.65, .89]$ ).

We examined two equivalent models to our hypothesized mediation sequence. In the first one, achievement goal orientation was modeled as a predictor along with mastery climate, not as a mediator. As aforementioned, the model presented identical fit indices to the hypothesized model, and both the path from task goal orientation ( $\beta = .81, 95\% \text{ CI}_{\text{BC}} [.65, .98]$ ), and mastery climate ( $\beta = .20, 95\% \text{ CI}_{\text{BC}} [.08, .32]$ ), were positive and significant. The second model was based on a task goal orientation cognitively biasing players toward perceiving a mastery climate. We therefore tested a model with task goal orientation as the predictor and mastery climate as the mediator. Again, the model presented identical fit to the hypothesized one. A significant total positive effect of task goal orientation on competence satisfaction was observed ( $\beta = .57, 95\% \text{ CI}_{\text{BC}} [.51, .64]$ ), which included an indirect path ( $\beta = .08, 95\% \text{ CI}_{\text{BC}} [.04, .13]$ ), and a direct path ( $\beta = .49, 95\% \text{ CI}_{\text{BC}} [.40, .58]$ ).

In addition, we tested a nonequivalent model, one in which mastery climate acts as a moderator of the relationship between task goal orientation and competence. Results showed a significant interaction ( $B = .16, 95\% \text{ CI}_{\text{BC}} [.004, .28]$ ) and a significant conditional effect of task goal orientation ( $B = .85, 95\% \text{ CI}_{\text{BC}} [.68, 1.01]$ ). Specifically, the association between task goal orientation and competence was significant at all levels of mastery climate, increasing in strength from low ( $-1 \text{ SD}$ ;  $B = .76, 95\% \text{ CI}_{\text{BC}} [.58, .94]$ ); to moderate (mean;  $B = .85, 95\% \text{ CI}_{\text{BC}} [.68, 1.01]$ ); to high ( $+1 \text{ SD}$ ;  $B = .94, 95\% \text{ CI}_{\text{BC}} [.76, 1.13]$ ), levels of mastery climate. However, comparing the model (AIC = 51320.179) to our hypothesized one (AIC = 51125.302), the difference in AIC favored our hypothesized mediation model (Burnham & Anderson, 2002).

### Simple Moderation

The conditional effect of mastery climate was significant ( $B = .43, 95\% \text{ CI}_{\text{BC}} [.32, .53]$ ), as was the interaction term ( $B = -.08, 95\% \text{ CI}_{\text{BC}} [-.14, -.02]$ ). Furthermore, the association between mastery climate and task orientation was significant at all levels of controlling behavior but decreased in strength from low ( $-1 \text{ SD}$ ;  $B = .49, 95\% \text{ CI}_{\text{BC}} [.37, .61]$ ); to moderate (mean;  $B = .43, 95\% \text{ CI}_{\text{BC}} [.32, .53]$ ); to high ( $+1 \text{ SD}$ ;  $B = .37, 95\% \text{ CI}_{\text{BC}} [.28, .47]$ ), levels of controlling coach behavior. Furthermore, to interpret the amount of

variance explained by the interaction, the aforementioned method was used to calculate the  $R^2_{y1}$  for the simple moderation model, which yielded a value of .28. For the baseline model, the  $R^2_{y0}$  was .24. Subtracting the  $R^2_{y0}$  from the  $R^2_{y1}$  produced a  $\Delta R^2$  of .04. This indicated an additional 4% of the variance in task goal orientation explained by the interaction between perceptions of the coach-created mastery climate and controlling coach behavior. Moreover, this is reflective of a 16.67% increase in total explained variance when including the interaction in the model.

We also tested whether controlling coach behavior moderated the relationship between mastery climate and competence satisfaction. The main effect of mastery climate was significant ( $B = .59$ , 95%  $CI_{BC}$  [.46, .73]); however, the interaction term was nonsignificant ( $B = -.05$ , 95%  $CI_{BC}$  [-.15, .05]). Similarly, we tested whether the association between task goal orientation and competence was moderated by controlling coach behavior. The main effect of task goal orientation was significant ( $B = .94$ , 95%  $CI_{BC}$  [.80, 1.04]), whereas the interaction was not ( $B = -.04$ , 95%  $CI_{BC}$  [-.22, .12]). Thus, neither path was modeled as moderated in the conditional process model.

**Conditional Process**

The moderated mediation index for controlling coach behavior was significant ( $B = -.06$ , 95%  $CI_{BC}$  [-.11, -.02]). Specifically, as presented in Table 2, results showed a conditional indirect effect of mastery climate on competence satisfaction through task goal orientation, significant at low (-1 *SD*;  $B = .40$ , 95%  $CI_{BC}$  [.28, .52]); moderate (mean;  $B = .35$ , 95%  $CI_{BC}$  [.26, .46]); and high (+1 *SD*;  $B = .31$ , 95%  $CI_{BC}$  [.22, .41]), levels of controlling coach behavior. Moreover, the loop plot results revealed that the conditional indirect relationship was significant at all reported levels of control. The region of significance was therefore the entire samples range of controlling behavior (range = 1–5), and the indirect effect decreased in strength with increasing levels of control. In addition, the total effect of mastery climate on competence decreased from low (-1 *SD*;  $B = .59$ , 95%  $CI_{BC}$  [.46, .72]); to moderate (mean;  $B = .55$ , 95%  $CI_{BC}$  [.44, .67]); to high (+1 *SD*;  $B = .50$ , 95%  $CI_{BC}$  [.39, .61]), levels of

**Table 2**  
**Conditional Indirect Effect of Mastery Climate to Competence Need Satisfaction Through Task Goal Orientation**

Conditional indirect effect of mastery climate on competence at mean and ± 1 SD levels of controlling coach behavior						
Moderator value	Bootstrap indirect effect	Boot SE	95% L $CI_{BC}$	95% U $CI_{BC}$	Baseline AIC	Interaction AIC
Index of mod-med	-.06	.02	-.11	-.02	74716.611	74705.388
-1 SD CB	.40	.06	.28	.52		
<i>M</i> CB	.35	.05	.26	.46		
+1 SD CB	.31	.05	.22	.41		

*Note.* Number of bootstrapped resamples = 1,500. Unstandardized coefficients are depicted. 95% L  $CI_{BC}$  = 95% confidence interval lower limit; 95%U  $CI_{BC}$  = 95% confidence interval upper limit; bias corrected confidence intervals are reported; Index of mod-med = index of moderated mediation; AIC = Akaike Information Criterion; CB = perceived controlling coach behavior.

controlling coach behavior. In terms of fit, the hypothesized model presented a lower AIC compared to the baseline model. This indicates that the presence of the interaction is favored, statistically speaking (Burnham & Anderson, 2002; Sardeshmukh & Vandenberg, 2016). Thus, the strength of the mastery climate–competence satisfaction relationship appears conditional on controlling coach behavior.

## DISCUSSION

The purpose of the present study was to examine whether the relationship between perceived coach-created mastery climate and task goal orientation was conditional on the perceptions of controlling coach behavior in youth soccer and if this extended to the indirect relationship between mastery climate and competence satisfaction. The results offered support for the conditional process model. Specifically, the existence of a positive relationship between the coach-created mastery climate and competence satisfaction was not dependent on the level of perceived controlling coach behavior, but the strength of the relationship was.

Consistent with the idea of a socialization effect (Ames, 1992; Roberts & Treasure, 1992), players in the present sample who perceived their coach as creating a mastery climate were also likely to report high levels of task goal orientation. Although causality cannot be established based on the present data, Smoll et al. (2007) offered support for a causal relationship between perceptions of a mastery climate and task goal orientation across a competitive youth basketball season. However, also in line with our hypotheses, results suggest that this socialization effect might be abated by controlling coach behavior. Players who perceived their coach as emphasizing a mastery climate were less likely to report high levels of task goal orientation if the coach also displayed a high level of controlling behavior. They also reported lower levels of competence satisfaction.

The significant interaction between coach-created mastery climate and controlling coach behavior supports Ames's (1992) contention that external control can limit the effectiveness of a mastery climate. A 4% increase in the explained variance in task goal orientation should be interpreted in light of the variance explained by the two predictors alone, which was 24%. Furthermore, Evans (1985) argued that, because interactions are so difficult to detect, those explaining as little as 1% of the total variance should be considered important. We therefore view the contribution of the interaction as meaningful but acknowledge that the most influential predictor were players' perception of a coach-created mastery climate.

The significant interaction is also in accordance with SDT's view on internalization. When exposed to interpersonal control, players become concerned with the coach watching and judging their behavior (Ryan & Deci, 2017). This may lead the players to follow orders rather than appreciating and internalizing the behaviors and their importance (Bartholomew et al., 2009). The players might therefore behave due to external pressure, not because they agree with the values put forward. However, one could argue that it is inconsistent with SDT that the relationship between mastery climate and task goal orientation is still significant in conditions of high levels of controlling coach behavior. SDT clearly states that controlling behaviors should thwart need satisfaction (Deci & Ryan, 2000). We would contend that the present result must be seen in light of the low levels of controlling behavior reported herein, with less than 15% of the sample reporting a score above the midpoint of the scale. This suggests that controlling coaching is not a big part of the present sample's youth soccer experience, and comparisons between levels should be done with caution. The present findings point to a trend and further research is needed to see if the results can be replicated, particularly in contexts characterized by higher levels of interpersonal control.

The direct link from mastery climate to competence satisfaction suggests that a coach can support the need for competence irrespective of participants' task goal orientation. Furthermore, this association appeared to be unconditional on controlling coach behavior, possibly because it is not reflective of internalization (Ames, 1992). A mastery climate is more than just the presentation and transference of values. The climate consists of practical elements manipulated by the coach to create a structure that upholds the mastery focus (Ames, 1992). For example, within a mastery climate, participants are not subjected to normative comparison, and the emphasis is on individual progression and the value of effort (Ames, 1992). This becomes the basis for how a coach organizes the sporting activity, resulting in an environment where all participants have the opportunity and assistance needed to develop. However, it should be noted that the indirect link was stronger, indicating that the relationship between the coach-created mastery climate and competence satisfaction operated mainly through players' task goal orientations.

Corroborating previous research (Biddle et al., 2003; Gjesdal, Appleton, & Ommundsen, 2017), the results support the notion that a self-referenced conception of ability is associated with competence satisfaction. Task-oriented players work toward a standard of success that is within their reach, and they employ a range of adaptive strategies and behaviors to reach that standard. Therefore, players with a task goal orientation are more likely to feel competent, and they are more likely to develop their competence. Of interest, this did not appear to be moderated by controlling coach behavior. Thus, it seems that controlling coaching related mainly to the internalization of a task goal orientation and not how a task goal orientation related to competence satisfaction.

Somewhat surprisingly, analyses indicated little agreement concerning the coach-created mastery climate and coach controlling behavior among players within the same team. This is inconsistent with previous research on youth athletes and physical education pupils (Cumming, Smoll, Smith, & Grossbard, 2007; Papaioannou et al., 2004). According to Papaioannou et al. (2004), this leads to questions regarding the construct validity of the scales used to measure these constructs. Along those lines, recent studies have reported that relationships between observed and player reports on the coaching environment are weak and nonsignificant (Smith et al., 2015). Combined with our results, this suggests that even if items refer to how the coach acts toward the team as a whole, players tend to answer based on personal experiences. This holds implications for the use of the present findings in guiding practice, and thus the following attempt at doing so is tentative.

### **Practical Implications**

Consistent with previous work (Atkins et al., 2015), our results suggest that if youth soccer players perceive their coach as emphasizing a mastery climate, they are more likely to hold a task goal orientation and report high levels of competence satisfaction. However, the results also show that these relationships may be sensitive to other coaching behaviors. Specifically, a coach who is perceived as controlling may be less effective in transferring mastery values onto the players. A coach who purposely ignores those concerned with normative standings exemplifies this combination. Therefore, to optimize players' competence need satisfaction, coaches should refrain from behaviors that are perceived as controlling. This may involve an acceptance that not everyone will agree with or understand mastery values, at least not immediately. Coach education programs should focus on the process in which individuals assimilate and integrate ambient values. A program that might prove fruitful in this regard is the recently devised Empowering Coaching. This program teaches coaches how to create an environment characterized by mastery values and low control through a workshop in

which learning activities and video clips are used actively to try to develop coaches understanding of motivation and motivational processes (Duda, 2013). Also of help to coaches are Epstein's (1988) TARGET dimensions, which outline how to ensure the important features of a mastery climate. It also includes an Authority component that emphasizes the importance of including athletes in decision-making procedures and allowing for some choice within limits.

### **Limitations, Strengths, and Conclusions**

The present study has several limitations. First, the main aim of a conditional process analysis is to establish causality, and therefore the cross-sectional design is a limitation. Longitudinal investigations are needed to establish the directionality of the relationships that emerged in the present study. Second, players in the present sample reported relatively low levels of controlling behavior. Researchers would do well to replicate the current model in settings where control plays a more integral part. Third, only one dimension of the motivational atmosphere surrounding youth soccer was included, namely, the coach-created climate. Recent research suggests that peers and parents can be highly influential in terms of task goal orientation and competence (Atkins et al., 2015). Last, given inconsistencies between observer, player, and coach reports in previous research (Smith et al., 2015), and the lack of agreement within the teams in the present study, future work should rely on several sources to increase the practical value of the findings.

Notwithstanding the aforementioned limitations, the present study has several strengths. The primary strength is the formal examination of whether the relationship between a mastery climate and task goal orientation in youth soccer is conditional on controlling coach behavior. To the best of our knowledge, this is the first study to test this conditional process in the context of youth soccer. In addition, interaction tests require a great deal of power (Hayes & Preacher, 2013). Therefore, the large sample size is a strong point. Along those lines, using SEM to conduct the conditional process analysis increased the power and allowed us to incorporate measurement error (Sardeshmukh & Vandenberg, 2016). Last, we attempted to meet with the challenge of confirmation bias by acknowledging the possibility of other models. In terms of equivalent models, we are not in a position to claim that our model fit the data better. However, we consider our target model to be more consistent with a traditional AGT line of reasoning and encourage researchers to use longitudinal studies to either confirm or disprove this. Moreover, the difference in AIC favored the socialization hypothesis over the idea that the coach-created mastery climate moderates the relationship between task goal orientation and competence satisfaction.

To conclude, the present study tested a conditional process model in which the indirect link from the coach-created mastery climate to competence satisfaction in youth soccer, through task goal orientation, is conditional on perceptions of controlling coach behavior. Results suggest that being perceived as controlling may influence how effective coaches are as socializing agents for players' task goal orientations. In sum, the study highlights the need to broaden our understanding by examining potential boundary conditions for relationships that are widely accepted in the sport psychology literature.

### **FUNDING**

Seventh Framework Programme [22360].



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### **Paper III**

Gjesdal, S., Wold, B. & Ommundsen, Y. (Re-Submitted). Promoting Additional Activity in Youth Soccer: a Half-Longitudinal Study on the Influence of Autonomy-Supportive Coaching and Basic Psychological Need Satisfaction. *Journal of Sports Sciences*.

This research received funding from the European Commission's Seventh Framework Programme FP7/2007-2013 under grant agreement number 223600



1 **Promoting Additional Activity in Youth Soccer: a Half-Longitudinal Study**  
2 **on the Influence of Autonomy-Supportive Coaching and Basic**  
3 **Psychological Need Satisfaction**

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22 **Abstract**

23 This study investigated the relationships between perceptions of coach autonomy support,  
24 basic psychological need satisfaction and the frequency at which youth soccer players engage  
25 in additional soccer activity outside of team sessions. We employed structural equation  
26 modelling to test a two-wave (T1 and T2) half-longitudinal study to see if basic psychological  
27 need satisfaction mediates the relationship between coach autonomy support and additional  
28 soccer activity across a competitive season. The sample consisted of 527 youth soccer players,  
29 aged 10-15 years. Results revealed moderate to strong temporal stability for autonomy,  
30 competence, relatedness and frequency of additional soccer activity. Furthermore, no support  
31 is offered for mediation as T1 coach autonomy support was not related to any of three basic  
32 needs at T2 when accounting for their T1 levels. However, a positive relationship between T1  
33 autonomy and T2 additional soccer activity emerged. This suggests that those who experience  
34 high levels of autonomy in the team setting at the start of the season report an increased  
35 frequency of additional activity at the end of the season. Results are discussed in light of the  
36 Self-Determination Theory and the Trans-Contextual Model.

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39 **Keywords:** youth sport, physical activity, autonomy support, coaching, autonomy

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45 **Introduction**

46           In light of the global childhood obesity epidemic (Rocchini, 2002), the promotion of  
47 physical activity through youth sport participation is of interest to both sport psychology  
48 researchers and policymakers (Commission of the European Communities, 2007; Duda,  
49 2013). In Norway, soccer is the most popular youth sport (Ingebrigtsen, 2012). However,  
50 evidence suggests that a youth soccer practice does not meet daily physical activity  
51 recommendations, and includes periods of inactivity due to instruction and organizing (Leek  
52 et al., 2011). Hence, youth soccer participation in itself may not ensure the level of activity  
53 needed for positive health outcomes. According to Duda (2013), the social-psychological  
54 environment, and notably the coach, is crucial in facilitating the potential positive outcomes  
55 of youth sport participation. Yet, coaches appear to be limited in their understanding on how  
56 to promote physical activity, particularly beyond the team setting (Guagliano, Lonsdale,  
57 Rosenkranz, Kolt, & George, 2014). Therefore, the aim of the present study was to investigate  
58 one way in which coaches may promote physical activity. Specifically, we examined if coach  
59 autonomy support was related to the frequency at which youth soccer players engage in  
60 soccer outside of organized team sessions. Additionally, we asked whether this relationship  
61 was mediated by basic psychological need satisfaction.

62           Self-Determination Theory (SDT; Deci & Ryan, 2000) offers a sound theoretical basis  
63 for understanding behaviour. SDT emphasizes three basic psychological needs, reflecting  
64 innate psychological nutrients essential for ongoing psychological growth and well-being  
65 (Deci & Ryan, 2000). The need for *autonomy* refers to perceiving the activity as endorsed by  
66 oneself, and the experience of integration and freedom. The need for *competence* relates to  
67 mastery and perceptions of an effective interaction with the environment, whilst the need for  
68 *relatedness* is experiencing support, belonging, and security with others. The three  
69 psychological needs are the substantive and energizing basis for human activity, and their



70 satisfaction is the driving force behind motivation (Deci & Ryan, 2000; Hagger &  
71 Chatzisarantis, 2016).

72         The social-psychological environment can facilitate need satisfaction, and coaches are  
73 critical in creating this environment in youth sport (Deci & Ryan, 2000; Duda, 2013).  
74 According to Mageau and Vallerand (2003), coaches can satisfy their athletes' needs by being  
75 autonomy supportive. They described a set of autonomy supportive behaviours, such as  
76 considering athletes' perspectives, offering rationale and providing choices within reasonable  
77 limits. Tying the behaviours together is the underlying belief that players are deserving of  
78 self-determination and not puppets to be controlled in order to obtain desired outcomes  
79 (deCharms, 1968). By being autonomy supportive, coaches emphasize the importance of  
80 personal relevance, allowing the players to be the initiator of their behavior which facilitates  
81 autonomy (Mageau & Vallerand, 2003). Although not as intuitive as the relationship between  
82 autonomy support and autonomy, this type of coaching should also support competence and  
83 relatedness, by communicating trust in athletes' abilities and considering their feelings and  
84 perspectives, respectively (Mageau & Vallerand, 2003).

85         The positive relationship between autonomy supportive coaching and basic need  
86 satisfaction has received longitudinal support (Adie, Duda, & Ntoumanis, 2012; Curran, Hill,  
87 Ntoumanis, Hall, & Jowett, 2016; Gagne, Ryan, & Bargmann, 2003; Quested & Duda, 2011).  
88 Common for several of the previous studies (Adie et al., 2012; Gagne et al., 2003; Quested &  
89 Duda, 2011) is that coach autonomy support and basic psychological need satisfaction was  
90 measured simultaneously, and their relationship was analysed at the last time point,  
91 controlling for earlier levels. A rigorous analysis requires the predictor to be measured at an  
92 earlier time point (Cole & Maxwell, 2003; Kline, 2015). Adding a time lag, Kipp and Weiss  
93 (2015) showed autonomy support/mastery climate to only predict competence, though the  
94 combined factor muddies any interpretation on how autonomy support contributed to the

95 findings. In a similar study, examining autonomy support by itself, only links to relatedness  
96 emerged (Cheval, Chalabaev, Quested, Courvoisier, & Sarrazin, 2017). Moreover, while other  
97 longitudinal studies have supported a positive relationship between coach autonomy support  
98 and composite need satisfaction (Balaguer et al., 2012; Curran et al., 2016), the contribution  
99 to each separate need remained unclear. Thus, building on previous research, we examined  
100 the three needs separately. Moreover, we employed a two-wave design, testing a half-  
101 longitudinal model, in order to investigate the relationships.

102         Psychological need satisfaction engenders energy, making it the most proximal cause  
103 of behaviour (Deci & Ryan, 2011). Indeed, recent research has shown that need satisfaction  
104 and autonomous motivation are related to both self-reported engagement and objectively  
105 measured activity during a youth soccer practice (Curran et al., 2016; Fenton, Duda, &  
106 Barrett, 2016b). However, as aforementioned, the activity during a soccer practice may not  
107 amount to the recommended physical activity levels (Leek et al., 2011). This is likely due to  
108 youth soccer being directed towards skill development and not physical activity per se.  
109 Therefore, one way to promote physical activity through youth soccer without imposing a  
110 shift away from skill development, is to stimulate additional activity outside of the team  
111 setting. This seems pertinent, as there appears to be great variability in day-to-day physical  
112 activity levels among youth soccer players, with around 80% not meeting the recommended  
113 levels (Fenton, Duda, & Barrett, 2016a).

114         According to the Trans-Contextual Model (TCM; Hagger & Chatzisarantis, 2012),  
115 autonomy support in one context can influence outcomes in other related contexts through  
116 satisfying needs. A behaviour that results in need satisfaction is perceived as a candidate for  
117 satisfying needs in the future (Deci & Ryan, 2000; Hagger & Chatzisarantis, 2016; Ryan,  
118 1995). Consequently, the behaviour becomes attractive to the individual, leading them to seek  
119 it out, regardless of context. Previously, teacher autonomy support has been associated with

120 physical activity outside of school, by way of need satisfaction (González-Cutre, Sicilia,  
121 Beas-Jiménez, & Hagger, 2014). In the context of youth soccer, Fenton, Duda, Quested, and  
122 Barrett (2014) reported positive relationships between perceptions of coach autonomy  
123 support, motivation, and daily physical activity levels. However, the objectively measured  
124 physical activity in the Fenton et al. study offered no information regarding the type of  
125 activity. Theoretically, need satisfaction should promote related activities, and therefore non-  
126 related ones, such as active transportation, are not as relevant in testing this postulate of the  
127 TCM.

128         The present study investigated whether autonomy supportive coaching can stimulate  
129 soccer-specific activity outside of team sessions by satisfying basic psychological needs  
130 across a competitive youth soccer season. To address our aim, we tested a half-longitudinal  
131 model (Figure 1). This was due to it being the smallest design that allows for testing  
132 mediation (Cole & Maxwell, 2003), and the most feasible as it only requires two waves of  
133 data collection. Based on SDT and TCM, we hypothesized that perceived autonomy support  
134 from the coach would positively predict satisfaction of all three needs, and that perceived  
135 satisfaction of all three needs would positively predict the frequency of additional soccer  
136 activity outside of the team setting.

## 137 **Methods**

### 138 *Participants and procedures*

139         The present sample consisted of 527 male ( $n = 351$ ) and female ( $n = 176$ ) youth soccer  
140 players, aged 10 to 15 years ( $M = 12.10$ ,  $SD = 1.16$ ). Participants were part of the control  
141 group sample in the Norwegian arm of the larger Promoting Adolescent Physical Activity

142 (PAPA) project<sup>1</sup> (Duda, 2013). The Norwegian Centre for Research Data approved the project  
143 before its commencement. A sample of grassroots football clubs in three different regions of  
144 Norway were invited to participate. In collaboration with regional football associations, the  
145 clubs were recruited to ensure that they represented both urban and rural areas, various sizes,  
146 clubs having both male and female coaches and players, as well as clubs having coaches and  
147 players from diverse ethnic and socio-economic backgrounds. On accepting the invitation,  
148 coaches forwarded an information sheet to players and their parents/legal guardians who were  
149 asked to indicate consent through a passive consent approach. This involved giving the  
150 project manager a verbal or written refusal of participation. Participants were informed that  
151 consent could be withdrawn at any point.

152         As we wanted to examine how coach autonomy support at the start of the season  
153 predicted residual change across the season, the baseline (T1) data were collected at the start  
154 of the season, whilst the repeated assessment (T2) data were collected at the end of the  
155 season, around 20 weeks later. At both time points, the data collection was carried out before  
156 or after a team training session. The questionnaires were administered in Norwegian,  
157 following an extensive translation back-translation procedure from English (Harkness, 1999).  
158 All scales were measured on a 5-point Likert-Scale, ranging from 1 (*strongly disagree*) to 5  
159 (*strongly agree*).

## 160 ***Measures***

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<sup>1</sup> Part of this data has been published previously in a PAPA study involving all five participating countries. Specially, the autonomy support, T1 autonomy, T1 competence and T1 relatedness variables were a part of a study on the relationship between need satisfaction and drop-out in youth soccer by Quedsted et al. (2013). As that was a multi-country study, authorship reflected researchers from all five countries. The present study presents a new piece of work, with a different research question, a different outcome, and a longitudinal design. Furthermore, as the outcome is unique to the Norwegian data, only the Norwegian data was drawn upon to investigate the present research question. This is also reflected in the list of authors, as the present paper was developed in the Norwegian group only. Principle investigators within the PAPA project, and the authors of the Quedsted et al. (2013) paper, have seen the present study and agree with the statements above.

161 To lessen the burden on the participants, the PAPA project made use of a shortened version of  
162 the Health Care Climate Questionnaire (HCCQ) in order to tap perceived autonomy support  
163 from the coach (Standage, Duda, & Ntoumanis, 2005; Williams, Grow, Freedman, Ryan, &  
164 Deci, 1996). Appleton, Ntoumanis, Quested, Viladrich, and Duda (2016) offer more  
165 information on the process by which the 5-item short scale was selected. The five items were  
166 reflective of offering choice and rationale (e.g., “*The coach allows the players choice and*  
167 *alternatives*”). The participants were asked to think about what their main coach normally  
168 says or does. The psychometric properties of the modified scale has been demonstrated with  
169 youth athletes previously (Adie et al., 2012).

170 *Need satisfaction* was measured by asking players about their general feelings and  
171 experiences in soccer during the past month. The *autonomy* factor consisted of five items  
172 based on work by Standage, Duda, and Ntoumanis (2005) (e.g., “*I have decided what drills to*  
173 *do in practice*”). Six items from the Intrinsic Motivation Inventory (IMI) (McAuley, Duncan,  
174 & Tammen, 1989; e.g., “*I was pretty good*”) assessed *competence* satisfaction. *Relatedness*  
175 was measured based on four items from the l'Échelle du Sentiment d'appartenance Sociale  
176 (Richer & Vallerand, 1998; e.g., “*I felt like others understood me*”). All three scales have  
177 been validated within the context of youth sport (Adie et al., 2012; Balaguer et al., 2012;  
178 Ommundsen, Lemyre, Abrahamsen, & Roberts, 2010).

179 A single-item measure was used to assess frequency of additional soccer activity, as  
180 previous research has found that single-item measures of physical activity can be valid and  
181 reliable (Milton, Bull, & Bauman, 2011). Players were asked how often they partake in soccer  
182 activity outside of team trainings and games (1 = less than once a week, 2 = once a week, 3 =  
183 2-3 times per week, 4 = 4-6 times per week, 5 = Everyday). The variable was treated as an  
184 observed one in the structural model.

## 185 ***Data Analyses***

186           Analyses were conducted using structural equation modelling (SEM) with *Mplus* 7.3  
187 statistical software. To determine model fit, we relied on common goodness-of-fit indices,  
188 including comparative fit index (CFI), the root mean square error of approximation  
189 (RMSEA), and the standardized root mean square residual (SRMR). According to Little  
190 (2013), good fit is indicated by values close to or greater than CFI = .90, and less than .08 for  
191 RMSEA and SRMR, respectively.

192           Measurement invariance (MI) was assessed to establish whether the respective  
193 indicators measured the same latent construct across time, which is a prerequisite for  
194 longitudinal investigations (Byrne, 2012; Sass, 2011). The effects coding method was applied  
195 as a non-arbitrary method for identifying and scaling the latent variables, offering an unbiased  
196 and optimal balance of the information contained among the indicators (Little, 2013; Little,  
197 Slegers, & Card, 2006). We conducted four CFA's with increasingly restrictive parameters;  
198 each time point separately, *configural* invariance (model form invariance), *metric* invariance  
199 (factor loading invariance), and *scalar* invariance (intercept invariance), respectively. Strong  
200 MI is assumed if the increasing restrictions do not significantly alter the model fit (Sass,  
201 2011). For the test of metric invariance, we relied on the criteria of  $\Delta\text{CFI} < .01$ ,  $\Delta\text{RMSEA} <$   
202  $.015$ , and  $\Delta\text{SRMR} < .03$ . For scalar invariance, we employed the criteria of  $\Delta\text{CFI} < .01$ ,  
203  $\Delta\text{RMSEA} < .015$ , and  $\Delta\text{SRMR} < .01$ .

204           Within the present sample of 527 players, 192 (36.4%) players responded at both time  
205 points, 140 (26.6%) at T1 only, and 195 (37%) at T2 only. The missing data were the result of  
206 project management issues in the Norwegian arm of the project. At T1, the timeframe for the  
207 collection was restricted because of the scheduled start of the PAPA project intervention. At  
208 T2, the long travelling distances, and a short season, limited the opportunities for matching  
209 the data collectors with the respective teams' scheduled sessions. Therefore the data collectors  
210 did not succeed in following up on all pre-existing appointments. However, all participants in

211 the current sample accepted the invitation to partake at T1 and T2, and there were no  
212 withdrawals. As such, there was nothing to suggest that the missing data was due to anything  
213 other than these organizational issues. To handle the missing data in a principled way we  
214 relied on the Full Information Maximum Likelihood (FIML) technique. FIML is considered  
215 superior to more traditional techniques, as it leverages all available information from the  
216 observed data to fit the statistical model (Lang & Little, 2016). The technique is considered  
217 effective in reducing biases due to non-random missing data, offering reliable results even  
218 with a 60% missing rate (Dong & Peng, 2013; Hallgren & Witkiewitz, 2013).

219 Using the maximum likelihood estimation with robust standard errors (MLR), we  
220 tested a half-longitudinal model (Figure 1), accounting for prior levels of the mediator and  
221 outcome in order to isolate the change variance (Little, 2013). The primary paths of interest  
222 were the relationship between the predictor and the mediator, controlling for prior levels of  
223 the mediator (path *a*), and the relationship between the mediator and the outcome (path *b*),  
224 controlling for prior levels of the outcome. Assuming stationarity, the product *ab* is an  
225 estimate of mediation, which was created for each of the mediators (i.e. *a1b1*, *a2b2* and *a3b3*)  
226 using the *model constraint* command in *Mplus* (Cole & Maxwell, 2003; Muthén & Muthén,  
227 1998-2012).

## 228 **Results**

229 Table 1 presents descriptive statistics, composite reliability coefficients, factor scores  
230 and correlations between variables. All items met with the +/- 2 cut-off values for skewness  
231 and kurtosis (George & Mallery, 2010). Results show that all indicators of reliability were  
232 above .60. Although there is no stringent cut-off, Bagozzi and Yi (1988) argued that a  
233 composite reliability coefficient greater than .60 is considered satisfactory. As such, the  
234 results indicated acceptable reliability for the measurements. Furthermore, Little's missing  
235 completely at random (MCAR) test indicated that the data was not missing completely at

236 random ( $\chi^2 = 243.241$ ;  $df = 200$ ;  $p = .02$ ). As recommended by Enders (2010), independent t-  
237 tests with bootstrapping were conducted to further examine the missing data. Results showed  
238 no significant differences in T1 variables between those who remained in the project, and  
239 those who did not<sup>2</sup>. Comparing those who participated at both time points and those who were  
240 added at T2, significant differences were found in additional soccer activity ( $t = -2.99$ ;  $df =$   
241  $325$ ;  $p = .03$ ; BC 96%CI [-.63, -.13]; Cohen's  $d$  effect size = .33). The difference indicates that  
242 those who were added to the T2 data collection engaged in significantly more additional  
243 soccer activity outside of team sessions compared to those who responded at both time points.  
244 All other variables presented no significant differences<sup>3</sup>. Is it not likely that this difference had  
245 any bearing on why these participants did not respond at T1, as their teams had accepted  
246 participation at T1 and it was our timeframe that excluded them from doing so. As such, we  
247 felt confident in employing FIML to provide accurate estimates that recover the missing data  
248 with no bias (Little, 2013).

249         Given that the participants were recruited from teams (teams = 29,  $M_{size} = 18.17$ ), we  
250 assessed the dependencies between observations by conducting multi-level CFA's for all  
251 factors. This was done by calculating the intraclass correlation coefficients (ICCs), evaluating  
252 if there was enough between-level variance to support multilevel analyses (Preacher, Zyphur,  
253 & Zhang, 2010). The ICCs for perceptions of autonomy support, autonomy, competence and  
254 relatedness ranged from .01 to .04, indicating a trivial level of unexplained variance on the  
255 team level. The ICCs for soccer activity outside of team training were .20 at T1 and .22 at T2,

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<sup>2</sup> Independent t-tests, conducted in IBM SPSS Statistics 24, revealed no significant difference between dropouts and those who completed both assessments on autonomy support ( $t = 1.67$ ;  $df = 177$ ;  $p = .10$ ; BC 96%CI [-.03, .30]; Cohen's  $d$  effect size = .25), autonomy ( $t = .67$ ;  $df = 202$ ;  $p = .50$ ; BC 96%CI [-.11, .23];  $d = .09$ ), competence ( $t = 1.30$ ;  $df = 199$ ;  $p = .20$ ; BC 96%CI [-.07, .32];  $d = .18$ ), relatedness ( $t = .35$ ;  $df = 190$ ;  $p = .73$ ; BC 96%CI [-.18, .26];  $d = .05$ ) and soccer activity outside of practice ( $t = .31$ ;  $df = 230$ ;  $p = .76$ ; BC 96%CI [-.25, .34];  $d = .04$ ).

<sup>3</sup> Independent t-tests, conducted in IBM SPSS Statistics 24, revealed no significant difference between those who completed both assessments and those who were added at T2 on autonomy ( $t = .79$ ;  $df = 324$ ;  $p = .43$ ; BC 96%CI [-.09, .21]; Cohen's  $d$  effect size = .09), competence ( $t = .80$ ;  $df = 325$ ;  $p = .46$ ; BC 96%CI [-.10, .21];  $d = .09$ ) and relatedness ( $t = 1.10$ ;  $df = 324$ ;  $p = .73$ ; BC 96%CI [-.08, .27];  $d = .12$ ).



256 suggesting that around 20% of the explained variance was between teams. Unfortunately,  
257 running multilevel structural equation models with a small number of clusters (<50) can lead  
258 to biased estimates of the between-level standard errors, and is therefore not recommended  
259 (Maas & Hox, 2005). Thus, to handle the shared variance between teams, we employed a  
260 method that accounts for the nested data by adjusting standard errors and goodness-of-fit  
261 models testing (Muthen & Satorra, 1995). This was done by specifying TYPE=COMPLEX in  
262 *Mplus*.

263 The initial CFA for autonomy support showed non-acceptable fit indices ((S- B  $\chi^2$ ) = [df = 5,  
264 N=332] = 55.632,  $p < .000$ ; CFI = .78; RMSEA = .18 [.14-.22], and SRMR = .06).  
265 Modification indices revealed high residual covariance between item 2 and 5, respectively.  
266 Item phrasing indicated redundancy due to item overlap (Podsakoff, MacKenzie, &  
267 Podsakoff, 2012); item 2 "*My coach thought that it is important that players participate in*  
268 *football because the players really want to*", and item 5 "*My coach thought that it is important*  
269 *for players to play football because they (the players) enjoy it*". We acknowledge that a post  
270 hoc fitting process requires a shift from the confirmatory framework to an exploratory  
271 framework, however we considered a re-specification of the initial model justified due to the  
272 item overlap (Byrne, 2012). We therefore added a link between the residual covariance  
273 associated with both items, as they relate to similar content. This resulted in excellent fit  
274 indices ((S- B  $\chi^2$ ) = [df = 4, N = 332] = 2.29,  $p = .68$ ; CFI = 1.00 and RMSEA = .00[.00-.06],  
275 and SRMR = .01).

276 The CFA for competence and relatedness presented good fit indices at both time  
277 points. The CFA for T1 autonomy, however, presented poor fit indices ((S- B  $\chi^2$ ) = [df = 5, N  
278 = 328] = 74.194,  $p < .000$ ; CFI = .64 and RMSEA = .21[.17-.25], and SRMR = .06).  
279 Modification indices revealed high residual covariance between item 1 and 2; item 1 "*I*  
280 *decided which activities I practiced*", and item 2 "*I had a say on what skills I worked on*".

281 Moving away from the confirmatory framework once again, we added a covariance link  
282 between the two items ((S- B  $\chi^2$ ) = [df = 4, N = 328] = 3.992,  $p < .41$ ; CFI = 1.00 and RMSEA  
283 = .00[.00-.08], and SRMR = .02). The same issue emerged with T2 autonomy, and a  
284 covariance link was added ((S- B  $\chi^2$ ) = [df = 4, N = 378] = 2.761,  $p = .60$ ; CFI = 1.00 and  
285 RMSEA = .00[.00-.07], and SRMR = .02).

286 Fit indices for the increasingly strict models tested for MI are presented in Table 2.  
287 The configural model showed good fit (CFI = .947 and RMSEA = .034[.029-.039], and  
288 SRMR = .062), reflecting an equal number of factors and corresponding items. The fit of the  
289 metric model (CFI = .947 and RMSEA = .033[.028-.039], and SRMR = .065) was not  
290 significantly different from the configural model. Additionally, the chi-square difference test  
291 was non-significant ( $\Delta\chi^2(4) = 10.95$ ,  $p = .53$ ). Accordingly, equivalence of factor loadings  
292 was indicated. The scalar invariance model (CFI = .947 and RMSEA = .033[.028-.038], and  
293 SRMR = .065) did not present significantly different fit indices compared to the metric model,  
294 and the chi-square difference test was non-significant ( $\Delta\chi^2(4) = 14.51$ ,  $p = .27$ ). As such,  
295 equivalence of intercepts across time was indicated, and with all three models retained, strong  
296 MI was supported.

297 The structural model (see Figure 2) presented acceptable fit to the data ((S- B  $\chi^2$ ) = [df  
298 = 611, N = 527] = 996.985,  $p < .000$ ; CFI = .92 and RMSEA = .04[.03-.04], and SRMR = .07).  
299 All paths are presented in Table 3, and several significant relationships emerged. The  
300 autoregressive paths for autonomy ( $\beta = .77$ , 95% CI<sub>BC</sub>: .59, .94), competence ( $\beta = .62$ , 95%  
301 CI<sub>BC</sub>: .43, .80), relatedness ( $\beta = .54$ , 95% CI<sub>BC</sub>: .25, .83) and frequency of additional soccer  
302 activity ( $\beta = .56$ , 95% CI<sub>BC</sub>: .41, .72) were significant. This suggests that the T1 measures  
303 were predictive of the corresponding T2 level. Moreover, a significant temporal link emerged  
304 between autonomy at T1 and additional soccer activity at T2 (path *b1*:  $\beta = .26$ , 95% CI<sub>BC</sub>: .11,  
305 .41). This suggests that experiencing autonomy in the team setting was related to a higher

306 frequency of self-reported additional soccer activity 20 weeks later. All other paths were non-  
307 significant.

308         It is pertinent to acknowledge the existence of competing models that may present  
309 different causal orderings, and doing so attempts to reduce the susceptibility to confirmation  
310 bias (MacCallum & Austin, 2000). Models that bear theoretical promise should be prioritized.  
311 Thus, we tested an alternative model that was based on the premise of basic need satisfaction  
312 cognitively biasing players towards perceiving their coach as autonomy supportive (Stenling,  
313 Lindwall, & Hassmén, 2015). Coupled with the notion that the skill development that follows  
314 from additional soccer activity can lead to increased need satisfaction in the team setting. The  
315 sequence was therefore additional activity → autonomy, competence, relatedness →  
316 perceived autonomy support. We employed the Akaike Information Criterion (AIC) and CFI  
317 to decide between competing models, based on how well they fit the data (Byrne, 2012). A  
318 larger AIC is indicative of a poorer fit, whilst the opposite is indicated with a larger CFI. The  
319 AIC and CFI for the alternative model was 33204.406 and .916, whereas 29749.927 and .924  
320 was reported for the hypothesised model. The difference in CFI is marginal, however, the AIC  
321 comparison favours the hypothesized model. In terms of paths, the alternative model  
322 presented significant autoregressive paths for autonomy ( $\beta = .73$ , 95% CI<sub>BC</sub>: .54, .91),  
323 competence ( $\beta = .61$ , 95% CI<sub>BC</sub>: .47, .75), relatedness ( $\beta = .57$ , 95% CI<sub>BC</sub>: .42, .73) and  
324 autonomy support ( $\beta = .70$ , 95% CI<sub>BC</sub>: .37, 1.03). Furthermore, a significant link emerged  
325 between additional soccer activity and T2 competence satisfaction ( $\beta = .18$ , 95% CI<sub>BC</sub>: .04,  
326 .31), indicating that participating in additional soccer activity is associated with positive  
327 residual changes in competence satisfaction. All other paths were non-significant.

## 328 **Discussion**

329         The aim of the present study was to test a half-longitudinal mediation sequence in  
330 which autonomy, competence and relatedness mediated the relationship between perceptions

331 of autonomy supportive coaching and the frequency of self-reported soccer activity outside of  
332 team sessions. Results showed no evidence towards a mediation sequence, as autonomy  
333 support did not relate to fulfilment of any of the three needs. Moreover, only autonomy  
334 predicted how often players engaged in additional soccer activity.

335         Perceptions of autonomy support did not predict residual changes in perceived  
336 fulfilment of any of the needs across the competitive season, partly corroborating previous  
337 longitudinal research reporting links with either relatedness or competence only (Cheval et al.,  
338 2017; Kipp & Weiss, 2015). Theoretically, as autonomy support is focused on low control,  
339 acknowledging others and communicating trust in players' abilities, it should facilitate  
340 autonomy, relatedness and competence (deCharms, 1968; Mageau & Vallerand, 2003).  
341 However, when residualizing the mediator and outcome there is less unexplained variance for  
342 the predictor to explain, making significant longitudinal links difficult to discern (Jose, 2016).  
343 The strong autocorrelations herein signifies a rather small amount of residual change to be  
344 predicted, which may explain the null findings. Another explanation is that measuring only  
345 the choice and rationale strategies influenced the predictive value of the construct.

346         No support for an indirect relationship between autonomy support and additional  
347 soccer activity was found. This is in line with previous research that showed how coaches  
348 perceived themselves to have little influence on the level of physical activity outside of the  
349 organized context (Guagliano et al., 2014). The social influence on motivation is complex.  
350 According to a qualitative study by Keegan, Spray, Harwood, and Lavallee (2010), any direct  
351 and exclusive correspondence between behaviours from significant others and athlete  
352 motivation is almost impossible to discern. In fact, the effect of any particular behaviour  
353 appeared to be moderated by other factors, such as the consistency of the behaviour. Also,  
354 coach behaviour is not the only social influence in the context of youth sport, and peers have

355 recently been linked to basic psychological need satisfaction and extra practice time  
356 (Gucciardi & Jackson, 2015; Harwood, Keegan, Smith, & Raine, 2015).

357           Consistent with previous research (Kipp & Weiss, 2015), it appeared that residual  
358 changes in basic psychological need satisfaction across the competitive soccer season were  
359 rather small. However, with only two waves, we are unable to conclude on the temporal  
360 stability of the needs (Fraley & Roberts, 2005). While psychological constructs are often  
361 thought to be stable (Adachi & Willoughby, 2015), research in youth sports has reported  
362 changes in need satisfaction from practice to practice (Gagne et al., 2003). Thus, more  
363 knowledge on the temporal patterns of basic psychological need satisfaction in youth sport is  
364 needed. Moreover, residual changes in how often players engaged in soccer outside of team  
365 sessions also appeared small. This suggests that participants maintained their level of  
366 additional soccer activity across the competitive season. However, it is interesting to note that  
367 the mean level of activity was lower at T2 compared to T1. This may point to a decline in the  
368 frequency of additional activity with time, which would be consistent with the marked  
369 reduction in general physical activity levels across the adolescent years (Riddoch et al., 2004).

370           According to the TCM, experiencing need satisfaction in organized soccer will lead  
371 players to pursue similar activity beyond that setting. Findings partly support this notion,  
372 showing that autonomy predicted changes in how often players engaged in soccer activity  
373 outside of team sessions. Although one could argue that the relationship is not strong ( $\beta =$   
374 .26), the results should be weighted in light of the stability of the outcome variable (Adachi &  
375 Willoughby, 2015). Furthermore, as directionality cannot be established based on the present  
376 research design, we tested an alternative model, presenting a different theory on the causal  
377 relationships between the variables. Statistical fit favoured the hypothesized model, and we  
378 consider this model more in line with SDT and the TCM. In terms of relationships, no  
379 significant links were found between any of the needs and autonomy support in the alternative

380 model. Thus, the notion that high levels of psychological need satisfaction leads to changes in  
381 perceived autonomy supportive coaching was not supported. Additional soccer activity,  
382 however, was related to positive residual changes in competence satisfaction. Therefore, it  
383 seems that while feeling autonomous in the team setting predicted positive residual changes in  
384 additional activity, such activity may lead to an increased sense of competence when  
385 engaging with the team.

386 Hagger and Chatzisarantis (2016) argued that all three needs are pertinent in regard to  
387 predicting behaviour in other contexts. It was therefore surprising that competence and  
388 relatedness were not linked to residual change in the frequency of additional soccer activity.  
389 Although all three needs are regarded as vital, autonomy may be unique in the initiation of  
390 behaviour (Ryan & Deci, 2017). According to Deci and Ryan (2000), satisfying competence  
391 and relatedness may be enough for controlled behaviour, but autonomy satisfaction is  
392 essential for self-determined behaviour. Autonomy represents the degree to which something  
393 is of interest to the person, closely related to their values (Deci & Ryan, 1995). It reflects a  
394 propensity towards self-regulated action, and those high in autonomy are self-initiated in their  
395 behaviour, compared to just being cued up or prompted by external sources (Deci & Ryan,  
396 2000). It is this interest and importance that leads to effort and persistence (Koestner, 2008).  
397 Thus, competence and relatedness may not be as powerful or vital in predicting additional  
398 soccer activity compared to autonomy.

### 399 ***Practical implications***

400 One way for organized youth soccer to increase its contribution to physical activity  
401 levels is by stimulating autonomy need satisfaction. Participation should be volitional and  
402 self-initiated, reflecting the interest and values of the individual. Moreover, the present  
403 findings are also important from a talent development perspective, as additional activity was  
404 related to positive changes in competence satisfaction. A similar link has been reported

405 previously, showing that soccer players with elite status at age 16 reported twice as much  
406 average time per year spent on additional soccer activity earlier in their development  
407 compared to those who were no longer elite (Ford, Ward, Hodges, & Williams, 2009).  
408 Therefore, talent developers should facilitate a sense of autonomy within the organized realm  
409 to encourage players to engage in additional soccer activity.

#### 410 *Limitations, strengths and conclusions*

411         The present study has several limitations. First, directionality can only be inferred  
412 based on theory. Second, the half-longitudinal design assumes stationarity, that is the  
413 assumption that the relationship between the mediator and outcome would hold at additional  
414 time points. Furthermore, with only two waves, we were unable to test the significance of a  
415 potential direct effect between autonomy support and additional activity (Cole & Maxwell,  
416 2003). Third, our sample did not allow for multilevel analyses. Conducting traditional  
417 methods for testing mediation can be inappropriate with multilevel data, primarily because the  
418 independence of observations is violated (Preacher et al., 2010), often leading to biased  
419 parameter estimates and increased risk of model misfit (Pornprasertmanit, Lee, & Preacher,  
420 2014). Fourth, the present study measured self-reported additional activity, and only the  
421 frequency of that given behaviour. Although frequency may be related to amount of activity,  
422 such conclusions cannot be drawn based on the current data. Furthermore, no attempt to  
423 validate this single-item measure was done prior to the data collection. In terms of the  
424 autonomy support measure, a short version was employed. This may have influenced the  
425 predictive ability of the construct. Furthermore, autonomy support is only one aspect of coach  
426 behaviour, and future research should investigate the predictive ability of structure and coach  
427 involvement. Last, the present study is set in the youth soccer context, and findings may not  
428 be applicable to other sports, particularly those less accessible.

429           Notwithstanding the aforementioned limitations, the present study has several  
430 strengths. First, testing the postulates of SDT in a longitudinal manner to deduce temporal  
431 links is a major strength. Second, we met with the risk of confirmation bias by acknowledging  
432 an alternative model, and comparisons favored our hypothesized model. Third, the large  
433 sample, the SEM-analysis, and testing the unique contribution of all three needs are all  
434 positive features of the present study.

435           In conclusion, autonomy supportive coaching was not related to residual changes in  
436 satisfaction of any of the three basic psychological needs. It is likely that the stability of the  
437 needs played a role in the null findings. However, there are other plausible explanations for  
438 the lack of relationships. Furthermore, findings indicate that when youth soccer players  
439 experience a sense of autonomy in the team context, they are more likely to increase their  
440 engagement in additional soccer activity. This highlights the importance of autonomy in  
441 stimulating activity.

#### 442 **Acknowledgement**

443 We would like to thank the members of the PAPA team who contributed to the conception  
444 and the design of the PAPA protocol, and those who contributed to the data collection. This  
445 work was supported by the European Commission under the Seventh Framework Programme  
446 – Health, grant number 223600, as a part of the Promoting Adolescent Physical Activity  
447 project.

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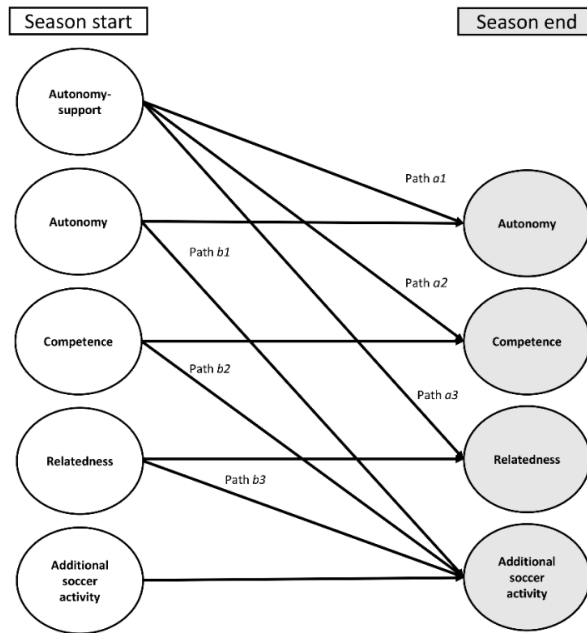
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646 **Figure legend**

647 Figure 1. The hypothesized half-longitudinal model. *Note.* Soccer activity refers to the  
648 frequency of soccer activity outside of the team setting.



649

Table 1. Descriptive statistics, reliability estimates and estimated correlation matrix for all variables.

	Rho <sup>1</sup>	M(SD)	Factor scores	2	3	4	5	6	7	8	9
1.Autonomy support	.74(.69-.80)	3.99 (.61)	.87	.42***	.21	.39***	.29*	.54***	.43**	.26**	.18**
2.Autonomy T1	.68(.60-.76)	3.03 (.66)	.83	.45***	.72***	.45***	.30***	.73***	.46***	.25***	.32***
3.Autonomy T2	.72(.67-.76)	3.01 (.68)	.87	.30***	.30***	.30***	.47***	.50***	.67***	.17**	.16**
4.Competence T1	.90(.86-.94)	3.77(.74)	.95				.64***	.69***	.43***	.28***	.15
5.Competence T2	.90(.87-.92)	3.84(.72)	.95				.62**	.62**	.66**	.19**	.18**
6.Relatedness T1	.85(.81-.89)	3.63(.83)	.93					.62***	.62***	.33***	.25**
7.Relatedness T2	.83(.79-.87)	3.62(.79)	.92							.22***	.28***
8.Additional soccer activity T1	-	3.54 (1.17)	-								.58***
9.Additional soccer activity T2	-	3.31 (1.15)	-								

Note: \*  $p \leq .05$ , \*\*  $\leq .01$ ; <sup>1</sup>confidence intervals for Rho put in parentheses.

Table 2. Model fit indices for longitudinal factorial invariances for autonomy, competence and relatedness needs.

Model	$\chi^2$	<i>df</i>	<i>p</i>	RMSEA	$\Delta$ RMSEA	RMSEA 90%CI	SRMR	$\Delta$ SRMR	CFI	$\Delta$ CFI	Retained?
1. Configural model	594.498	373	.0000	.034	-	.029-.039	.062	-	.947	-	-
2. Metric model	605.445	385	.0000	.033	.001	.028-.039	.065	.003	.947	0	Yes
3. Scalar model	619.951	397	.0000	.033	0	.028-.038	.065	0	.947	0	Yes

*Note:* Retained? refers to whether the model is retained based on the fit indices not having changed significantly from the previous model.

1 Table 3. Path coefficients for the structural model.

Path	$\beta$	SE	p-value	95%CI[]
T1 Autonomy Support →				
T2 Autonomy	-.11	.11	.30	[-.32, .10]
T2 Competence	.05	.14	.720	[-.23, .33]
T2 Relatedness	.14	.10	.51	[-.28, .55]
T1 Autonomy →				
<b>T2 Autonomy</b>	<b>.77</b>	<b>.09</b>	<b>&lt;.000</b>	<b> [.59, .94]</b>
<b>T2 Additional activity</b>	<b>.26</b>	<b>.08</b>	<b>&lt;.001</b>	<b> [.11, .41]</b>
T1 Competence →				
<b>T2 Competence</b>	<b>.62</b>	<b>.10</b>	<b>&lt;.000</b>	<b> [.43, .80]</b>
T2 Additional activity	-.08	.09	.37	[-.26, .10]
T1 Relatedness →				
<b>T2 Relatedness</b>	<b>.54</b>	<b>.15</b>	<b>&lt;.000</b>	<b> [.25, .83]</b>
T2 Additional activity	-.07	.12	.55	[-.30, .16]
T1 Additional play →				
<b>T2 Additional activity</b>	<b>.56</b>	<b>.08</b>	<b>&lt;.000</b>	<b> [.41, .72]</b>

2 *Note.*  $\beta$  = Standardized path coefficients; SE = standard error; p = two-tailed probability  
 3 value; CI = confidence interval; Additional activity = Additional soccer activity outside of  
 4 team sessions; statistically significant paths are in bold.

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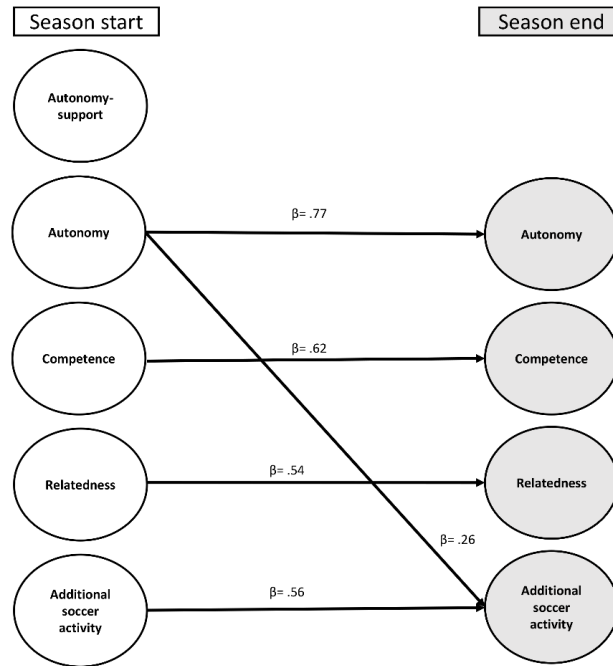
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### Figure legend

Figure 2. Significant paths ( $p < .01$ ).



*Note.* Standardized parameter estimates for the structural model. Soccer activity refers to that done outside of team trainings and games. To maintain clarity, only significant parameters are presented in the model.

#### **Paper IV**

Gjesdal, S., Stenling, A., Solstad, B.E. & Ommundsen, Y. (Re-Submitted). A study of coach-team perceptual distance concerning the coach-created motivational climate in youth sport.

*Scandinavian Journal of Medicine & Science in Sports.*



1     **A study of coach-team perceptual distance concerning the coach-created**  
2                                   **motivational climate in youth sport**

3                                   **Perceptual distance**

4     Siv Gjesdal<sup>a</sup>, Andreas Stenling<sup>b</sup>, Bård E. Solstad<sup>a</sup> & Yngvar Ommundsen<sup>a</sup>

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23

24 **Abstract**

25 The purpose of this study was to examine whether coach-team perceptual distance regarding  
26 the coach-created motivational climate related to achievement goal orientations and affective  
27 responses. To this end we used polynomial regression analysis with response surface  
28 methodology. The sample consisted of 1359 youth soccer players (57.8% male;  $M_{age} = 11.81$   
29 years,  $SD = 1.18$ ), belonging to 87 different teams ( $M_{size} = 16.47$ ), and 87 coaches (94.6%  
30 male,  $M_{age} = 42$  years,  $SD = 5.67$ ). Results showed that team perceptions of a coach-created  
31 mastery climate were positively related to team-rated task goal orientation and enjoyment,  
32 whereas team perceptions of a coach-created performance climate were positively related to  
33 team-rated ego goal orientation and anxiety, and negatively related to team-rated enjoyment.  
34 These relationships were generally stronger with higher levels of perceptual agreement  
35 between the coach and the team. In situations of perceptual disagreement, the most negative  
36 effects were seen when the coach held a more favorable perception of the motivational  
37 climate compared to the team. The findings highlight the importance of perceptual agreement  
38 between the coach and his/her team, contributing to the literature focusing on the effects of  
39 the coach-created motivational climate.

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42 **Keywords:** Motivation, youth sport, coach behavior

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47 **Introduction**

48 Sport psychologists emphasize the importance of the coach-created motivational  
49 climate, defined as the achievement cues that are made salient within a given sport context.<sup>1,2</sup>  
50 It is a reflection of the achievement priority of the coach, evident through his or her behavior,  
51 structure, and decision-making, and athletes' perceptions of the motivational climate are  
52 thought to impact their achievement behavior, cognition, and affective responses.<sup>3</sup> However,  
53 an interesting observation in previous research is that athletes may differ significantly from  
54 their coaches in their perceptions of the coach-created motivational climate, particularly when  
55 it comes to positive dimensions of the climate.<sup>4,5</sup> Unfortunately, such perceptual distance has  
56 seldom been investigated as a phenomenon of interest in and of itself. Accordingly, the  
57 current study was designed to examine whether coach-team perceptual distance regarding the  
58 coach-created motivational climate relates to team-rated outcomes.

59 Achievement goal theory (AGT) identifies two different motivational climates, namely  
60 mastery and performance.<sup>6</sup> A mastery climate is characterized by self-referenced criteria for  
61 success and failure as well as the promotion of effort, learning, and mastery.<sup>2</sup> To this end, a  
62 mastery climate focuses on cooperation and individual development, as well as ensuring  
63 important roles for all team members.<sup>7</sup> In contrast, a performance climate is focused on  
64 normative competition, fostering rivalry and rewarding superiority.<sup>2</sup> According to a recent  
65 systematic review on intrapersonal correlates of motivational climate perceptions,<sup>8</sup> athletes'  
66 perceptions of a mastery climate have consistently been linked to adaptive motivational  
67 outcomes such as positive affective states, the experience of flow, and adaptive strategies.  
68 Perceptions of a performance climate, on the other hand, have been associated with less  
69 adaptive aspects of sport such as negative affective states, negative thoughts and worries, as  
70 well as maladaptive strategies.

71           AGT-based research,<sup>3,8,9</sup> has demonstrated that the coach-created motivational climate,  
72 as measured from the athletes' perspective, has implications for the athletes. Yet we argue  
73 that it is also important to consider coach perceptions of the motivational climate, particularly  
74 because previous research has found that coaches and their athletes may differ in their  
75 perceptions. For example, Smith, et al. <sup>4</sup> found that there were no significant associations  
76 between coaches' and athletes' ratings of neither a mastery or performance climate. This can  
77 be referred to as perceptual distance; that is the difference between leader and team  
78 perceptions of the same social stimulus.<sup>10</sup> The perceptual distance can vary in size, with a  
79 small distance representing little variation in the perceptions of the given social stimulus,  
80 reflective of perceptual agreement. A large perceptual distance, however, is reflective of  
81 perceptual disagreement.

82           It is believed that perceptual distance is related to team outcomes, and research in the  
83 corporate setting has associated perceptual agreement on various aspects of the work  
84 environment (e.g. organizational support, construct conflict and organizational learning) with  
85 higher team performance and affective responses.<sup>10-12</sup> Furthermore, a recent study in the  
86 context of youth sport found that coach-athlete perceptual distance in regard to need  
87 supportive and thwarting behaviors from the coach was related to athletes' basic psychological  
88 needs.<sup>13</sup> Gibson, et al. <sup>10</sup> forwarded collective cognition as a possible explanation for the  
89 relationship between perceptual distance and outcomes. Collective cognition is defined as  
90 knowledge that is shared between the members of a group, not residing within one individual  
91 but in the interrelations between members.<sup>14,15</sup> A group is defined as social aggregation that is  
92 perceived as meaningful by its members, in which the members interact on a regular basis and  
93 share a set of mutual objectives.<sup>14</sup> The process of collective cognition in a group is defined by  
94 several phases, namely the accumulation, handling, examination and accommodation of

95 knowledge, and an effective transition from one phase to another reflects a higher level of  
96 collective cognition.<sup>10,14,16</sup>

97         To understand what collective cognition might look like in a coach-team interaction,  
98 consider a coach that is very active on the sideline, yelling and screaming. The coach is doing  
99 this to energize his or her team during the last minutes of a game, letting the team know that  
100 he or she is supporting them. If the coach and the team has a high level of collective  
101 cognition, the team will know what this means and react accordingly. However, with low  
102 levels of collective cognition, the players may misinterpret this as pressure or anger. This type  
103 collective cognition is referred to as knowledge of each other.<sup>15</sup> According to Gibson, et al.<sup>10</sup>,  
104 perceptual agreement, as opposed to disagreement, allows for the use of various catalysts for  
105 moving a team from one phase of collective cognition to another, such as feedback and  
106 clarifying roles. Applied to the example above, coach-team perceptual agreement would allow  
107 the coach to provide feedback to clarify why he or she acted in that manner. However, if there  
108 is perceptual disagreement, the coach will not realize that the team is misinterpreting the  
109 behavior, and will therefore not make use of any catalysts. Thus, in terms the coach-created  
110 motivational climate, its effectiveness in relation to relevant team-rated outcomes may be  
111 related to the degree to which a coach is able to make use of various catalysts for collective  
112 cognition.

113         Through the motivational climate they create, coaches can influence their athletes'  
114 personal beliefs concerning success and failure.<sup>9</sup> AGT refers to these beliefs as achievement  
115 goal orientations, defined as the relatively stable standards by which individuals evaluate their  
116 competencies.<sup>17</sup> Traditionally, the standards have been divided into two orientations, namely  
117 task and ego goal orientation.<sup>3</sup> A task goal orientation is based on a self-referenced view of  
118 ability, and competence is believed to be demonstrated through effort, mastery, and  
119 improvement. Conversely, an ego goal orientation represents a more differentiated view of

120 ability, and competence is defined as outperforming others with equal or less effort.  
121 Generally, a task goal orientation has been linked to positive aspects of youth sport  
122 participation, whilst an ego goal orientation has been associated with more negative aspects.<sup>18</sup>  
123 This has led researchers to emphasize the importance of facilitating a task goal orientation and  
124 avoiding an ego goal orientation, as this is thought to be beneficial for youth sport athletes'  
125 well-being and optimal functioning.<sup>19</sup>

126 Ames<sup>9</sup> argued that exposure to a strong motivational climate leads to the adoption of  
127 the corresponding achievement goal orientation. This has gained empirical support, indicating  
128 that exposure to a performance climate is linked to an ego goal orientation, and exposure to a  
129 mastery climate is linked to a task goal orientation.<sup>8</sup> This can be referred to as a socialization  
130 effect which involves internalization of the achievement values put forward by the coach. In  
131 fact, Nicholls<sup>17</sup> originally described achievement goal orientations as internalizations of the  
132 contextual achievement cues, and this type of socialization effect may be more evident with  
133 adolescents as they have yet to firm up their personal achievement beliefs.<sup>20</sup> There is no  
134 theoretical reason to expect a relationship between a mastery climate and an ego goal  
135 orientation, and between a performance climate and a task goal orientation. Previous  
136 empirical studies support this.<sup>8</sup>

137 Inspired by the work of Gibson, et al.<sup>10</sup> in organizational psychology and Rocchi and  
138 Pelletier<sup>13</sup> in sport psychology, we argue that perceptual distance in regard to the  
139 motivational climate is relevant for the socialization of achievement values from coaches to  
140 their teams. This is because the level of perceptual distance will impact the degree to which  
141 the coach is able to make use of various catalysts for collective cognition.<sup>10,14</sup> Specifically,  
142 less perceptual distance will allow the coach to more effectively communicate and transfer the  
143 achievement value through collective cognition. We expect therefore that high levels of a

144 motivational climate coupled with low levels of coach-team perceptual distance will result in  
145 the strongest relationship to the relevant achievement goal orientation.

146           In addition to influencing athletes' achievement goal orientations, the coach-created  
147 motivational climate is also related to athletes' affective responses, particularly through  
148 competitive processes and the emphasis put on performance.<sup>8,21,22</sup> To investigate how coach-  
149 team perceptual distance might relate to such outcomes, we decided to examine anxiety and  
150 enjoyment as representatives of negative and positive affective responses to youth sport  
151 participation, respectively. Sport anxiety is defined as a tendency to respond with state anxiety  
152 to performance situations where evaluation is likely.<sup>23</sup> Although some might interpret anxiety  
153 as facilitative, the general notion is that high levels of anxiety in sport is negatively related to  
154 participation, health, and performance.<sup>24</sup> In contrast, enjoyment in sport is reflective of a  
155 positive affective response, relating to pleasure and fun.<sup>21</sup> According to Scanlan, et al. <sup>21</sup>, it is  
156 imperative to facilitate enjoyment and reduce anxiety levels in order to attract youths to sport  
157 and keep them positively involved.

158           It is widely accepted in the sport psychology literature that a coach-created mastery  
159 climate is likely to facilitate enjoyment and oppose anxiety, while an opposite pattern is  
160 expected with a performance climate.<sup>2,8</sup> In the current study we focused on the role coach-  
161 team perceptual distance might play in these relationships. Previous research in organizational  
162 psychology has associated perceptual distance with both positive and negative affect, and  
163 findings seem to suggest that perceptual agreement is associated with more positive outcomes  
164 compared to disagreement.<sup>11,25</sup> However, Rocchi and Pelletier <sup>13</sup> showed that athletes  
165 experienced more need frustration when the coach and athletes were in perceptual agreement  
166 regarding the coach's need thwarting behavior. Thus, we argue that perceptual agreement will  
167 lead to positive outcomes only to the extent that the matter on which there is agreement is  
168 conducive to such outcomes.

169           While some affective responses may be more likely when there is perceptual  
170 agreement, the characteristics of the specific climate will determine which responses that  
171 would be. To illustrate, we do not believe that perceptual agreement regarding a performance  
172 climate can make this climate more beneficial to the team; rather, it should make it more  
173 detrimental. We therefore expected a coach-created mastery climate to be more apt at creating  
174 enjoyable experiences characterized by low levels of anxiety for the team if the coach and the  
175 team are in perceptual agreement rather than disagreement. Moreover, we expected a  
176 performance climate to induce more anxiety in the team, and be less enjoyable, if the coach  
177 and the team are in perceptual agreement rather than disagreement. These hypotheses are  
178 supported by the notion of collective cognition.<sup>10,14</sup> For example, in terms of a mastery  
179 climate, collective cognition would allow the coach and the team to work efficiently towards  
180 development and mastery, which generally is considered enjoyable.<sup>8,26</sup> With a performance  
181 climate however, collective cognition may result in a more clear process of social comparison,  
182 increasing the level of anxiety and decreasing enjoyment.<sup>8,21</sup>

183           When coaches and teams do not agree, the consequences may differ depending on the  
184 direction of the disagreement. For example, Tafvelin, et al. <sup>12</sup> showed that team performance  
185 suffered the most when the leaders had a more positive perception of the social stimulus  
186 compared to the team. Similarly, Rocchi and Pelletier <sup>13</sup> found that when there was coach-  
187 athlete perceptual distance, the athletes reported higher levels of need satisfaction and lower  
188 levels of need frustration if the coach underreported their supportive behavior and  
189 overreported their thwarting behavior, relative to their athletes. Based on these findings, we  
190 expected that if the team, as compared to the coach, perceives a lower level of a coach-created  
191 mastery climate, the dynamics would be relatively more detrimental to the outcomes than the  
192 opposite scenario. The reason for this could be that coaches who perceive themselves as  
193 creating a strong mastery climate are less likely to be concerned with further emphasizing this

194 mastery focus, or offering help in transferring these values onto the athletes. Conversely, if  
195 the opposite is true, the coach is likely to continue focusing on creating a mastery climate.  
196 However, such over-emphasizing is not likely to be overly detrimental to the team, compared  
197 to not experiencing a mastery focus as in the former scenario. Concerning a performance  
198 climate, we expected a relatively less detrimental situation to occur when the coach perceives  
199 a higher level of a performance climate compared to the team. In that situation, the coach is  
200 seemingly not communicating the performance cues effectively and cannot rely on collective  
201 cognition, and therefore the team may be somewhat protected from the negative implications  
202 of a normative focus from the coach.

203         The aim of the present study was to investigate how the coach-created motivational  
204 climate relates to outcomes and the role of coach-team perceptual distance therein. We  
205 focused on three different outcomes, namely achievement goal orientations, enjoyment, and  
206 anxiety. All of these have been associated with the coach-created motivational climate in  
207 previous research,<sup>8</sup> and is thought to be important to the youth sport experience.<sup>2,18,19</sup> Based  
208 on the theoretical propositions of AGT and previous research on perceptual agreement, our  
209 hypotheses were three-fold. First, we expected perceptions of a mastery climate to be  
210 positively associated with team-rated task goal orientation and enjoyment, and negatively  
211 related to team-rated anxiety. Conversely, a performance climate was expected to be  
212 positively linked with team-rated ego goal orientation and anxiety, and negatively linked with  
213 team-rated enjoyment. Second, these relationships were expected to appear stronger with  
214 higher levels of coach-team perceptual agreement (i.e. when the coach and the team are  
215 similar in their perception of the coach-created motivational climate). Third, regarding coach-  
216 team perceptual disagreement (i.e. when the coach and the team differ in their perception of  
217 the coach-created motivational climate), we expected it to be more detrimental in terms of



218 outcomes when the team perceived a higher level of a performance climate, and a lower level  
219 of a mastery climate, compared to the coach, than the opposite pattern.

## 220 **Method**

### 221 *Participants and procedure*

222 This research is a part of the Norwegian arm of the larger Promoting Adolescence  
223 Physical Activity (PAPA) multi-centre project.<sup>27</sup> Data from a questionnaire survey with  
224 coaches and their athletes, collected at baseline, were used in the present study. The athlete  
225 sample consisted of 1359 young Norwegian male ( $n = 783$ ) and female ( $n = 576$ ) soccer  
226 players, nested within 87 different teams ( $M_{size} = 16.47$ ). The players' ages ranged from 9  
227 to 15 years ( $M = 11.81$  years,  $SD = 1.18$ ), and they reported to have been involved with their  
228 current team for an average of 4.40 ( $SD = 2.20$ ) seasons. The coach sample included 87  
229 coaches (83 males, 4 females, 1 unspecified), between the ages of 18 and 56 years ( $M_{age} =$   
230 42,  $SD = 5.70$ ). All reported having some type of coaching certification, and had 6.95 ( $SD =$   
231 4.15) years of coaching experience. The coaches had been coaching their present team for an  
232 average of 4.16 seasons ( $SD = 1.91$ ), and each coach was linked to one team only. All teams  
233 were considered a part of the grassroots soccer context.

234 The Norwegian Data Protection Authority has approved the project prior to its  
235 commencement. As the data set did not include sensitive health information, the approval  
236 required only passive consent. Therefore, parents or legal guardians were asked to give the  
237 project leader a verbal or written refusal if they did not want their child to participate. Both  
238 coaches, parents, and athletes were given their own information sheet in ample time prior to  
239 data collection, and the option of opt-out was given directly to the participants. They were  
240 also informed that consent could be withdrawn at any point. The data collection itself took  
241 place at the start of the season, before or after a team training session.

242 *Measures*

243 All scales were administered in Norwegian, following an extensive translation – back-  
244 translation procedure.<sup>28</sup> Respondents were asked to rate how much they agreed with each  
245 statement, on a 5-point Likert- Scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*).  
246 In order to estimate team-ratings of the motivational climates and the outcomes, the individual  
247 scores for all athletes within one team were aggregated by averaging the team members'  
248 responses. These aggregated scores were used in all subsequent analyses.

249 The teams' perceptions of the motivational climate was measured with a short  
250 version<sup>29</sup> of the Perceived Motivational Climate in Sport Questionnaire (PMCSQ-2).<sup>7</sup>  
251 Previous research has supported the reliability of this scale in the context of youth sport.<sup>23</sup>  
252 Team members were asked to think about what it had usually been like on their team in the  
253 past 3-4 weeks, and nine items assessed perceived mastery climate (e.g.; "my coach made  
254 sure players felt successful when they improved"), tapping the cooperative learning, important  
255 role, and effort/improvement lower-order factors. The Omega coefficient<sup>30</sup> for the aggregated  
256 team rating was .89. Seven items, tapping the intra-team rivalry, unequal recognition, and  
257 punishment for mistakes lower-order factors measured perceptions of a performance climate  
258 (e.g.; "the coach devotes most of his /her attention to the best players"). The Omega  
259 coefficient for the aggregated team rating was .94.

260 Coach perceptions of the motivational climate were also measured with the PMCSQ-  
261 2, and the coaches were asked to indicate how well the items corresponded to their actual  
262 behavior in the past month, and the items were preceded by the stem "On my team". Previous  
263 use of this scale to assess coach perceptions has noted somewhat low reliability scores,<sup>4</sup> but  
264 the Omega coefficient for the coaches' rating herein was .81 for the mastery climate scale, and  
265 .75 for the performance climate scale.

266 The Motivational Orientation Scales (MOS)<sup>31</sup> was employed to assess achievement  
267 goal orientations, and items were preceded by the stem "I feel really successful in football  
268 when...". Previous research has demonstrated acceptable psychometric properties for the use  
269 of this scale with youth sport participants.<sup>32</sup> Seven items assessed task goal orientation (e.g.;  
270 "I do my very best"), and the Omega coefficient for the aggregated team rating was .82. Six  
271 items (e.g.; "I'm the only one who can do the skill") measured ego goal orientation, and the  
272 Omega coefficient for the aggregated team-rating was .90.

273 To assess the level of enjoyment in soccer, team members were asked to think about  
274 their general experience of the soccer environment in the past month. Four items based on the  
275 Intrinsic Motivation Inventory (IMI<sup>33</sup>) were employed (e.g., "It was fun playing soccer"). The  
276 items were preceded by the statement "In the past month...". Previous research has supported  
277 the reliability of this scale,<sup>33</sup> and the Omega coefficient for the aggregated team-rating herein  
278 was .86.

279 The measurement of soccer-specific performance anxiety was based on the worry  
280 factor of the revised Sport Anxiety Scale (SAS).<sup>34</sup> Five items were used to measure the degree  
281 to which the statements correspond to how the athletes usually feel about their performance in  
282 soccer, before or during a match (e.g., "I worry that I will let the other players on my team  
283 down"). The items were preceded by the phrase "Before or when I am playing a soccer  
284 match...". The reliability of the scale has been demonstrated with youth athletes previously,<sup>23</sup>  
285 and the Omega coefficient for the aggregated team-rating herein was .94.

#### 286 *Aggregation*

287 We computed  $r_{WG}$  as a measure of interrater agreement (IRA) and intraclass  
288 correlation coefficients ICC(1) and ICC(2) as measures of interrater reliability (IRR) to  
289 determine within-team agreement and between-team differences in variables aggregated to the

290 team level.<sup>35</sup>  $r_{WG}$  ranges from 0 (*complete lack of agreement*) to 1 (*complete agreement*) and  
291 we used LeBreton and Senter's <sup>36</sup>standards for determining the level of agreement. These  
292 standards are defined as "lack of agreement" = .00 to .30; "weak agreement" = .31 to .50;  
293 "moderate agreement" = .51 to .70; "strong agreement" = .71 to .90; and "very strong  
294 agreement" = .91 to 1.00. Average  $r_{WG}$  was 0.85 for mastery climate, 0.73 for performance  
295 climate, 0.88 for task orientation, 0.61 for ego orientation, 0.80 for enjoyment, and 0.51 for  
296 anxiety, suggesting moderate to strong agreement. The ICC(1) is typically interpreted as a  
297 measure of effect size indicating the extent to which individual ratings are attributable to  
298 group membership.<sup>35</sup> For all variables the ICC(1) was greater than zero and the ANOVA  $F$   
299 value was statistically significant, which are considered conditions under which scores can be  
300 aggregated to the team level.<sup>10</sup> More specifically, for mastery climate,  $ICC(1) = 0.06$ ,  $F =$   
301  $2.40$ ,  $p = 0.000$ ; performance climate,  $ICC(1) = 0.16$ ,  $F = 4.74$ ,  $p = 0.000$ ; task orientation,  
302  $ICC(1) = 0.03$ ,  $F = 1.66$ ,  $p = 0.001$ ; ego orientation,  $ICC(1) = 0.05$ ,  $F = 2.02$ ,  $p = 0.000$ ;  
303 enjoyment,  $ICC(1) = 0.04$ ,  $F = 1.79$ ,  $p = 0.000$ ; and anxiety,  $ICC(1) = 0.07$ ,  $F = 2.45$ ,  $p =$   
304  $0.000$ . The ICC(2) is a measure of the reliability of the group-level means and indicate how  
305 reliable the aggregate mean ratings are in distinguishing between groups.<sup>35</sup> ICC(2) was 0.58  
306 for mastery climate, 0.79 for performance climate, 0.40 for task orientation, 0.51 for ego  
307 orientation, 0.44 for enjoyment, and 0.59 for anxiety. Taken together, these indices indicate  
308 that aggregation to the team level is justified.

### 309 **Statistical Analysis**

310 We used polynomial regression with response surface analysis,<sup>37-39</sup> specifically the  
311 procedure outlined by Shanock, et al. <sup>40</sup> to examine the coach-team perceptual distance. The  
312 first step was to assess the level of disagreement between the coaches and their teams, and the  
313 direction of the disagreement.<sup>40,41</sup> If there is a lack of disagreement between the coaches and  
314 the teams, the practical value of exploring how perceptual distance affects an outcome would

315 be very low. Following suggestions in the literature,<sup>40,41</sup> we standardized (*z*-scores) each  
316 predictor variable and used a discrepancy of half a standard deviation between the coach and  
317 team ratings to indicate disagreement in perceptions of the motivational climate. According to  
318 Fleener, et al.<sup>41</sup>, at least 10% of the coach-team ratings should be in disagreement to warrant  
319 further analysis.

320 The second step was to perform the polynomial regression analysis using mean-  
321 centered predictor variables. Centering is recommended to aid interpretation of the results and  
322 to reduce potential (non-essential) multicollinearity.<sup>40,42</sup> Separate polynomial regressions were  
323 conducted for the predictor variables (i.e., team- and coach-rated mastery climate and  
324 performance climate). Each outcome (i.e., task goal orientation, ego goal orientation,  
325 enjoyment, and anxiety) was regressed on teams' ratings, coaches' ratings, the cross-product  
326 of teams' and coaches' ratings, the square of teams' ratings, and the square of coaches' ratings  
327 of the motivational climate. If the predictors in the polynomial regression explain variance in  
328 the outcome variable that is different from zero, which is indicated by a statistically  
329 significant  $R^2$ , the four surface test values (i.e.,  $a_1$ ,  $a_2$ ,  $a_3$ , and  $a_4$ ) derived from the polynomial  
330 regression analysis are evaluated.<sup>39,40</sup>

331 The four surface test values represent the slope and the curvature of the two lines that  
332 comprise the response surface pattern in the graph (see Figure 1). The slope of the line of  
333 perfect agreement as related to the outcome is given by  $a_1 = (b_1 + b_2)$ , where  $b_1$  is the  
334 unstandardized beta coefficient of the centered team-rated variable and  $b_2$  is the  
335 unstandardized beta coefficient of the centered coach-rated variable. The curvature along the  
336 line of perfect agreement as related to the outcome is given by  $a_2 = (b_3 + b_4 + b_5)$ , where  $b_3$  is  
337 the unstandardized beta coefficient for the centered team-rated variable squared,  $b_4$  is the  
338 unstandardized beta coefficient for the cross-product of the centered team-rated variable and  
339 centered coach-rated variable, and  $b_5$  is the beta coefficient for the centered coach-rated

340 variable squared. Both  $a_1$  and  $a_2$  reflect the degree of agreement between the team and coach  
341 ratings as related to the outcome, where  $a_1$  reflects the linear relationship and  $a_2$  reflects the  
342 nonlinear relationship. The slope of the line of incongruence as related to the outcome is  
343 given by  $a_3 = (b_1 - b_2)$ , whereas the curvature of the line of incongruence is given by  $a_4 = (b_3$   
344  $- b_4 + b_5)$ . The  $a_3$  value reflects how the direction of the disagreement between the team- and  
345 coach-rated variables is related to the outcome, whereas  $a_4$  reflects how the degree of  
346 disagreement in the team- and coach-rated variables relates to the outcome.

### 347 **Results**

348 First, the data was screened for univariate outliers using standardized  $z$ -scores with a  
349 critical value of 3.29 ( $p < 0.001$ ) and multivariate outliers using Mahalanobis distances  
350 (critical value  $\chi^2(4) = 18.47$ ,  $p < 0.001$ ). Two univariate outlier were identified, however, a  
351 closer inspection did not reveal any data entry errors or out of range values, and therefore we  
352 decided to retain these in the analyses.

353 Descriptive statistics, internal consistency, and bivariate correlations between the study  
354 variables are presented in Table 1. Skewness and kurtosis values were within an acceptable  
355 range ( $\pm 1.5$ ) for all variables. The correlations between the team-rated and coach-rated  
356 motivational climate variables were generally weak and not statistically significant, which  
357 provides an indication that perceptual distance may be evident in the data.<sup>12</sup>

358 First, we assessed the level of coach-team perceptual distance regarding the  
359 motivational climate variables. Ratings of the coach-created mastery climate showed that 32%  
360 of the coaches were in agreement with their teams, whereas 32% of the coaches rated higher,  
361 and 36% rated lower. Regarding ratings of the coach-created performance climate, 40% of the  
362 coaches were in agreement with their teams, whereas 31% rated higher, and 29% rated lower.

363 These findings suggest rather large discrepancies (i.e. > 10%) between the coaches and their  
364 teams regarding the coach-created motivational climate, making further analyses meaningful.

365         Second, we performed the polynomial regression analyses. The results are presented in  
366 Figure 1, Table 2, and Table 3. In the first set of analyses, with teams and coaches' ratings of  
367 the coach-created mastery climate as predictors, the explained variance ranged from 4.6% to  
368 35.5%, and the  $R^2$  was statistically significant for task goal orientation and enjoyment (Table  
369 2). We proceeded by interpreting the surface test values for these two outcome variables. The  
370 positive and statistically significant  $a_1$  values indicate that a higher level of coach-team  
371 perceptual agreement regarding the coach-created mastery climate was associated with higher  
372 levels of team-rated task goal orientation and enjoyment. The positive and statistically  
373 significant  $a_2$  value suggests that the effect of agreement on task goal orientation is more  
374 pronounced at higher levels of agreement. Finally, the positive and statistically significant  $a_3$   
375 values indicate that when there was coach-team perceptual disagreement, higher team  
376 perceptions relative to coach perceptions were associated with higher task goal orientation  
377 and enjoyment.

378         In the second set of analyses, with teams' and coaches' ratings of the coach-created  
379 performance climate as predictors, the explained variance ranged from 11.6% to 38.0%, and  
380 the  $R^2$  was statistically significant for ego goal orientation, enjoyment, and anxiety (Table 3).  
381 We then interpreted the surface test values for these three outcome variables. The statistically  
382 significant  $a_1$  values indicate that a higher level of coach-team perceptual agreement regarding  
383 the coach-created performance climate was associated with higher levels of team-rated ego  
384 goal orientation and anxiety, and a lower level of team-rated enjoyment. The statistically  
385 significant  $a_3$  values indicate that when there was coach-team perceptual disagreement, higher  
386 team perceptions relative to coach perceptions of the performance climate were associated  
387 with higher team-rated ego goal orientation and lower enjoyment.

388 **Discussion**

389           The present study examined the relationship between coach-team perceptual distance  
390 regarding the motivational climate and the teams' achievement goal orientations, anxiety, and  
391 enjoyment. In line with theoretical postulates,<sup>2,9</sup> the results showed that the teams' perceptions  
392 of the coach-created mastery climate were associated with team-rated task goal orientation  
393 and enjoyment. Conversely, the teams' perceptions of coach-created performance climate  
394 were positively related to team-rated ego goal orientation and anxiety, and negatively linked  
395 with team-rated enjoyment. Furthermore, also in line with expectations, we found that coach-  
396 team perceptual distance existed, and the prevalence was similar to that reported in previous  
397 research in the youth sport context.<sup>13</sup> Moreover, findings suggest that coach-team perceptual  
398 distance was related to both achievement goal orientations and affective responses.

399           As the level of perceptual agreement regarding either motivational climate increased,  
400 so did the teams' reported level of the corresponding achievement goal orientation. From a  
401 theoretical perspective, this finding suggests that perceptual agreement can facilitate the  
402 socialization process between the coach-created motivational climate and the teams'  
403 corresponding achievement goal orientation. This appeared particularly evident with a coach-  
404 created mastery climate, as the non-linear relationship showed that the more perceptual  
405 agreement between the coach and the team, the stronger the socialization link appeared to be.  
406 This speaks to the importance of coaches being aware of how the team perceives the climate  
407 they create. This can be related to interpersonal knowledge, which Côté and Gilbert<sup>43</sup> argued  
408 is integral to coaching effectiveness and expertise. The authors defined this type of knowledge  
409 as knowing how to communicate appropriately and effectively with different types of athletes.  
410 The finding also supports the notion of collective cognition,<sup>14</sup> suggesting that the awareness  
411 allows the coach to implement the motivational climate more effectively.



412           The teams who reported higher levels of perceptual agreement with their coach  
413 regarding the coach-created mastery climate also reported higher levels of enjoyment. This is  
414 consistent with past research reporting that perceptual agreement between a leader and a team  
415 on a positive social stimulus is linked to positive affect.<sup>11,25</sup> However, contrary to our  
416 expectations, perceptions of a coach-created mastery climate were not related to team-ratings  
417 of anxiety. Similar findings have been reported previously,<sup>44</sup> and the relatively high levels of  
418 mastery climate were forwarded as an explanation. The teams herein also reported high levels  
419 of a coach-created mastery climate, and the range of scores may therefore have been  
420 restricted. However, the findings can also have a more substantive explanation, in that  
421 perceptions of a mastery climate have previously been shown to be mainly related to positive  
422 outcomes.<sup>8</sup>

423           Extending earlier research,<sup>8,13,22,26</sup> the present findings suggest that perceptual  
424 agreement may strengthen the outcomes of the coach-created motivational climate. Yet the  
425 findings also indicate that perceptual agreement may not be beneficial for the team in and of  
426 itself, consistent with the findings of Rocchi and Pelletier<sup>13</sup>. Specifically, coach-team  
427 perceptual agreement regarding a performance climate was associated with higher levels of  
428 anxiety and lower levels of enjoyment, suggesting that perceptual agreement regarding a less  
429 facilitative social stimulus can be detrimental to the team. To illustrate, a coach who is in  
430 perceptual agreement with the team regarding a performance climate can use communication  
431 and collective cognition to make the performance cues more salient and more effective. As a  
432 result, the team is more aware of the normative evaluations, and the structure is perceived as  
433 benefitting only those who are comparatively better at the sport. It is therefore imperative that  
434 coaches know what type of climate is facilitative for a positive youth sport participation.

435           In terms of perceptual disagreement, prior work has shown that situations in which  
436 leaders have a more positive perceptions of the social stimulus compared to the team have the

437 worst repercussions for the team.<sup>11-13</sup> Our results are consistent with these findings, as more  
438 negative effects were seen when the coach held a more favorable perception of the  
439 motivational climate compared to the team. That is, the coach reported lower levels of a  
440 performance climate or higher levels of mastery climate, compared to his or her team. Thus,  
441 the perceptions of the team were more important for the outcomes compared to coach  
442 perceptions. This is consistent with the work of Ames<sup>9</sup> who argued that it is the perceptions  
443 of those exposed to the climate that are primarily related to outcomes, as it is all about the  
444 subjective experience of the given achievement context. Furthermore, the main effects of  
445 coaches' perceptions of the motivational climates were not related to any of the team-rated  
446 outcomes. Therefore, relying on coach ratings to predict team outcomes can lead to wrongful  
447 conclusions, and if a study were to rely on only one stakeholder, team perceptions would be  
448 the appropriate option. However, this would exclude the opportunity to explain the additional  
449 variance attributable to perceptual distance. Furthermore, the findings herein underline the  
450 value of going beyond comparing the perceptions of various stakeholders. The results indicate  
451 that in addition to the effect of the perceived motivational climate from the team perspective,  
452 both the level and direction of perceptual distance to the coach appear important.

### 453 *Limitations*

454         Several limitations of this study should be acknowledged. First, the cross-sectional  
455 nature of the data prevents us from answering the question of causality. Second, the relatively  
456 small N is a limitation, as it can lead to unstable correlations and inaccurate estimates.<sup>45</sup>  
457 Third, by focusing on team perceptions rather than individual perceptions, any information  
458 regarding the personal relationship between a coach and the different athletes is lost. Thus,  
459 future research should replicate the present study, looking specifically at perceptual distance  
460 between the coach and individual athletes. Fourth, coach sample included only four female  
461 coaches, which did not allow us to do any comparisons to male coaches. Findings from the

462 organizational psychology literature suggest that female leaders have less perceptual distance  
463 to their subordinates regarding their own leadership behavior.<sup>25</sup> Along the same lines, we  
464 were also unable to compare male and female teams due to the low number of teams. We  
465 encourage researchers to investigate whether the gender of the coaches or the athletes is  
466 related to differences in coach-team perceptual distance. Fifth, we have no data on collective  
467 cognition. Therefore we do not know whether this is the actual mechanism underlying the  
468 present empirical results, and our article cannot explain how perceptual distance occurs and  
469 why it is associated with outcomes. Future research should attempt to gain an understanding  
470 of these mechanisms, and do so in a longitudinal or experimental manner in order to model  
471 change. Furthermore, our findings are based on self-report measures, which can suffer from  
472 method biases such as social desirability.<sup>46</sup> When investigating perceptual distance it is crucial  
473 that we measure the actual perception of the participants, and thus not including a social  
474 desirability measure is a limitation. Last, an important endeavor moving forward is to  
475 investigate whether coach-team perceptual distance has implications for coach outcomes.

#### 476 *Perspectives*

477         The motivational climate and its correlates have received a great deal of empirical  
478 attention.<sup>8</sup> However, despite the fact that studies report discrepancies between coach and  
479 athlete ratings of the motivational climate,<sup>4,5</sup> this perceptual distance has rarely been treated as  
480 a phenomenon of interest. The aim of this study was to do so, and the results revealed that  
481 perceptual distance matters. The outcomes that were theoretically expected to be associated  
482 with each of the climates were generally higher when there was perceptual agreement  
483 between the coach and the team regarding the specific climate. Findings suggest that  
484 considering the perceptions of both coaches and the athletes can offer nuance to our  
485 understanding of how perceptions of the coach-created motivational climate relate to  
486 outcomes. Furthermore, coach education programs should emphasize the importance of

487 coaches being aware of the motivational climate they create, beyond just self-awareness. It is  
488 important to teach the coaches how to communicate effectively with their team, allowing  
489 them to detect whether their behavior is perceived how it is intended. That is to say, coaches  
490 should strive to create a mastery climate, and be mindful of the fact that it is not enough to  
491 believe that they are doing so, they must also ensure that their team is of the same perception.

492 *Acknowledgement*

493 We would like to thank the members of the PAPA team who contributed to the conception  
494 and the design of the PAPA protocol, and those who contributed to the data collection. This  
495 work was supported by the European Commission under the Seventh Framework Programme  
496 – Health, grant number 223600, as a part of the Promoting Adolescent Physical Activity  
497 project.

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634 Table 1

635 *Descriptive Statistics and Bivariate Correlations (N = 87 Coaches and Their Teams)*

	MC coach	PC Coach	MC players	PC players	TO players	EO players	Enjoyment players	Anxiety players
MC Coaches	-0.23*							
PC Coaches	0.18	-0.11						
MC players	-0.11	0.35***	-0.46***					
PC players	0.02	-0.04	0.33**	-0.28**				
TO players	-0.11	0.17	-0.16	0.59***	-0.04			
EO players	0.10	-0.10	0.58***	-0.43***	0.50***	-0.17		
Enjoyment players	-0.06	0.17	-0.21*	0.38***	-0.24*	0.32*	-0.33**	
Anxiety players	0.81	0.75	0.89	0.94	0.82	0.90	0.86	0.94
$\omega$	4.26	2.31	4.07	2.23	4.45	2.83	4.35	2.83
<i>M</i>	0.36	0.59	0.21	0.44	0.15	0.35	0.21	0.39
<i>SD</i>	-0.25	-0.41	-0.73	0.21	-0.06	-0.01	-0.50	0.39
Skewness	1.28	-0.27	1.39	-0.53	-0.05	-0.16	-0.07	0.07
Kurtosis								

636 *Note.* MC = mastery climate, PC = performance climate, TO = task goal orientation, EO = ego goal orientation

637 \* $p < .05$ , \*\* $p < .01$ , \*\*\* $p < .001$

638 Table 2

639 *Polynomial Regression: Mastery Climate as Predictor (N = 87 Coaches and Their Teams)*

	Dependent variable			
	Task goal orientation	Ego goal orientation	Enjoyment	Anxiety
Constant	4.423*	2.837*	4.367*	2.815*
Team-rated	0.325*	-0.283	0.529*	-0.408
Coach-rated	-0.013	-0.061	0.004	-0.030
Team-rated squared	0.505*	-0.437	-0.370	-0.231
Team-rated x coach-rated	0.116	0.210	0.099	-0.678
Coach-rated squared	0.041	0.092	0.010	0.250
$R^2$	0.195*	0.046	0.355*	0.071
Surface tests				
$a_1^a$	0.31*	-0.34	0.53*	-0.44
$a_2^b$	0.66*	-0.14	-0.26	-0.66
$a_3^c$	0.34*	-0.22	0.53*	-0.38
$a_4^d$	0.43	-0.56	-0.46	0.70

640 *Note.*

641 <sup>a</sup> +  $a_1$  = as the degree of agreement between team- and coach-ratings increase so does the  
642 outcome.

643 -  $a_1$  = as the degree of agreement between team- and coach-ratings increase the outcome  
644 decreases.

645 <sup>b</sup> +  $a_2$  = the effect of agreement between team- and coach-ratings becomes even more  
646 pronounced at higher levels of agreement.

647 -  $a_2$  = the effect of agreement between team- and coach-ratings diminishes at higher levels of  
648 agreement.

649 <sup>c</sup> +  $a_3$  = higher team-ratings relative to coach-ratings is associated with higher scores on the  
650 outcome.

651 -  $a_3$  = the effect of agreement between team- and coach-ratings diminishes at higher levels of  
652 agreement.

653 <sup>d</sup> +  $a_4$  = a greater positive differentiation between team- and coach-ratings (i.e., team is much  
654 higher than coach) is associated with higher scores on the outcome.

655 -  $a_4$  = a greater negative differentiation between team- and coach-ratings (i.e., team is much  
656 lower than coach) is associated with lower scores on the outcome.

657 \* $p < .05$

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662 Table 3

663 *Polynomial Regression: Performance Climate as Predictor (N = 87 Coaches and Their*  
 664 *Teams)*

	Dependent variable			
	Task orientation	Ego orientation	Enjoyment	Anxiety
Constant	4.422*	2.826*	4.352*	2.786*
Team-rated	-0.113*	0.485*	-0.209*	0.317*
Coach-rated	0.033	-0.003	0.036	0.048
Team-rated squared	0.062	-0.181	-0.105	0.023
Team-rated x coach-rated	0.032	0.122	-0.071	0.097
Coach-rated squared	0.047	0.090	0.084	0.080
$R^2$	0.116	0.380*	0.239*	0.161*
Surface tests				
$a_1^a$	-0.08*	0.48*	-0.17*	0.37*
$a_2^b$	0.14	0.03	-0.09	0.20
$a_3^c$	-0.15*	0.49*	-0.25*	0.27
$a_4^d$	0.08	-0.21	0.05	0.01

665 *Note.*

666 <sup>a</sup> +  $a_1$  = as the degree of agreement between team- and coach-ratings increase so does the  
 667 outcome.

668 -  $a_1$  = as the degree of agreement between team- and coach-ratings increase the outcome  
 669 decreases.

670 <sup>b</sup> +  $a_2$  = the effect of agreement between team- and coach-ratings becomes even more  
 671 pronounced at higher levels of agreement.

672 -  $a_2$  = the effect of agreement between team- and coach-ratings diminishes at higher levels of  
 673 agreement.

674 <sup>c</sup> +  $a_3$  = higher team-ratings relative to coach-ratings is associated with higher scores on the  
 675 outcome.

676 -  $a_3$  = the effect of agreement between team- and coach-ratings diminishes at higher levels of  
 677 agreement.

678 <sup>d</sup> +  $a_4$  = a greater positive differentiation between team- and coach-ratings (i.e., team is much  
 679 higher than coach) is associated with higher scores on the outcome.

680 -  $a_4$  = a greater negative differentiation between team- and coach-ratings (i.e., team is much  
 681 lower than coach) is associated with lower scores on the outcome.

682 \* $p < .05$

683

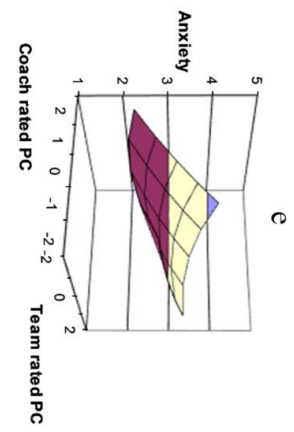
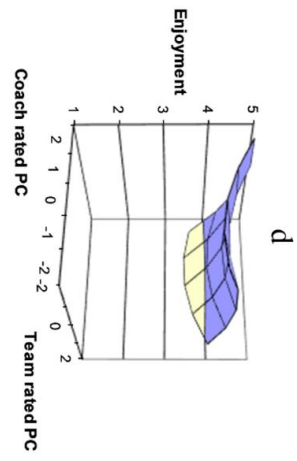
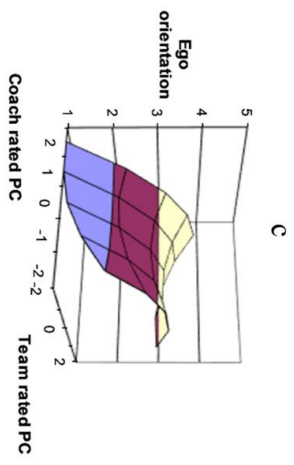
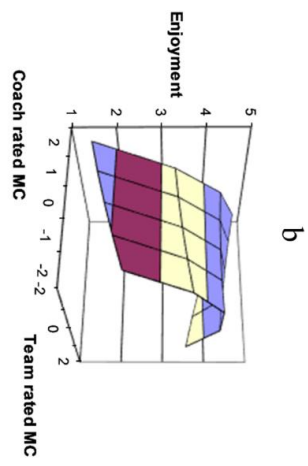
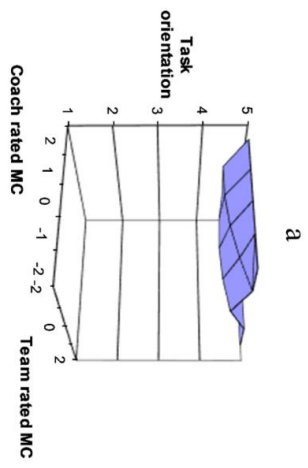
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687 **Figure Caption**

688 Figure 1. Coach-team perceptual distance of the motivational climate and teams' ratings of task  
689 orientation, ego orientation, enjoyment, and anxiety. MC = mastery climate (figures a-b); PC =  
690 performance climate (figures c-e).





## **Appendices**

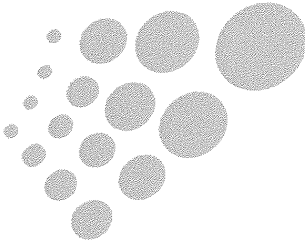




## **Appendix 1**

Letter of Support from the Norwegian Football Federation





Norges Fotballforbund  
The Football Association of Norway  
NO-0840 Oslo, Norway  
Telefon: 04420, Fax: +47 21 02 93 01  
International calls: +47 21 02 93 00  
www.fotball.no



3<sup>th</sup> December 2007

**To whom it may concern**

**Re: FP7-HEALTH-2007-B Promoting Adolescent health through an intervention aimed at improving the quality of their participation in Physical Activity: The PAPA Project.**

The Football Association of Norway (NFF) is footballs governing body in Norway. The NFF is the organisation that provides all recognised and accredited (UEFA) coach education within Norway. NFF is owned by all football clubs in Norway, and work to develop the game in all aspects. Research and cooperation with external organisations is part of this strategy. NFF is a UEFA and FIFA member. The NFF are delighted to be able to provide this letter of support for the research programme outlined above.

This project aims to develop a theoretically based coach education programme and the NFF enthusiastically endorses this effort (1) to foster children's sense of autonomy and their adoption of a healthy lifestyle through sport, and (2) to give coaches concrete strategies for the development of life skills via sport engagement.

The emphasis behind the proposed work is on the positive effects that football engagement can provide for young people, if an adaptive climate is ensured within the sport experience and coaches have the necessary skills to promote health-related behaviours and positive attitudes among young people. The NFF supports the project's focus in terms of its important implications for football coaches and their players, namely, boys and girls aged 10-14 years old – which is a critical development period.

The NFF is a leading institution in the process of developing Coach Education to suit the best interest of players. It is our hope that this project will provide us with useful knowledge, and by this benefit coaches, players and the local communities.

With kind regards,  
The Football Association of Norway

  
Mr. Audun Fevik  
Director of Grassroots & Amateur Football



Besøksadresse/Visiting Address:  
Norges Fotballforbund/The Football Association of Norway  
Sognsveien 75J, Ullevaal Stadion





## **Appendix 2**

Contract for Cooperation with the Norwegian Football Federation (PAPA)





Universitetet i Bergen  
Psykologisk Fakultet  
HEMIL-senteret

9. apr. 2010

## Samarbeidsavtale for PAPA prosjektet (partnere Norges idretthøgskole & HEMIL-senteret, Universitetet i Bergen) og Norges fotballforbund

Forskningsgruppen for PAPA prosjektet (“**Promoting Adolescent health through an intervention aimed at improving the quality of their participation in Physical Activity**”) ved Norges idretthøgskole og HEMIL-senteret, (Helse-miljø og levekår), Universitetet i Bergen ønsker å inngå en samarbeidsavtale med Norges Fotballforbund i forbindelse med planlegging, iverksetting og gjennomføring av forskningsprosjektet PAPA blant trenere og spillere i organisert aldersbestemt fotball i Norge. En innledende orientering om forskningsprosjektet til NFF ble gitt i brev datert 4 mai 2009 fra forskningsgruppen ved leder Yngvar Ommundsen til tidligere generalsekretær Karen Espelund. I to oppfølgende møter med NFF (13. mai og 18. november 2009) har vi redegjort for verdi/gevinst for NFF av et samarbeid om PAPA sett med våre øyne:

- Videreføring og oppfølging av tidligere forskningssamarbeid NIH & Senter for medisinske atferdsfag & NFF (Ommundsens doktorgradsavhandling 1992: ”Self-evaluation, affect and dropout in the soccer domain – a prospective study of young male Norwegian players”)– **NFF som fortsatt Forskningsaktør**
- Gi NFF grunnlag for etablering av en ytterligere forbedret forskningsbasert faglig plattform for arbeid med aldersbestemt fotball – **NFF som Faglig kunnskapsprodusent**
- Gi NFF et styrket faglig grunnlag i promoteringen av en utvidet forståelse av trenerrollen i breddefotballen – **NFF som iscenesetter av en faglig/forskningmessig begrunnet trenerrolle i breddefotballen**
- Sette NFF ytterligere på kartet i helse-Norge som leverandør av fotball og fysisk aktivitet som del av helsefremmende arbeid blant barn & ungdom – **NFF som Folkehelsearbeider**



- Utvikle aldersbestemt fotball i en retning som også kan bidra til økt spilleravkastning/bedre spillerutvikling – **NFF som Spillerutvikler og Prestasjonsprodusent**

Med ovennevnte som bakteppe inngås en samarbeidsavtale mellom forskningsgruppen i PAPA prosjektet ved Norges idrettshøgskole og NFF ved breddeavdelingen om følgende sider ved planlegging, iverksetting og gjennomføring av PAPA prosjektet:

- NFF bistår PAPA prosjektet ved å stille seg bak prosjektets formål og ide (jmf oversendt anbefalelsesbrev datert 3. desember 2007 - vedlagt)
- NFF bistår prosjektgruppen med profilering av PAPA prosjektet i Norge
  - kontakt med massemedia, valg av en anerkjent trener/fotballspiller som kan bidra til å profilere PAPA i Norge. Eksemplifisering: Ole Gunnar Solskjær som ”ambassadør/PAPA profileringsperson?
- NFF bistår PAPA prosjektet ved å gi mulighet til å linke prosjektets nasjonale web-side opp mot NFF sin hjemmeside
- NFF bistår PAPA prosjektet ved å legge inn linken til PAPA prosjektets nasjonale (Norges idrettshøgskole & Universitetet i Bergen) og sentrale web-side (University of Birmingham) på NFF sin hjemmeside
- NFF bistår PAPA prosjektet ved å innta en ”Gatekeeper” rolle overfor det aldersbestemte fotball Norge – kretser & lag ved rekrutteringsprosessen av ”eksperttrenere” og aktuelle lag og trenere til kontroll og intervensjonsgruppe
  - Hvordan sikre god interesse/oppslutning/deltagelse blant trenere og eksperttrenere?
- NFF bistår i PAPA prosjektet med råd og veiledning i arbeidet med kulturell tilpasning av intervensjonsprogrammet til norsk aldersbestemt fotball
- NFF bistår i PAPA prosjektet med råd og veiledning i forbindelse med rekruttering av aktuelle ”Eksperttrenere” og praktisk hjelp i forbindelse med forespørsel til disse om:
  - å bli skolert i en opplæringspakke for eksperttrenere som setter dem i stand til å lære opp trenere i en egen intervensjonspakke for disse
  - Å ha ansvar for å gjennomføre etterfølgende opplæring av trenere for intervensjonslagene basert på en slik opplæringspakke
- NFF bistår i PAPA prosjektet med råd, veiledning og praktisk hjelp i prosessen med rekruttering av klubber/lag til intervensjons- og kontrollgrupper
  - Eksempelvis kontaktveier: Via kretser, rett på klubb, rett på kontaktperson (trener/leder lag?)
- NFF bistår i PAPA prosjektet med råd, veiledning og praktisk hjelp i prosessen med motivering av aktuelle trenere til å delta i prosjektet - både trenere for intervensjonslag og kontrollag
  - Foreslå ulike incitamentersom kan motivere til deltagelse (kursbevis etc)
- NFF bistår i PAPA prosjektet med råd, veiledning og praktisk hjelp vedrørende administrering/organisering av implementeringen av intervensjonen
  - Erfaringer fra egne NFF kurs: Tidspunkt for kurskvelder (ukedager, helger) – hva er best? Hvem kommer på kurs?
  - Hvor er det formålstjenlig å avholde opplæringsseanser med trenere for intervensjonslag? (skoler, klubbhus andre steder)
  - NFF sørger for en person som holder kontakt med og følge opp trenere som har sagt seg villig til å delta i intervensjonen

- NFF sørger for en person som har det logistiske overoppsynet med gjennomføringen av intervensjonen (følge opp at folk møter, registrere forfall, gi melding om tid og sted for avvikling etc)
- NFF bistår med råd og støtte i knyttet til prosjektgruppens (Bergensmiljøet) organisering og gjennomføring av datainnsamlinger på spillere og trenere
- NFF bidrar til å sikre at framtidige prosjektresultater inngår i organisasjonens egen opplæringsportefølje overfor trenere aldersbestemt fotball
- NFF bistår med faglig ekspertise i forbindelse med produksjon av materiell til opplæringsprogrammet (intervensjonspakken) som skal anvendes på trenerne
- Norges idrettshøgskole finansierer en stilling som medarbeider i prosjektet i en 40% stilling for perioden 1. mai 2010 til 1 mai 2011 med kr. 175.000,- via interne prosjektmidler bevilget til PAPA prosjektet.
- Etter avtale i møte 18. mars 2010 mellom Yngvar Ommundsen, Norges idrettshøgskole og Alf Hansen, breddesjef NFF, besørger NFF ansettelse av denne prosjektmedarbeideren blant ansatte hos seg. NFF har ansvar for å finne egnet person til stillingen med basis i samtaler i møte 18. mars, og for at tilsatt person følger opp arbeidsoppgaver som vil bli angitt for stillingen. Arbeidsoppgavene og estimert tidsperiode for gjennomføring av disse vil bli spesifisert i eget brev på et oppfølgende tidspunkt med basis i sider ved planlegging, iverksetting og gjennomføring av PAPA prosjektet nevnt i denne samarbeidsavtalen.
- NFF sørger for at prosjektmedarbeideren løser de pålagte oppgavene i samvirke med aktuelle ressurspersoner i NFF sitt kretsapparat til beste for prosjektet.

Oslo/Bergen den 9/4.....2010

For Norges Fotballforbund.....P. Glomsaker.....  
 Generalsekretær Paul Glomsaker

For PAPA prosjektet Norges idrettshøgskole, Seksjon for Coaching og psykologi  
 .....Pierre-Nicolas Lemyre..... Pierre-Nicolas Lemyre, Seksjonsleder

For PAPA prosjektet Norges idrettshøgskole, Forskningscenter for Trening og Prestasjon.....  
 Jostein Hallèn, Leder Jostein Hallèn

For PAPA prosjektet HEMIL-senteret, (Helse-miljø og levekår),  
 Universitetet i Bergen.....  
 Professor Bente Wold Bente Wold



### **Appendix 3**

Application for Ethical Review (PAPA)



<b>UNIVERSITY OF BIRMINGHAM APPLICATION FOR ETHICAL REVIEW</b>
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**Who should use this form:**

This form is to be completed by PIs or supervisors (for PGR student research) who have completed the University of Birmingham Ethical Review of Research Self Assessment Form and have decided that further ethical review and approval is required before the commencement of a given Research Project.

**Please be aware that all new research projects undertaken by postgraduate research (PGR) students first registered as from 1st September 2008 will be subject to the University's Ethical Review Process. PGR students first registered before 1<sup>st</sup> September 2008 should refer to their Department/School/College for further advice.**

**Researchers in the following categories are to use this form:**

1. The project is to be conducted by:
  - staff of the University of Birmingham; or
  - a research postgraduate student enrolled at the University of Birmingham (to be completed by the student's supervisor);
2. The project is to be conducted at the University of Birmingham by visiting researchers.

**Students undertaking undergraduate projects and taught postgraduates should refer to their Department/School for advice.**

**NOTES:**

- Answers to questions must be entered in the space provided – the beginning of an answer field will be indicated by a grey bar ( ).
- Use the up and down arrow keys to move between answer fields; use the side scroll bar to navigate around the document.
- An electronic version of the completed form should be submitted to the Research Ethics Officer, at the following email address: [aer-ethics@contacts.bham.ac.uk](mailto:aer-ethics@contacts.bham.ac.uk). Please **do not** submit paper copies.
- If, in any section, you find that you have insufficient space, or you wish to supply additional material not specifically requested by the form, please it in a separate file, clearly marked and attached to the submission email.
- If you have any queries about the form, please address them to the [Research Ethics Team](#).

**UNIVERSITY OF BIRMINGHAM  
APPLICATION FOR ETHICAL REVIEW**

*OFFICE USE ONLY:*  
Application No:  
Date Received:

**1. TITLE OF PROJECT**

Promoting Adolescent health through an intervention aimed at improving the quality of their participation in Physical Activity (PAPA)

**2. THIS PROJECT IS:**

- University of Birmingham Staff Research project
- University of Birmingham Postgraduate Research (PGR) Student project
- Other  (Please specify):  
A collaborative EU-funded project involving the following universities:  
University of Birmingham  
Universitetet I Bergen, Norway  
Universitat de València, Spain  
Universite Joseph Fourier Grenoble, France  
Panepistimio Thessalias, Greece  
Norwegian School of Sport Sciences, Norway  
York St. John University, UK  
Universitat Autònoma de Barcelona, Spain

**3. INVESTIGATORS**

**a) PLEASE GIVE DETAILS OF THE PRINCIPAL INVESTIGATORS OR SUPERVISORS (FOR PGR STUDENT PROJECTS)**

Name: Title / first name / family name	Prof. Joan L. Duda
Highest qualification & position held:	PhD/Professor of Sport Psychology
School/Department	School of Sport and Exercise Sciences
Telephone:	414 2737
Email address:	J.L.DUDA@bham.ac.uk

Name: Title / first name / family name	
Highest qualification & position held:	
School/Department	
Telephone:	
Email address:	

**b) PLEASE GIVE DETAILS OF ANY CO-INVESTIGATORS OR CO-SUPERVISORS (FOR PGR STUDENT PROJECTS)**

Name: Title / first name / family name	Dr. Nikos Ntoumanis (Dr. Jennifer Cumming)
Highest qualification & position held:	PhD
School/Department	School of Sport and Exercise Sciences
Telephone:	4147981 (4142877)
Email address:	N.Ntoumanis@bham.ac.uk (J.Cumming@Bham.ac.uk)

**c) In the case of PGR student projects, please give details of the student**

Name of student:		Student No:	
Course of study:		Email address:	
Principal supervisor:			

Name of student:		Student No:	
Course of study:		Email address:	
Principal supervisor:			

**4. ESTIMATED START OF PROJECT**      Date:

**ESTIMATED END OF PROJECT**      Date:



## 5. FUNDING

List the funding sources (including internal sources) and give the status of each source.

<i>Funding Body</i>	<i>Approved/Pending /To be submitted</i>
EU (FP7 Framework)	Approved

If applicable, please identify date within which the funding body requires acceptance of award:

Date:

If the funding body requires ethical review of the research proposal at application for funding please provide date of deadline for funding application:

Date:

## 6. SUMMARY OF PROJECT

Describe the purpose, background rationale for the proposed project, as well as the hypotheses/research questions to be examined and expected outcomes. This description should be in everyday language that is free from jargon. Please explain any technical terms or discipline-specific phrases.

The background of this project is related to the role of sport in two recent White Papers from the European Commission on an integrated EU approach to reducing ill health and enhancing health and well-being. The project centres on the development and validation of a new method in health promotion, namely a community-based coach education program aimed at promoting the psychosocial development and adoption of healthy lifestyles among young people in Europe. The proposed project will foster collaboration between major research groups representing 5 countries (8 universities) in the European Community and promote the integration of their ongoing research efforts centred on health promotion in youth from two perspectives, namely (a) motivational processes and optimal functioning in the physical domain among young people, and (b) cross-national differences in and socio-environmental impacts on children's health behaviour. In terms of the study design, the PAPA project will examine differences between the provision of youth sport and its health related impacts as currently exists in the targeted countries and a youth sport intervention designed to enhance personal competence, relatedness and self determination of the young players aged 10-14 and their adoption of a healthy lifestyle. In examining the effectiveness of the intervention programme, the pre- and post-season (plus beginning of the subsequent season follow-up) perceptions and self-reported behaviours of players in the intervention arm (representing 50 grassroots football teams) will be contrasted to a control group of 30 grassroots football teams. We expect that the athletes in the experimental condition, compared to those in the standard provision condition, will report significant increases in adaptive indices of personal and contextual motivation, physical activity levels and self-reported health behaviours (i.e., smoking, healthy eating). The prototype intervention will be developed in the UK and will be subsequently rolled out and tested in the other 4 partner countries. It should be clarified here that in all 5 countries the intervention will be essentially the same but there will be some minor adaptations to allow for differences in language (e.g., in terms of how questionnaire items are phrased) and structure of football by the respective Football Associations. The national Football Associations in each country have agreed to participate in the development and implementation of the intervention.

## 7. CONDUCT OF PROJECT

Please give a description of the research methodology that will be used

The project will commence in the UK with the development and pilot testing of the coach training prototype. Based on available literature and the expertise of the UK team, an intervention programme will be developed which will be subsequently utilised by expert coaches (provided by the English FA) to train the coaches of the 50 participating teams in the experimental arm of the intervention.

The intervention material will include visuals (PPT, DVD and support website) and implementation guidelines and will be first pilot tested with small samples of expert coaches and trainee coaches. Focus group interviews with expert and trainee coaches will also be used to evaluate the pilot prototype intervention. Further input and comments will be solicited by three leaders in youth development, health behaviour, and/or motivation psychology. Once finalised, the EU partners will translate the prototype intervention material and conduct necessary cultural adaptations based on the feedback from and collaboration with experienced coaches in their respective countries. Further, all questionnaires will be psychometrically tested and validated in each country, if this has not been done previously.

The main trial in each of the countries will commence with a two-day group training (in various regional locations) of the expert coaches who will deliver the intervention. The training will be based on the principles of self-determination theory (Deci & Ryan, 2002) and achievement goal frameworks (Ames, 1992; Nicholls, 1989) and will aim to develop a number of coaching behaviours and strategies that support athletes' autonomous motivation and facilitate the satisfaction of their psychological needs. One month after the initial training session, a follow-up session with the trained coaches will take place aimed at reinforcing good practice. Throughout the whole season, the trained coaches will receive monthly follow-up calls/text messages from the expert coaches to ensure maintenance and allow issues of clarification. In each country, websites will be used to promote and support the intervention. Fifty teams will be allocated to the experimental arm of the intervention and thirty teams, who will continue to receive a standard provision of football coaching, will serve as the control arm.

Observation sheets (rated by trained research assistants) will be developed to examine coach fidelity in terms of the implementation of the prototype intervention. To this purpose, a sample of training sessions will be videotaped. Athletes in both arms will complete questionnaires that will measure perceptions of the coaching motivational climate, motivation for participation in sport, feelings of autonomy, competence and relatedness, their self esteem, indices of mental and emotional well-being (e.g., positive and negative affect), self-reported physical activity, smoking and healthy eating. In 3 of the countries represented in the PAPA Consortium (i.e., the UK, France, and Greece), we will compare level of objective leisure-time physical activity participation (as assessed via small unobtrusive gadgets called accelerometers) between the two arms. All measures will be taken pre- and post- football season as well as the beginning of the subsequent season. (The latter will serve as the follow-up measure).

## 8. DOES THE PROJECT INVOLVE PARTICIPATION OF PEOPLE OTHER THAN THE RESEARCHERS AND SUPERVISORS?

Yes  No

Note: "Participation" includes both active participation (such as when participants take part in an

interview) and cases where participants take part in the study without their knowledge and consent at the time (for example, in crowd behaviour research).

**If you have answered NO please go to Section 18 . If you have answered YES to this question please complete all the following sections.**

#### **9. PARTICIPANTS AS THE SUBJECTS OF THE RESEARCH**

Describe the number of participants and important characteristics (such as age, gender, location, affiliation, level of fitness, intellectual ability etc.). Specify any inclusion/exclusion criteria to be used.

Young football players will be asked to fill in established questionnaires. The players will be both males and females, aged 10-14, from 80 grassroots level football teams (50 in the intervention and 30 in the control arm). In each participating country, the players will come from a number of different regions. The trainee coaches (from the 50 teams in the intervention arm) will also serve as participants in the study. They will be requested to complete questionnaires assessing their views regarding the motivational climate they create, the degree to which they support their players' needs for competence, autonomy and relatedness and their coaching efficacy. We do not have any demographic information for these coaches at the moment but some information will be requested at the onset of the questionnaires to be completed. With respect to the intervention coaches specifically, we also aim to assess their objective coaching behaviours (in terms of their autonomy supportive and task- and ego-involving features) across a minimum of 1 practice and 1 competitive match.

#### **10. RECRUITMENT**

Please state clearly how the participants will be identified, approached and recruited. Include any relationship between the investigator(s) and participant(s) (e.g. instructor-student).

*Note: Attach a copy of any poster(s), advertisement(s) or letter(s) to be used for recruitment.*

Representatives of the English FA have agreed to help up identify potential teams that could participate in our project. Football Associations in the partner countries will offer similar help. All teams will be sent a copy of the questionnaire pack and an information sheet explaining the purposes of the project and requesting the participation of their coaches and players. There will be random selection of clubs to the intervention and control group. The national football associations involved will be encouraged to provide similar training for the control group coaches after the intervention period is complete to ensure that they and their players are offered the same developmental opportunities as the intervention group.

#### **11. CONSENT**

**a)** Describe the process that the investigator(s) will be using to obtain valid consent. If consent is not to be obtained explain why. If the participants are minors or for other reasons are not competent to consent, describe the proposed alternate source of consent, including any permission / information letter to be provided to the person(s) providing the consent.

The children's parents, guardians or another legally recognised person as defined by national laws, need to be informed and will be the person(s) asked, in ample time prior to the data collection taking place, to provide the legal consent for their child's participation in the project. Children informed consent will also be obtained; on the days of data collection all children will be provided with a clear opportunity of not participating despite a legal consent from their parents or guardians. Lastly, informed consent forms will be obtained from coaches.

*Note: Attach a copy of the Participant Information Sheet (if applicable), the Consent Form (if applicable), the content of any telephone script (if applicable) and any other material that will be used in the consent process.*

b) Will the participants be deceived in any way about the purpose of the study? Yes  No

If yes, please describe the nature and extent of the deception involved. Include how and when the deception will be revealed, and who will administer this feedback.

## 12. PARTICIPANT FEEDBACK

Explain what feedback/ information will be provided to the participants after participation in the research. (For example, a more complete description of the purpose of the research, or access to the results of the research).

All participating clubs will receive written feedback in non-technical language which will provide a conceptual background to the project, summarise the main findings, and will offer appropriate practical recommendations. Further, the main findings and practical implications stemming from the project will be available via a project-specific website and will be disseminated via budgeted workshops.

## 13. PARTICIPANT WITHDRAWAL

a) Describe how the participants will be informed of their right to withdraw from the project.

All invited coaches and football players will be given the opportunity to withdraw from the implementation of the intervention and the data collection at any point they may decide. This will be stated both in the information sheets/consent forms and in verbal communication to them. The parents/legal guardians will be encouraged by the researchers to follow their child to the football training sessions so that they can observe how the intervention is implemented and thus decide if they at any point want to withdraw their consent for their child's participation in the study. Data already obtained from withdrawn participants will still be used for statistical analysis, unless we are told otherwise. Athletes or their parents can inform us either directly or via their coach that they do not want their data to be used in our project. Similarly, coaches who decide to withdraw from the study can inform us that they do not want their data to be used in our project. Athletes who withdraw from the study will not complete any further questionnaires. However, those who are members of teams allocated to the experimental arm of the intervention cannot withdraw from the intervention. This is because the coach motivational strategies, developed and refined by our training programme, will often apply to the whole team, not just individual team members. From an ethical perspective, we do not think that this is problematic as the implemented coach motivational strategies cannot be in any way harmful to these athletes.

b) Explain any consequences for the participant of withdrawing from the study and indicate what will be done with the participant's data if they withdraw.

There will be absolutely no consequences. The data of those withdrawn will be kept securely with the rest of the data (unless they request us to destroy their data) and might be used for analytic purposes depending on the extent and the pattern of missing data.

## 14. COMPENSATION

Will participants receive compensation for participation?

- i) Financial
- ii) Non-financial

Yes  No   
Yes  No

If **Yes** to **either** i) or ii) above, please provide details.

If participants choose to withdraw, how will you deal with compensation?

N/A

### 15. CONFIDENTIALITY

- a) Will all participants be anonymous?
- b) Will all data be treated as confidential?

Yes  No   
Yes  No

*Note: Participants' identity/data will be confidential if an assigned ID code or number is used, but it will not be anonymous. Anonymous data cannot be traced back to an individual participant.*

Describe the procedures to be used to ensure anonymity of participants and/or confidentiality of data both during the conduct of the research and in the release of its findings.

In all consent forms and information sheets it will be clearly stated that the data will be kept confidential. No parents or coaches will be allowed to see the athlete data. All data will be analysed at group level, so individual data will not be released when the findings are published. All questionnaires will be kept anonymous (a dummy code will be generated to match questionnaires over time). The same applies to the data (questionnaire based and observational) obtained from the coaches.

If participant anonymity or confidentiality is not appropriate to this research project, explain, providing details of how all participants will be advised of the fact that data will not be anonymous or confidential.

N/A

### 16. STORAGE, ACCESS AND DISPOSAL OF DATA

Describe what research data will be stored, where, for what period of time, the measures that will be put in place to ensure security of the data, who will have access to the data, and the method and timing of disposal of the data.

During the project, the questionnaire and observational data will be stored in locked cabinets in the laboratories of the participating universities. No individuals, other than the researchers on this project, will have access to the data. All questionnaires will be shredded five years after the completion of the project. Obviously, the electronic database will be kept indefinitely but these will not be shared with a third party. The electronic database will include dummy ID's and not individuals' names.

**17. OTHER APPROVALS REQUIRED?** e.g. Criminal Records Bureau (CRB) checks

YES       NO       NOT APPLICABLE

If yes, please specify.

We will ask for CRB checks (in countries where such checks exist) for all researchers who will be employed on the project.

**18. SIGNIFICANCE/BENEFITS**

Outline the potential significance and/or benefits of the research

This is the first large-scale intervention study that aims to train coaches to adopt a motivationally enhancing coaching style and examine the effects of this training on young people's motivation, psychological well-being, physical activity levels, and health behaviours. The aim of the education program is to improve the quality of children and adolescents' participation in leisure-time physical activity, and involves a systematic effort to influence the main arena for organized leisure activities among young people: i.e., youth sport programs. With respect to the need for encouraging active lifestyles, recent EU White Papers on nutrition, overweight and obesity emphasise the importance of sport engagement as a tool for the provision of health-enhancing physical activity. With this background in mind, the project centres on the development and validation of a new method in health promotion, namely a community-based coach education program aimed at promoting the psychosocial development and adoption of healthy lifestyles among young people in Europe. Through its emphasis on physical activity promotion during childhood and adolescence, as well as its aim of providing children and adolescents with empowering social environments during their involvement in leisure activities, the project can provide knowledge about how to respond to major health issues, in particular the global epidemic of obesity, but also mental health problems evident among youth such as low self esteem and depression.

**19. RISKS**

a) Outline any potential risks to **INDIVIDUALS**, including research staff, research participants, other individuals not involved in the research and the measures that will be taken to minimise any risks and the procedures to be adopted in the event of mishap

There are no risks to individuals. All participants will be asked to complete established questionnaires that have been extensively used in the past with young people (or in the case of coaches, adults in leadership positions).

b) Outline any potential risks to **THE ENVIRONMENT and/or SOCIETY** and the measures that will be taken to minimise any risks and the procedures to be adopted in the event of mishap.

N/A

**20. ARE THERE ANY OTHER ETHICAL ISSUES RAISED BY THE RESEARCH?**

Yes  No

**If yes, please specify**

## 21. CHECKLIST

Please mark if the study involves any of the following:

- Vulnerable groups, such as children and young people aged under 18 years, those with learning disability, or cognitive impairments
- Research that induces or results in or causes anxiety, stress, pain or physical discomfort, or poses a risk of harm to participants (which is more than is expected from everyday life)
- Risk to the personal safety of the researcher
- Deception or research that is conducted without full and informed consent of the participants at time study is carried out
- Administration of a chemical agent or vaccines or other substances (including vitamins or food substances) to human participants.
- Production and/or use of genetically modified plants or microbes
- Results that may have an adverse impact on the environment or food safety
- Results that may be used to develop chemical or biological weapons

Please check that the following documents are attached to your application.

	ATTACHED	NOT APPLICABLE
Recruitment advertisement	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Participant information sheet	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Consent form	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Questionnaire	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Interview Schedule	<input type="checkbox"/>	<input checked="" type="checkbox"/>

## 22. DECLARATION BY APPLICANTS

I submit this application on the basis that the information it contains is confidential and will be used by the University of Birmingham for the purposes of ethical review and monitoring of the research project described herein, and to satisfy reporting requirements to regulatory bodies. The information will not be used for any other purpose without my prior consent.

I declare that:

- The information in this form together with any accompanying information is complete and correct to the best of my knowledge and belief and I take full responsibility for it.
- I undertake to abide by University Code of Conduct for Research (<http://www.ppd.bham.ac.uk/policy/cop/code8.htm>) alongside any other relevant professional bodies' codes of conduct and/or ethical guidelines.
- I will report any changes affecting the ethical aspects of the project to the University of Birmingham Research Ethics Officer.
- I will report any adverse or unforeseen events which occur to the relevant Ethics Committee via the University of Birmingham Research Ethics Officer.

**Name of Principal investigator/project supervisor:**

Professor Joan L. Duda

**Date:**

17<sup>th</sup> September 2009

Please now save your completed form, print a copy for your records, and then email a copy to the Research Ethics Officer, at [aer-ethics@contacts.bham.ac.uk](mailto:aer-ethics@contacts.bham.ac.uk). As noted above, please do not submit a paper copy.





## **Appendix 4**

Application to the Norwegian Centre for Research Data PAPA



# Endringsskjema

for endringer i forsknings- og studentprosjekt som medfører meldeplikt eller konsesjonsplikt

(jf. personopplysningsloven og helseregisterloven med forskrifter)

Meldeskjema sendes per post,  
e-post eller faks, i ett eksemplar, til:

Norsk samfunnsvitenskapelig datatjeneste AS  
Personvernombudet for forskning  
Harald Hårfagres gate 29  
5007 BERGEN

personvernombudet@nsd.uib.no / Telefaks: 55 58 96 50 / Telefon: 55 58 21 17

Vennligst les veiledning bakerst

1. BEHANDLINGSANSVARLIG <sup>i</sup>			
Institusjon: Universitetet i Bergen		Dato for innsending: 8/12-10	
Adresse: Postboks 7800		Postnr.: 5020	Bergen
2. DAGLIG ANSVAR <sup>ii</sup>			
Navn (fornavn - etternavn): Bente Wold			
Arbeidssted (avdeling/seksjon/institutt): HEMIL-senteret		Stilling/grad: Professor/dr.psychol	
Adresse – arbeidssted: Postboks 7808		Postnr.: 5020	Poststed: Bergen
Telefon: 5558 3223	Telefaks: 5558 9887	Mobil: 90532667	E-postadresse: Bente.wold@psyhp.uib.no
3. VED STUDENTPROSJEKT <sup>iii</sup>			
Navn (fornavn - etternavn) på studenten:			
		Grad:	
		Postnr.:	Poststed:
Telefon:	Telefaks:	Mobil:	E-postadresse:
4. PROSJEKTNUMMER OG PROSJEKTITTEL			
Nummer: 24273			
Tittel: Trivsel i barne- og ungdomsfotball			
5. ENDRING			

Dette er en del av en internasjonal studie i 5 land, finansiert av FP7 i EU. Joan Duda ved Universitetet i Birmingham er internasjonal koordinator. Hun opplyste nylig (se vedlagte epost-utveksling mellom henne og etikk-komiteen ved University of Birmingham) om at etikk-komiteen ved University of Birmingham, som hele prosjektet er underlagt, har gitt tillatelse til å samle inn data ved passivt samtykke fra foreldre, men uten at navn på deltakerne (spillerne) skal oppgis noe sted, kun fødselsdato på spørreskjema. De fikk først tillatelse som innebar aktivt samtykke, men har altså nå fått aksept for passivt samtykke, på betingelse av at spørsmål om røyking og alkohol tas ut av spørreskjemaet.

I tilrådingen fra Personvernombudet ved NSD av 8/7-10 har vi i Norge fått anledning til å samle inn opplysninger om navn og fødselsnummer, der navn ikke vil stå på skjema, men kobles opp mot et id nr på skjema, og med aktivt samtykke fra foreldre.

Ettersom dette er et internasjonalt prosjekt ledet av Joan Duda, er det ønskelig at vi benytter samme prosedyre i alle land. Den prosedyren er altså nå blitt endret, og innebærer passivt foreldresamtykke. Denne prosedyren innebærer at det på spørreskjemaet kun vil finnes fødselsdato, men for å kunne koble opplysninger fra spillere på samme lag, vil vi i datafilen også måtte registrere informasjon om lag. Denne informasjonen vil kunne registreres i form av et id nummer som er spesifikt for hvert lag, der vi har en separat liste som kobler lagets id nummer og navn på laget. Spørreskjemaundersøkelsen vil foregå på samme måte som beskrevet i den opprinnelige søknaden; den vil foregå lagvis slik at skjema fra et lag samles i en konvolutt med lagets id nummer på. Foreldre vil på forhånd informeres om undersøkelsen, og vil bli bedt om å gi beskjed til prosjektleder dersom de ikke ønsker at deres barn skal delta. Prosjektleder må så gi beskjed til lagets trenere om hvilke Lagets trenere vil bli bedt om å notere hvilke spillere som eventuelt ikke

På bakgrunn av at dette er et internasjonalt prosjekt med etiske og personvern-godkjenning fra internasjonal koordinators sted, ber vi herved om tillatelse til å samle inn data på måten beskrevet over, med passivt samtykke fra foreldre.

## 6. SPESIELLE TILLATELSER<sup>iv</sup>

<i>Er endringen meldt til Regional komité for medisinsk forskningsetikk?</i>	<input type="checkbox"/> Ja <input checked="" type="checkbox"/> Nei	Hvis ja, legg ved eller ettersend kopi av tilråding
<i>Gjør endringen at prosjektet nå blir fremleggelsespliktig for Regional komité for medisinsk forskningsetikk (inkludert melding om forskningsbiobank)?</i>	<input type="checkbox"/> Ja <input checked="" type="checkbox"/> Nei	Hvis ja, legg ved eller ettersend kopi av tilråding
<i>Gjør endringen det nødvendig å søke om dispensasjon fra taushetsplikt for å få tilgang til data?</i>	<input type="checkbox"/> Ja <input checked="" type="checkbox"/> Nei	Hvis ja, legg ved eller ettersend dispensasjon

## 7. TILLEGGSOPPLYSNINGER

## 8. ANTALL VEDLEGG

<i>Legg ved eventuelle nye vedlegg (forespørsel, intervjuguide, registreringskjema, spørreskjema, tillatelser og lignende).</i>	
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### **i Behandlingsansvarlig**

I forskningsprosjekt er behandlingsansvarlig som regel den *institusjon, ved institusjonens øverste leder*, som forsker/student er ansatt ved/studerer ved.

Den behandlingsansvarlige har bestemmelsesrett over opplysningene og det er den behandlingsansvarlige som står ansvarlig utad for at behandlingen er lovlig. Den behandlingsansvarlige vil være den som kan saksøkes og pådra seg straffeansvar for overtredelse av lovens bestemmelser. Avgjørende moment når man skal avgjøre hvem som er ansvarlig er blant annet hvem som initierer prosjektet og om forskers befatning med prosjektet skjer i egenskap av å være ansatt eller ikke.

### **ii Daglig ansvar**

*Forsker/veileder skal føres opp i dette feltet.*

Det daglige ansvaret for behandlingen av personopplysningene ligger hos øverste leder for virksomheten som er oppført som behandlingsansvarlig. I forsknings- og studentprosjekt delegeres det daglige ansvaret til forsker/veileder for prosjektet.

### **iii Studentprosjekt**

Feltet fylles ut dersom behandlingen av personopplysningene gjennomføres som et studentprosjekt.

### **iv Spesielle tillatelser**

For mer informasjon om hvorvidt et prosjekt er fremleggelsespliktig for *Regional komité for medisinsk forskningsetikk*, vises det til [www.etikkom.no](http://www.etikkom.no)

For å få utlevert taushetsbelagte opplysninger fra offentlige forvaltningsorgan, sykehus, trygdekontor, sosialkontor m.m., må det søkes om *dispensasjon fra taushetsplikten*. Dispensasjon søkes vanligvis fra aktuelt departement. Søknad om utlevering av helseopplysninger rettes til Sosial- og helsedirektoratet.



**Appendix 5**

Information Letter PAPA (Athlete, Parent/Legal Guardian, Coach)







# UNIVERSITETET I BERGEN

*Det psykologiske fakultet*

*HEMIL-senteret*

## INFORMASJON OM STUDIEN

### Trivsel i barne- og ungdomsfotball

Kjære spiller,

Vi er en gruppe forskere fra Universitetet i Bergen og Norges Idrettshøgskole som i samarbeid med forskere fra fire andre europeiske nasjoner, gjennomfører et prosjekt om barne- og ungdomsfotball. Deltakerne i studien er fotballspillere, både gutter og jenter, i alderen 10-14 år fra Norge, Storbritannia, Frankrike, Hellas og Spania. Prosjektet er støttet av fotballforbundene i alle landene, inkludert Norges Fotballforbund.

Målet for studien er å tilby opplæring om motivasjon til fotballtrenere, og se om det skjer en forandring i spillernes motivasjon og engasjement i forhold til fotball i løpet av fotballsesongen. Vi ønsker å se hvor effektiv opplæringen vår er ved å sammenligne lag hvor treneren har gjennomgått vårt opplegg, med lag hvor treneren ikke har fått opplæring hos oss. Du som spiller vil ikke bli informert om din trener har fullført et treningsprogram hos oss eller ikke.

Denne studien kan hjelpe oss med å utvikle en praktisk veiledning for trenere i hele Norge og i andre land. Målet er å sikre at unge fotballspillere mottar den nødvendige støtten som skal til for å opprettholde trivsel og motivasjon gjennom hele sesongen.

Vi ønsker å invitere deg og ditt lag til å ta del i denne studien. Hver spiller blir bedt om å svare på et spørreskjema, som tar omtrent 30 minutter å gjennomføre. Det blir stilt spørsmål angående spillernes motivasjon, tro på egne fotballferdigheter, motiverende atmosfære på laget, helserelatert atferd (kosthold, røyking av tobakk og hasj, alkoholinntak og fysisk aktivitet) og trivsel. Noen av treningsøktene og kampene vil også bli filmet av en av forskerne i studien.

Din deltakelse i denne studie er frivillig, og all informasjon du gir vil bli behandlet konfidensielt. Det vil si at vi kan forsikre deg om at verken dine foreldre, treneren din eller andre i ditt miljø vil få se svarene dine fra spørreskjemaet.

Både treneren din og foreldrene dine har gitt sin tillatelse til å la deg delta i undersøkelsen, men du trenger ikke å delta dersom du ikke ønsker det selv. Dersom du først velger å delta i studien, men ved et senere tidspunkt ikke ønsker å delta lenger, er det bare å kontakte treneren din. Vennligst informer oss direkte eller via treneren din dersom du allerede har svart på noe av undersøkelsen, og ønsker at disse svarene ikke skal bli brukt. Selv om det hjelper vårt prosjekt om alle spørsmålene er besvart, er du ikke forpliktet til å svare på alle spørsmålene.

Når prosjektet er slutt vil klubben din motta en rapport der hovedresultatene fra studien blir presentert sammen med våre konklusjoner og anbefalinger. Din deltakelse i studien er høyt

verdsatt. Dersom du har noen spørsmål angående prosjektet, vennligst ta kontakt med: Ellen Merethe Haug ved HEMIL-senteret, Universitetet i Bergen.

Vi gleder oss til å treffe deg!

Vennlig hilsen

Professor Bente Wold

Professor Oddrun Samdal

Professor Yngvar Ommundsen



# UNIVERSITETET I BERGEN

*Det psykologiske fakultet*

*HEMIL-senteret*

## INFORMASJON OM STUDIEN

### Trivsel i barne- og ungdomsfotball

Kjære foreldre/foresatte,

Vi er en gruppe forskere fra Universitetet i Bergen og Norges Idrettshøgskole som i samarbeid med forskere fra fire andre europeiske nasjoner, gjennomfører et prosjekt om barne- og ungdomsfotball. Deltakerne i undersøkelsen er fotballspillere, både gutter og jenter, i alderen 10-14 år fra Norge, Storbritannia, Frankrike, Hellas og Spania. Prosjektet er støttet av fotballforbundene i alle landene, inkludert Norges Fotballforbund..

Målet for prosjektet er å tilby opplæring om motivasjon til fotballtrenere, og se om det skjer en forandring i spillernes motivasjon og engasjement i forhold til fotball i løpet av fotballsesongen. Vi ønsker å måle hvor effektiv opplæringen vår er ved å sammenligne lag hvor treneren har gjennomgått vårt opplæringsprogram, med lag hvor treneren ikke har fått opplæring hos oss.

Dette prosjektet kan hjelpe oss med å utvikle en praktisk veiledning for trenere i hele Norge og i andre land. Målet er å sikre at unge fotballspillere mottar den nødvendige støtten som skal til for å opprettholde trivsel og motivasjon gjennom hele sesongen.

Vi ønsker å invitere barnet ditt til å ta del i denne undersøkelsen. Din sønn eller datter vil bli bedt om å svare på noen spørreskjema enten før eller etter treningen. Undersøkelsen vil bli gjennomført i begynnelsen og i slutten av denne sesongen, så vel som i begynnelsen av neste sesong. Hvert spørreskjema tar omtrent 20-30 minutter å gjennomføre. Spørsmålene vil omhandle ditt barns motivasjon, tro på egne fotballferdigheter, motiverende atmosfære på laget, helserelatert atferd (kosthold, røyking av tobakk og hasj, alkoholinntak, og fysisk aktivitet) og trivsel. Noen av treningsøktene vil også bli filmet av en av forskerne i studien. Hensikten med dette er å evaluere effekten av opplæringsprogrammet. Videofilmen vil kun være tilgjengelig for medlemmer i forskningsgruppen. I henhold til Universitetet i Bergens regler og prosedyrer vil videofilmen bli lagret på en sikker plass i fem år etter at prosjektet er gjennomført.

Det er helt frivillig for barnet ditt å delta i prosjektet, og all informasjonen som han/hun eventuelt gir fra seg vil være helt konfidensielt og ikke tilgjengelig for noen andre, inkludert foreldre/foresatte eller hans/hennes trener. Selv om det hjelper vår studie om alle spørsmålene er besvart, er barnet ikke forpliktet til å svare på alle spørsmålene. Barnet ditt har mulighet til å trekke seg fra studien på ethvert tidspunkt ved å informere oss direkte eller gjennom treneren. Dette gjelder også dersom du ikke ønsker at vi skal bruke svarene som ditt barn eventuelt allerede har gitt oss.

Ved å gi samtykke til å ta del i dette prosjektet, gir du oss din tillatelse til å bruke svarene fra spørreskjemaene til vitenskapelige arbeid, og eventuelt publisere resultatene i vitenskapelige tidsskrifter, så lenge ditt barns anonymitet blir ivaretatt. Våre analyser vil bli utført på gruppenivå, og vi vil sammenligne spørreundersøkelsene over tid ved hjelp av ID koder. Når studien er fullført vil ditt barns klubb motta en rapport der hovedresultatene fra studien blir presentert sammen med våre konklusjoner anbefalinger

For at ditt barn skal få bli med i denne undersøkelsen er vi avhengig av ditt samtykke. Vennligst fyll ut og lever tilbake svarslippen hvis du ønsker å gi ditt barn tillatelse til å delta i studien. Ditt barn og hans/hennes trener vil også bli bedt om å gi oss deres skriftlige samtykke om å delta, samt tillatelse til å bruke resultatene. Hvis du har spørsmål angående undersøkelsen, vennligst ta kontakt med oss ved hjelp av kontaktopplysningene våre som er gitt nedenfor. Du er velkommen til å selv observere hvordan treningsopplegget gjennomføres av treneren, og til hvilken som helst tid, bestemme deg for å trekke tilbake ditt samtykke til å la barnet ditt delta i undersøkelsen. Vi håper at du/dere vil støtte dette verdifulle prosjektet.

Vennlig hilsen

Professor Bente Wold

Professor Oddrun Samdal

Professor Yngvar Ommundsen



# UNIVERSITETET I BERGEN

*Det psykologiske fakultet*

*HEMIL-senteret*

## INFORMASJON OM STUDIEN

### Trivsel i barne- og ungdomsfotball

Kjære trener,

Vi er en gruppe forskere fra Universitetet i Bergen og Norges Idrettshøgskole som i samarbeid med forskere fra fire andre europeiske nasjoner, gjennomfører et prosjekt om barne- og ungdomsfotball. Deltakerne i undersøkelsen er fotballspillere, både gutter og jenter, i alderen 10-14 år fra Norge, Storbritannia, Frankrike, Hellas og Spania. Prosjektet er støttet av fotballforbundene i alle landene, inkludert Norges Fotballforbund. Dette betyr ikke at du er forpliktet til å delta i prosjektet.

Målet for prosjektet er å tilby fotballtrenere opplæring innen motivasjonsteknikker, for så å undersøke om det skjer en forandring i spillernes motivasjon, samt kvaliteten på spillernes engasjement til fotball i løpet av fotballsesongen. Denne studien kan hjelpe oss med å utvikle en praktisk veiledning for trenere i Norge og i andre land. Målet er å sikre at unge fotballspillere mottar den nødvendige støtten som skal til for å opprettholde trivsel og motivasjon gjennom hele sesongen. Vi ønsker å måle hvor effektiv opplæringen vår er ved å sammenligne lag hvor treneren har gjennomgått vårt opplæringsprogram, med lag hvor treneren ikke har fått opplæring hos oss. Spillerne skal ikke informeres om du som trener har fått opplæring eller ikke.

Vi vil gjerne invitere deg og laget ditt til å delta i denne studien. Dersom du blir utvalgt til å gjennomføre vårt treningsprogram, vil du bli bedt om å delta på et dagskurs i din region. På kurset vil du få opplæring i å utvikle strategier for å opprettholde/øke dine spilleres motivasjon, trivsel og helse. En måned etter den første treningsøkten vil du bli invitert til å delta på et oppfølgingsmøte hvor målet er å styrke god praksis og diskutere problemer og vanskeligheter som du eventuelt har opplevd med treningsstrategiene. Du vil gjennom hele sesongen motta månedlige telefonsamtaler/tekstmeldinger fra trenerutviklerne, for å sikre kontinuerlig bruk av strategiene fra kurset, og avklare eventuelle spørsmål. Hvis du ikke blir utvalgt til å gjennomføre opplæringsprogrammet vil du ikke motta noe av oppfølgingen ovenfor.

Alle trenerne blir bedt om å fylle ut et spørreskjema på tre ulike tidspunkt (i begynnelsen og slutten av sesongen, og i begynnelsen av følgende sesong). Her kartlegges ulike treningsstiler og motivasjonen til spillerne. Et utdrag av spørsmålene på skjemaet er vedlagt. For å samle inn mer informasjon om de ulike treningsstilene, i forhold til barne- og ungdomsfotball, vil vi også filme noen av treningsøktene og kampene. Det er helt frivillig å delta i dette prosjektet, noe som betyr at du kan bestemme deg for å ikke delta på hvilket som helst tidspunkt uten negative følger. **For at spillerne skal ta del i dette prosjektet trenger vi din tillatelse.** Vi

vil også be om både foreldrenes og spillernes samtykke. Studien vil innebære at også spillerne fyller ut et spørreskjema i begynnelsen og slutten av sesongen, og i begynnelsen av følgende sesong. Hvert skjema vil ta 20-30 minutter å fullføre. De vil bli stilt spørsmål angående spillernes motivasjon, tro på egne fotballferdigheter, motiverende atmosfære på laget, helserelatert atferd (kosthold, røyking av tobakk og hasj, alkoholinntak og fysisk aktivitet) og trivsel. Et utdrag av spørreskjemaet til spillerne er også vedlagt.

Det er helt frivillig for laget ditt å delta i denne undersøkelsen og informasjon fra spillere og trenere vil bli behandlet konfidensielt. Selv om det hjelper vår studie at alle spørsmålene blir besvart, er det ingen forpliktelse til å svare på alle spørsmålene. Hver av spillerne dine kan velge å avbryte sin deltakelse uten konsekvenser når som helst i løpet av studien ved enten å informere oss direkte, eller gjennom deg. Spilleren din (eller han/hennes foreldre) kan også gi beskjed dersom han/hun ikke ønsker at vi skal bruke materialet han/hun allerede har gitt oss.

Ved å delta i dette prosjektet gir du også ditt samtykke til at vi kan bruke resultatet fra spørreskjemaene til vitenskapelige formål, og til å eventuelt å publisere resultatet i vitenskapelige tidsskrift, så lenge du og dine spilleres anonymitet blir opprettholdt. Når studien er fullført vil klubben din motta en rapport der hovedresultatene fra studien blir presentert sammen med våre konklusjoner og anbefalte treningsstrategier.

Ta gjerne kontakt med oss dersom du har spørsmål angående prosjektet. Vår kontaktinformasjon står under. Vi håper at du vil støtte dette verdifulle prosjektet.

Vennlig hilsen,

Professor Bente Wold

Professor Oddrun Samdal

Professor Yngvar Ommundsen

**Appendix 6**

Information Letter PAPA (Coach)







UNIVERSITETET I BERGEN  
HEMIL - senteret



## Informasjon om prosjektet ”Trivsel i barne- og ungdomsfotball”

Kjære trener,

Tusen takk for at du/dere har sagt dere villige til å delta i forskningsprosjektet ”**Motiverende Lederskap i fotball**” ved å delta på kurset i ”Motiverende Lederskap” samt takke ja til å svare på spørreskjemaene våre. Gjennom dette er du/dere med på å gi dere selv og oss (Universitetet i Bergen, Norges idrettshøgskole og vår alliansepartner Norges Fotballforbund) ny kunnskap om trivsel, motivasjon og læring i fotballen for barn og unge

Det er avgjørende at vi i forskningsprosjektet får mulighet til å samle inn utfylte spørreskjemaer før du/dere skal på kurs den 27. Mars.

**Praktisk gjennomføring:** Det varierer en del hvor lang tid det tar å fylle ut spørreskjema, men de fleste av spillerne vil bruke ca. 30-40 minutter. Vi ber om å få benytte ca 20 minutter av treningen, og ca 20 minutter etter treningen også, og at du bidrar med å tilrettelegge for et egnet sted for utfylling av skjema, og motivere spillerne til å være med. Det vil være vanskelig å få til en god datainnsamling utendørs, særlig dersom været er dårlig, så vi håper dere har tilgang til et klubbhus, klasserom eller lignende der det er tilgang til bord og stoler, og der spillerne ikke må sitte for tett. Vi tar med materiell for utfylling (blyanter og lignende).

### NB! Viktig!:

- Foreldre informeres i forkant om at treningen denne dagen vil ta noe lenger tid enn vanlig.
- At alle spillerne på laget møter opp for denne treningen eller samlingen for spillerne (også spillere som måtte være skadet og ikke kan delta på selve treningen)

**Informasjon til foreldre:** Prosjektet er meldt til Etikk-komiteen ved Universitetet i Birmingham, som er behandlingsansvarlig institusjon for prosjektet. Når det gjelder undersøkelsen blant spillerne, innebærer tillatelsen passivt samtykke fra foreldrene. Det er derfor viktig at vi får informert foreldre om at de har mulighet til å trekke barna sine fra deltagelse i denne studien dersom de skulle ønske det.

Dette kan vi praktisk løse på følgende måter:

1. Du kan videresende vedlegget som kom med denne e-posten (*informasjon om studien til foreldre.doc*) til spillere og foreldre
2. Du kan skrive ut vedlegget og dele ut på neste trening.
3. Vi kan sende deg informasjonsskrivet i posten, som du kan dele ut på trening.

Vennligst gi beskjed tilbake på epost dersom du vil ha tilsendt disse info-skrivene i posten, ellers antar vi at du sender denne informasjonen videre selv.

**Personvern:** Det er helt frivillig for spillerne å delta i spørreskjemaundersøkelsene, og all informasjon som han/hun gir fra seg vil bli behandlet helt konfidensielt. Informasjonen som samles inn vil være aidentifisert, hvilket betyr at ingen skal skrive sitt navn på skjemaene, og data vil bli lagret i aidentifisert form, slik at det ikke vil være mulig å identifisere den enkelte trener eller spiller direkte. Selv om det hjelper vår studie om alle spørsmålene er besvart, er dere ikke forpliktet til å svare på alle spørsmålene. Det er mulig til å trekke seg fra studien på ethvert tidspunkt ved å informere oss. Dersom du senere velger å trekke deg, vil det ikke få innvirkning på forholdet til fotballkretsen eller Norges Fotballforbund.

Vi vil bruke datamaterialet til vitenskapelig arbeid, og publisere resultatene i vitenskapelige tidsskrifter. Det vil ikke være mulig å gjenkjenne enkeltpersoner eller –lag i publikasjoner. Når studien er fullført vil din klubb motta en rapport der hovedresultatene fra studien blir presentert sammen med våre konklusjoner og anbefalinger. Denne rapporten vil foreligge i anonym form.

**Vi trenger følgende informasjon fra deg snarest og innen onsdag 9/3:**

- 1. Tid og sted** (besøksadresse til banen/stedet dere trener) for gjennomføring av spørreskjema-undersøkelsen.
- 2. Tilgang på lokaliteter** for utfylling av skjemaene: **Klubbhus m/ bord & stoler? Garderobe? Kun ute?**
- 3. Hvor mange trenere og hvor mange spillere** som vil være til stede. Vi ønsker at spillere som er skadet blir bedt om å komme denne dagen, og at alle trenere på laget også fyller ut trenerskjemaet.
- 4. Kun dersom du vil ha informasjonsskriv til foreldre sendt i posten: Din postadresse.**

Vår frist for å organisere denne datainnsamlingen er ganske kort. Vi håper på din velvilje og samarbeid for å få dette til på en god måte. Vi vil ringe deg dersom vi ikke hører fra deg.

Vi er svært takknemlige for at du/dere er villige til å stille opp for denne svært viktige studien. Kunnskapen vi får fra dette prosjektet vil gi oss verdifull kunnskap som i løpet av kort tid vil kunne bli brukt til å tilrettelegge for at flere barn og unge skal få en positiv opplevelse av å spille fotball og ha en fysisk aktiv livsstil.

Vennlig hilsen

Bente Wold, professor HEMIL-senteret, Universitetet i Bergen  
Yngvar Ommundsen, professor, Norges idrettshøgskole

Kontaktopplysninger for prosjektleder:

Bente Wold, HEMIL-senteret, Det psykologiske fakultet, Universitetet i Bergen.  
[bente.wold@uib.no](mailto:bente.wold@uib.no), tlf. 5558 3223, mobil 90 53 26 67.

**Appendix 7**

Questionnaire PAPA (Athlete)





UNIVERSITETET I BERGEN  
HEMIL - senteret



## TRIVSEL I BARNE- OG UNGDOMSFOTBALL

### SPØRRESKJEMA TIL SPILLERE

Vår 2011



UiB, Christiesgt.13 – 5015 Bergen Telefon: 55 58 28 08 Telefax: 55 58 98 87  
[post@hemil.uib.no](mailto:post@hemil.uib.no)

## INSTRUKSJONER

Vennligst svar på alle spørsmålene så ærlig og nøye som mulig.

Husk at verken treneren din eller noen andre på laget får se skjemaet etter at du har fylt det ut. Det er heller ingen riktige eller gale svar, så svar slik du virkelig føler.

Hvis noe er forvirrende, be om hjelp, så skal vi hjelpe deg.

Mange av spørsmålene handler om ditt fotballag, din hovedtrener, eller dine følelser og meninger når du deltar på dette laget.

Noen av spørsmålene kan virke veldig like. Det skal de også være.

På forhånd takk for hjelpen!

Bente Wold  
Professor, Universitetet i Bergen

Yngvar Ommundsen  
Professor, Norges Idrettshøgskole

1. Skriv fødselsdagen din her: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

For eksempel, dersom fødselsdagen din er 17. August 1998, skriv: **17 / august / 1998**

2. Hvor mange brødre og søstre har du? (inkludert halv-brødre og halv-søstre)

0 <input type="checkbox"/>	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>	Mer enn 6 <input type="checkbox"/>
-------------------------------	-------------------------------	-------------------------------	-------------------------------	-------------------------------	-------------------------------	-------------------------------	---------------------------------------

3. Er du gutt eller jente?

Gutt

Jente

**\*\*De neste spørsmålene handler om din erfaring med å spille fotball\*\***

4. Hva heter laget du spiller på? \_\_\_\_\_

5. Hva heter hovedtreneren på laget som du trener med/spiller for i dag?

\_\_\_\_\_

**Det er dette laget og denne treneren du skal tenke på når du svarer på spørsmålene i skjemaet.**

6. Hvor mange **sesonger** har du spilt på dette laget? \_\_\_\_\_

7. Hvor mange **ganger i uka** trener og spiller du for dette laget?

\_\_\_\_\_ ganger.

8. Hvor mange **timer per uke** trener og spiller du for dette laget?

\_\_\_\_\_ timer



**9. Hvor mange år har du spilt fotball på et fotball-lag?**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mindre enn 1 år	1 år	2 år	3 år	4 år	5 år	6 år	Mer enn 6 år

**10. Hvor mange år har du spilt fotball for denne klubben?**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mindre enn 1 år	1 år	2 år	3 år	4 år	5 år	6 år	Mer enn 6 år

**11. Hvor mange fotballtreninger med laget ditt deltar du vanligvis på i løpet av en uke?**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	1	2	3	4	Mer enn 4

**12. Spiller du på andre fotballag i klubben? Hvis ja, hvor mange andre lag?**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ingen	1	2	3	Mer enn 3 lag

13. Sett en ring rundt tallet som viser hvor godt de ulike grunnene til å spille fotball stemmer for deg.

Jeg spiller fotball...	Svært uenig	Uenig	Verken uenig eller enig	Enig	Svært enig
1. fordi jeg synes at det er moro	1	2	3	4	5
2. fordi jeg mener at det er bra for meg	1	2	3	4	5
3. fordi jeg ville fått dårlig samvittighet hvis jeg sluttet	1	2	3	4	5
4. fordi noen presser meg til å spille	1	2	3	4	5
5. fordi jeg vil vinne kamper	1	2	3	4	5
6. men jeg lurer på hvorfor jeg fortsatt er med	1	2	3	4	5



Jeg spiller fotball...	Svært uenig	Uenig	Verken uenig eller enig	Enig	Svært enig
7. fordi jeg liker det	1	2	3	4	5
8. fordi jeg mener det er mange fordeler ved å spille fotball	1	2	3	4	5
9. fordi jeg ville følt meg flau hvis jeg sluttet	1	2	3	4	5
10. for å gjøre andre fornøyd	1	2	3	4	5
11. for å vinne cup og medaljer	1	2	3	4	5
12. selv om jeg egentlig ikke vet hvorfor jeg gjør det	1	2	3	4	5
13. fordi det er gøy	1	2	3	4	5
14. fordi det lærer meg å ha kontroll over meg selv	1	2	3	4	5
15. fordi jeg er nødt til å fortsette	1	2	3	4	5

Jeg spiller fotball...	Svært uenig	Uenig	Verken uenig eller enig	Enig	Svært enig
16. fordi noen tvinger meg til å fortsette	1	2	3	4	5
17. fordi jeg har lyst på premier	1	2	3	4	5
18. selv om jeg ikke aner hvorfor lenger	1	2	3	4	5
19. fordi jeg synes det er spennende	1	2	3	4	5
20. fordi jeg lærer ting som er nyttig for meg i livet	1	2	3	4	5
21. fordi jeg ville føle meg mislykket hvis jeg ikke var med	1	2	3	4	5
22. fordi andre ville bli misfornøyd med meg hvis jeg lot være	1	2	3	4	5
23. men jeg lurur på hva poenget med det er	1	2	3	4	5



14. Det er ulike årsaker til hvorfor barn og unge føler at de gjør det bra i fotball. Sett ring rundt det passende tallet som viser hvor mye du er enig eller uenig med hvert utsagn i forhold til hva **du føler når du gjør det bra i fotball.**

Jeg føler jeg gjør det bra i fotball når...	Svært uenig	Uenig	Verken uenig eller enig	Enig	Svært enig
1. jeg er den eneste som kan gjøre noe som ingen andre kan	1	2	3	4	5
2. jeg lærer noe nytt (for eksempel triks, finte)	1	2	3	4	5
3. jeg kan gjøre det bedre enn lagkameratene mine	1	2	3	4	5
4. de andre ikke kan gjøre det like bra som meg	1	2	3	4	5
5. jeg lærer noe som er gøy å gjøre	1	2	3	4	5
6. andre mislykkes, men ikke jeg	1	2	3	4	5
7. jeg lærer noe nytt ved å prøve hardt	1	2	3	4	5



Jeg føler jeg gjør det bra i fotball når...	Svært Uenig	Uenig	Verken enig eller uenig	Enig	Svært Enig
8. jeg jobber virkelig hardt	1	2	3	4	5
9. jeg scorer flest mål, har flest redninger, eller gjør de beste pasningene.	1	2	3	4	5
10. når jeg lærer noe nytt og så får lyst til å trene enda mer	1	2	3	4	5
11. jeg er best	1	2	3	4	5
12. jeg lærer noe som jeg fikk veldig godt til	1	2	3	4	5
13. jeg gjør mitt aller beste	1	2	3	4	5

15. De følgende påstandene handler om dine **generelle følelser og opplevelser på fotballaget ditt den siste måneden**. Sett en ring rundt tallet som passer for deg.

I løpet av den siste måneden på laget...		Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært Enig
1.	bestemte jeg hvilke øvelser vi gjorde på treningen	1	2	3	4	5
2.	synes jeg at jeg var ganske god til å spille fotball	1	2	3	4	5
3.	følte jeg meg støttet	1	2	3	4	5
4.	var jeg med på å bestemme hva jeg skulle jobbe med på trening	1	2	3	4	5
5.	var jeg fornøyd med det jeg presterte i fotball	1	2	3	4	5
6.	følte jeg at andre forsto meg	1	2	3	4	5
7.	var jeg med på fotball fordi jeg ville det selv	1	2	3	4	5



I løpet av den siste måneden på laget...		Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært Enig
8.	var jeg dyktig i fotball	1	2	3	4	5
9.	følte jeg at andre hørte på meningene mine	1	2	3	4	5
10.	følte jeg at jeg kunne gjøre en del ting slik jeg selv ville	1	2	3	4	5
11.	var jeg ganske god	1	2	3	4	5
12.	følte jeg at andre satt pris på meg					
13.	tror jeg at jeg gjorde det ganske bra i fotball	1	2	3	4	5
14.	hadde jeg mulighet til å velge hva jeg ville gjøre	1	2	3	4	5
15.	fikk jeg til mye av det jeg prøvde på	1	2	3	4	5

16. Sett en ring rundt tallet som beskriver **hvordan du VANLIGVIS føler deg før eller mens du spiller fotballkamp. Der er ingen rette eller feile svar. Vær så ærlig som du kan.**

Før eller mens jeg spiller fotballkamp...	Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
1. er jeg redd for at jeg skal spille dårlig	1	2	3	4	5
2. er jeg bekymret for at jeg skal svikte de andre på laget	1	2	3	4	5
3. er jeg bekymret for at jeg ikke skal gjøre mitt beste	1	2	3	4	5
4. er jeg redd for at jeg ikke skal spille godt nok	1	2	3	4	5
5. er jeg engstelig for at jeg skal rote det til under kampen	1	2	3	4	5



17. Sett en ring rundt tallet som passer best med hvor enig eller uenig du er med hver av påstandene. Når du svarer, må tenke på **hvordan du som regel hadde det på laget ditt den siste måneden.**

I løpet av den siste måneden...	Svært Uenig	Uenig	Verken enig eller uenig	Enig	Svært Enig
1. likte jeg vanligvis øvelsene vi hadde på trening	1	2	3	4	5
2. syntes jeg at det var interessant å spille fotball	1	2	3	4	5
3. syntes jeg at tiden gikk veldig fort når jeg spilte fotball	1	2	3	4	5
4. var det gøy å spille fotball	1	2	3	4	5

18. Denne lista beskriver ting som trenere kan gjøre eller si til spillere. Når du svarer på disse spørsmålene, er det viktig at du tenker på hva hovedtreneren din vanligvis sier eller gjør. Hvordan er det på laget ditt mesteparten av tiden?

	Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
1. Treneren oppmuntrer spillerne til å prøve nye ting de ikke kan fra før.	1	2	3	4	5
2. Treneren er mindre grei med spillerne om de ikke prøver å se ting slik han/hun gjør	1	2	3	4	5
3. Treneren gir spillerne valg og alternativer	1	2	3	4	5
4. Treneren sørger for at spillerne føler at de lykkes godt når de gjør sitt beste	1	2	3	4	5
5. Treneren bytter ut spillere når de gjør en feil	1	2	3	4	5
6. Treneren synes det er viktig at vi spiller fotball fordi vi vil det selv	1	2	3	4	5
7. Treneren er mindre støttende for spillere når de ikke trener og spiller godt	1	2	3	4	5



	Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
8. Spillerne kan stole på at treneren bryr seg, uansett hva som skjer	1	2	3	4	5
9. Treneren er mest oppmerksom på de beste spillerne	1	2	3	4	5
10. Treneren skjeller ut spillere når de gjør feil	1	2	3	4	5
11. Treneren roser spillere som forbedrer seg	1	2	3	4	5
12. Spillere som gjør treneren misfornøyd får mindre oppmerksomhet	1	2	3	4	5
13. Treneren belønner de spillerne som prøver hardt	1	2	3	4	5
14. Treneren setter pris på spillerne som personer, ikke bare som fotballspillere	1	2	3	4	5

		Svært uenig	Uenig	verken enig eller uenig	Enig	Svært Enig
15.	Vi får noen ganger lov til å gjøre noe ekstra gøy mot slutten av treningen, men bare dersom vi har vært flinke	1	2	3	4	5
16.	Dersom vi spør treneren om noe, svarer han/hun grundig og skikkelig på spørsmålene våre	1	2	3	4	5
17.	Treneren overser spillere som gjør han/henne misfornøyd	1	2	3	4	5
18.	Treneren sørger for at hver spiller bidrar på en eller annen måte	1	2	3	4	5
19.	Alle på laget vet hvilke spillere treneren liker best	1	2	3	4	5
20.	Vi får noen ganger ros eller belønning av treneren, men bare dersom vi har spilt godt	1	2	3	4	5
21.	Treneren roser bare de som spiller best på kamper	1	2	3	4	5



		Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
22.	Når treneren ber spillerne om å gjøre noe, prøver han/hun å forklare hvorfor det vil være bra å gjøre det slik	1	2	3	4	5
23.	Treneren sørger for at spillerne har en viktig rolle på laget	1	2	3	4	5
24.	Treneren skjeller noen ganger ut spillerne foran andre for å få dem til å gjøre ting	1	2	3	4	5
25.	Treneren lar de beste spillerne spille mest på kamp	1	2	3	4	5
26.	Treneren truer noen ganger med å straffe spillere for å holde orden på dem	1	2	3	4	5
27.	Treneren hører på hva vi har å si dersom vi forteller han/hun hvordan vi har det	1	2	3	4	5
28.	Treneren sier at alle spillerne er viktige for at laget skal lykkes.	1	2	3	4	5



		Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
29.	Treneren bruker belønninger for å få spillerne til å gjennomføre øvelsene på treningen	1	2	3	4	5
30.	Treneren oppmuntrer spillerne til å hjelpe hverandre til å lære mer	1	2	3	4	5
31.	Treneren er alt for opptatt av hva spillerne gjør på fritiden.	1	2	3	4	5
32.	Treneren mener det er viktig at spillerne er med fordi de selv har lyst til det	1	2	3	4	5
33.	Treneren har favoritter blant spillerne	1	2	3	4	5
34.	Treneren oppmuntrer spillerne til å jobbe sammen som et lag	1	2	3	4	5



### 19. På fotball-laget vårt...

	Svært uenig	Uenig	verken enig eller uenig	Enig	Svært enig
1. har vi mye til felles	1	2	3	4	5
2. forstår vi hverandre godt	1	2	3	4	5
3. er vi åpne med hverandre	1	2	3	4	5
4. stoler vi på hverandre	1	2	3	4	5
5. har vi et godt samhold	1	2	3	4	5
6. stiller vi opp for hverandre	1	2	3	4	5

### 20. Hva tenker du nå for tiden om hvor lenge du kommer til å fortsette å spille fotball?

	Svært uenig	Uenig	verken enig eller uenig	Enig	Svært enig
1. Jeg kommer til å slutte å spille fotball etter denne sesongen	1	2	3	4	5
2. Jeg har tenkt å fortsette å spille fotball neste sesong	1	2	3	4	5
3. Jeg tenker på å slutte på dette laget	1	2	3	4	5
4. Jeg kan tenke meg å fortsette å spille for hovedtreneren min etter denne sesongen	1	2	3	4	5

### 21. Utenom trening og kamper med laget ditt, hvor mange GANGER i uka spiller du fotball på fritiden?

- hver dag
- 4-6 ganger i uka
- 2-3 ganger i uka
- en gang i uka
- en gang i måneden
- mindre enn en gang i måneden
- aldri

Med fysisk aktivitet mener vi aktiviteter som gjør at du en del av tiden får økt puls og blir andpusten. Fysisk aktivitet er for eksempel idrettsaktiviteter etter skolen, aktiviteter på skolen, det å leke med venner eller å gå til skolen. Andre eksempler er å løpe, stå på skateboard, sykle, svømme, spille fotball, stå på ski/snowboard eller danse.

**22. Utenom skoletid: Hvor mange GANGER i uka driver du idrett, eller mosjonerer du så mye at du blir andpusten og/eller svett?**

- hver dag
- 4-6 ganger i uka
- 2-3 ganger i uka
- en gang i uka
- en gang i måneden
- mindre enn en gang i måneden
- aldri

**23. Utenom skoletid: Hvor mange TIMER i uka driver du idrett, eller mosjonerer du så mye at du blir andpusten og/eller svett?**

- ingen
- omtrent 1/2 time
- omtrent 1 time
- omtrent 2-3 timer
- omtrent 4-6 timer
- 7 timer eller mer

**\*\*\*De neste spørsmålene handler IKKE om fotball, men om hvordan du har det generelt i livet ditt.\*\*\***

**24. I hvilken grad føler du deg vanligvis...?**

	Veldig lite	Lite	Middels	Mye	Veldig mye
1. interessert	1	2	3	4	5
2. skamfull	1	2	3	4	5
3. fortvilet	1	2	3	4	5
4. lykkelig	1	2	3	4	5
5. inspirert	1	2	3	4	5
6. nervøs	1	2	3	4	5
7. skremt	1	2	3	4	5
8. skjelven	1	2	3	4	5
9. glad	1	2	3	4	5
10. engasjert	1	2	3	4	5



Under finner du en rekke påstander som handler om hva du tenker om deg selv.

25. Når du svarer på spørsmålene, tenk på **hvordan du SOM REGEL tenkte den siste måneden**. Sett en ring rundt tallet som passer best for hvor enig du er i hver av påstandene.

I løpet av den siste måneden, har jeg følt at...	Svært uenig	Uenig	Verken Enig eller uenig	Enig	Svært enig
1. jeg har mye å være stolt av	1	2	3	4	5
2. jeg ikke var verdt noe	1	2	3	4	5
3. mye av det jeg har gjort har vært fint	1	2	3	4	5
4. lite av det jeg gjorde ble bra	1	2	3	4	5
5. mesteparten av det jeg gjorde gikk greit	1	2	3	4	5

**26. Vil du si at din helse er...?**

- svært god
- god
- ganske god
- dårlig

**27. Her er et bilde av en stige. Øverst på stigen (10) står for det best mulige livet for deg og nederst på stigen (0) er det verst mulige livet for deg.**

**Generelt sett hvor synes du at du står på stigen nå for tiden?**

**Sett kryss i den boksen som står ved siden av nummeret som best forteller hvor du står.**

<input type="checkbox"/>	10	Best mulig liv
<input type="checkbox"/>	9	
<input type="checkbox"/>	8	
<input type="checkbox"/>	7	
<input type="checkbox"/>	6	
<input type="checkbox"/>	5	
<input type="checkbox"/>	4	
<input type="checkbox"/>	3	
<input type="checkbox"/>	2	
<input type="checkbox"/>	1	
<input type="checkbox"/>	0	Dårligst mulig liv

28. I løpet av den siste måneden...	Svært Uenig	Uenig	Verken enig eller uenig	Enig	Svært Enig
1. følte jeg meg opplagt	1	2	3	4	5
2. var jeg i godt humør	1	2	3	4	5
3. gledet jeg meg til hver dag	1	2	3	4	5
4. følte jeg meg kvikk og våken	1	2	3	4	5
5. hadde jeg masse energi	1	2	3	4	5

**29. Hvor mange ukedager (ikke helg) spiser du vanligvis frokost (mer enn et glass melk eller juice)?**

- Jeg spiser aldri frokost
- En dag
- To dager
- Tre dager
- Fire dager
- Fem dager

**30. Hvilket land kommer din mor fra?**

- |                       |                          |             |                          |
|-----------------------|--------------------------|-------------|--------------------------|
| Norge                 | <input type="checkbox"/> | Asia        | <input type="checkbox"/> |
| Sverige               | <input type="checkbox"/> | USA         | <input type="checkbox"/> |
| Andre Europeiske land | <input type="checkbox"/> | Sør Amerika | <input type="checkbox"/> |
| Afrika                | <input type="checkbox"/> | Vet ikke    | <input type="checkbox"/> |

**31. Hvilket land kommer din far fra?**

- |                       |                          |             |                          |
|-----------------------|--------------------------|-------------|--------------------------|
| Norge                 | <input type="checkbox"/> | Asia        | <input type="checkbox"/> |
| Sverige               | <input type="checkbox"/> | USA         | <input type="checkbox"/> |
| Andre Europeiske land | <input type="checkbox"/> | Sør Amerika | <input type="checkbox"/> |
| Afrika                | <input type="checkbox"/> | Vet ikke    | <input type="checkbox"/> |

**32. Hvor god råd har din familie?**

- svært god råd
- god råd
- middels god råd
- ikke særlig god råd
- dårlig råd

**TUSEN TAKK FOR HJELPEN!**



## **Appendix 8**

Questionnaire PAPA (Coach)







UNIVERSITETET I BERGEN  
HEMIL - senteret



## TRIVSEL I BARNE- OG UNGDOMSFOTBALL

### SPØRRESKJEMA TIL TRENERE

Vår 2011



UiB, Christiesgt.13 – 5015 Bergen Telefon: 55 58 28 08 Telefax: 55 58 98 87  
[post@hemil.uib.no](mailto:post@hemil.uib.no)

## INSTRUKSJONER

Vennligst svar på alle spørsmålene så ærlig og nøyaktig som mulig.

Husk at ingen andre enn forskerne får se skjemaet etter du har fylt det ut. Det er heller ingen riktige eller gale svar, så svar slik du virkelig føler.

Hvis noe er forvirrende, be om hjelp, så skal vi hjelpe deg.

Mange av spørsmålene handler om ditt fotballag, spillerne på laget, eller dine følelser og hvordan du opplever det å være fotballtrener.

Noen av spørsmålene kan virke veldig like. Det skal de også være.

Bente Wold

Professor, Universitetet i Bergen

Yngvar Ommundsen

Professor, Norges Idrettshøgskole

1. Skriv inn fødselsdagen din her: \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_

For eksempel, dersom fødselsdagen din er 17. august 1975, skriv : 17 / august / 1975

2. Hvor mange brødre og søstre har du? (inkludert halv-brødre og halv-søstre)

0	1	2	3	4	5	6	Mer enn 6
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Kjønn :      Kvinne       Mann

4. Hva heter laget du er trener for (Klubb, Gutter/Jenter, Aldersgruppe)

---

5. Spiller laget du trener 7'er eller 11'er fotball?

7'er	<input type="checkbox"/>
11'er	<input type="checkbox"/>

6. Hvor mange timer per uke trener laget? \_\_\_\_\_ timer per uke

7. Hvor mange ganger per uke trener laget ? \_\_\_\_\_ ganger per uke

8. Hvor mange av disse treningene per uke er du med på? \_\_\_\_\_ ganger i uken.

9. Hvilken av de følgende kategoriene beskriver best din etniske bakgrunn? ( sett kryss i bare én boks)?

- Norsk
- Nordisk (ikke norsk)
- Annen europeisk (ikke nordisk)
- Afrikansk
- Nord-Amerikansk
- Sør-Amerikansk
- Asiatisk
- Fra midtøsten
- Annet

10. Hvor lenge har du vært fotballtrener? \_\_\_\_\_ år \_\_\_\_\_ måneder

11. Hvor lenge har du vært trener for dette laget som du er trener for i dag? \_\_\_\_\_ år \_\_\_\_\_ måneder

12. Har du formell trener-kompetanse ? Dersom du har, vennligst skriv navn på sertifisering og organisasjon der du ble sertifisert.

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13. Har du selv vært aktiv fotballspiller? Ja  Nei

14. Dersom du selv har vært/er aktiv spiller, hvilket nivå var/er det høyeste du har konkurrert på?

- Har ikke vært aktiv spiller
- Toppnivå/eliteserie
- 1.-3. divisjon
- 4. divisjon eller lavere
- Bedriftsfotball
- Juniornivå
- Annet

15. Har du selv barn som spiller fotball: Ja  Nei

16. Har du barn som spiller på laget du selv trener: Ja  Nei

17. Hvor mange trenere er det på dette laget?

- En   
To   
Flere enn to

18. Dersom det er mer enn én trener, hvordan vil du beskrive ansvarsfordelingen mellom dere?

a) Vi har/tar like mye ansvar

b) Jeg er hoved-trener og den/de andre assisterer

c) Jeg assisterer en annen hovedtrener

d) Annen type arbeidsfordeling beskriv \_\_\_\_\_



19. Nedenfor står en del utsagn som beskriver hvorfor du er fotballtrener. **Sett en ring for hvert utsagn rundt det svaret som passer best med dine grunner for å være fotballtrener.**

Jeg er fotballtrener..	Svært Uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
1. fordi jeg synes det er moro	1	2	3	4	5
2. fordi det er bra for meg	1	2	3	4	5
3. fordi det bidrar til min personlige utvikling	1	2	3	4	5
4. fordi jeg ikke vil svikte spillerne mine	1	2	3	4	5
5. for å bli respektert av andre	1	2	3	4	5
6. selv om jeg ofte tenker at min trenerinnsats er bortkastet tid	1	2	3	4	5
7. fordi det gir meg en god følelse	1	2	3	4	5
8. fordi å være fotballtrener er en viktig ting i livet mitt	1	2	3	4	5
9. fordi det passer med mine personlige mål	1	2	3	4	5
10. fordi jeg ville følt det som et nederlag om jeg sluttet	1	2	3	4	5
11. for å få anerkjennelse	1	2	3	4	5
12. men noen ganger vet jeg ikke helt hvorfor jeg fremdeles holder på med dette	1	2	3	4	5



Jeg er fotballtrener..	Svært Uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
13. fordi jeg liker å bruke energien/kreftene mine på dette	1	2	3	4	5
14. fordi det passer godt med mine personlige verdier	1	2	3	4	5
15. fordi det gir meg mulighet til å oppnå mine personlige mål	1	2	3	4	5
16. fordi jeg føler ansvar for spillernes prestasjoner	1	2	3	4	5
17. fordi jeg gjerne vil bli verdsatt	1	2	3	4	5
18. men noen ganger krever det mer enn jeg føler jeg får tilbake	1	2	3	4	5

Jeg er fotballtrener..		Svært Uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
19.	fordi jeg liker det		1	2	3	4 5
20.	fordi jeg virkelig vil vinne		1	2	3	4 5
21.	fordi jeg liker belønningene (for eksempel pokaler, anerkjennelse) som følger med det å vinne		1	2	3	4 5
22.	men noen ganger lurur jeg på om jeg har lyst å fortsette å være trener		1	2	3	4 5
23.	fordi jeg liker å være sammen med spillerne		1	2	3	4 5



**20. For hvert utsagn, sett ring rundt det svaret som passer best med din opplevelse av å være fotballtrener i løpet av den siste måneden.**

		Svært Uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
1.	Jeg føler jeg har mye å si når det gjelder å bestemme hvordan jeg ønsker å lede og trene laget mitt	1	2	3	4	5
2.	Jeg liker godt spillerne jeg trener	1	2	3	4	5
3.	Jeg liker godt folkene i denne klubben	1	2	3	4	5
4.	Jeg føler meg ikke veldig kompetent på treningene	1	2	3	4	5
5.	Folk i klubben sier at jeg er en god trener	1	2	3	4	5
6.	Jeg føler meg presset i denne klubben	1	2	3	4	5
7.	Jeg går godt overens med spillerne jeg trener	1	2	3	4	5
8.	Jeg går godt overens med folk i klubben	1	2	3	4	5
9.	Jeg holder meg mye for meg selv på treningene	1	2	3	4	5
10.	Jeg er ikke mye sammen med andre i klubben	1	2	3	4	5
11.	Jeg føler meg fri til å bruke mine egne ideer og meninger når jeg trener laget mitt	1	2	3	4	5
12.	Jeg føler at jeg er venn med spillerne jeg trener	1	2	3	4	5
13.	Jeg er venner med andre folk i klubben	1	2	3	4	5



		Svært Uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
14.	Jeg har fått mulighet til å lære meg nye ting om hvordan jeg kan være en god (fotball) trener	1	2	3	4	5
15.	Ledelsen i klubben bestemmer hvordan treningene mine skal organiseres	1	2	3	4	5
16.	Jeg synes stort sett at jeg presterer bra som trener	1	2	3	4	5
17.	Klubben tar hensyn til hvordan jeg har det personlig	1	2	3	4	5
18.	Jeg får sjelden muligheten til å vise hva jeg kan som trener	1	2	3	4	5
19.	Spillerne jeg trener bryr seg om meg	1	2	3	4	5
20.	Folk i klubben bryr seg om meg	1	2	3	4	5
21.	Det er ikke mange spillere på laget mitt som jeg føler meg tett knyttet til	1	2	3	4	5
22.	Det er ikke mange folk i klubben som jeg føler meg tett knyttet til	1	2	3	4	5
23.	Jeg føler at jeg stort sett kan være meg selv når jeg trener laget mitt	1	2	3	4	5
24.	Det virker som om spillerne jeg trener ikke liker meg særlig godt	1	2	3	4	5
25.	Det virker som om folk i klubben ikke liker meg særlig godt	1	2	3	4	5
26.	Jeg føler meg ikke spesielt kompetent som fotballtrener	1	2	3	4	5
27.	Jeg har få muligheter til å bestemme hvordan jeg organiserer treningene	1	2	3	4	5
28.	Spillerne jeg trener er vennlig innstilt mot meg	1	2	3	4	5
29.	Folk i klubben er vennlig innstilt mot meg	1	2	3	4	5



21. Alle trenere har ulik tilnærming til hvordan de velger å trene laget sitt. Vi vil gjerne vite mer om hvordan du er som trener for laget ditt. Les de følgende utsagnene, og **sett ring rundt tallet som best gjenspeiler hvor enig du er i de følgende utsagnene.**

På laget mitt...	Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
1. oppfordrer jeg spillerne til å prøve ut ting de ikke kan fra før	1	2	3	4	5
2. er jeg mindre vennlig med spillerne dersom de ikke prøver å se ting på min måte	1	2	3	4	5
3. gir jeg spillerne mine valg og alternativer	1	2	3	4	5
4. prøver jeg å sørge for at spillerne føler seg vellykket når de gjør sitt beste	1	2	3	4	5
5. bytter jeg ut spillerne når de gjør feil	1	2	3	4	5
6. synes jeg det er viktig at spillerne spiller fotball av egen vilje	1	2	3	4	5
7. er jeg mindre støttende overfor spillerne når de ikke trener eller spiller godt	1	2	3	4	5
8. kan spillerne stole på at jeg bryr meg, uansett hva som skjer	1	2	3	4	5
9. vier jeg mesteparten av oppmerksomheten min til de beste spillerne	1	2	3	4	5



På laget mitt...	Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
10. kjefter jeg på spillerne dersom de gjør feil	1	2	3	4	5
11. roser jeg spillerne når de forbedrer seg	1	2	3	4	5
12. er jeg mindre oppmerksom mot spillere som gjør meg misfornøyd	1	2	3	4	5
13. belønner jeg spillere som jobber hardt	1	2	3	4	5
14. setter jeg pris på spillerne som personer, ikke bare som fotballspillere	1	2	3	4	5
15. lar jeg spillerne gjøre noe som er ekstra gøy mot slutten av treningen, men bare dersom de har gjort en god jobb underveis	1	2	3	4	5
16. svarer jeg grundig og skikkelig på spørsmål dersom spillerne spør meg om noe	1	2	3	4	5
17. overser jeg spillere som skuffer meg/gjør meg misfornøyd	1	2	3	4	5

	På laget mitt...	Verken enig eller uenig				
		Svært uenig	Uenig	Enig	Svært Enig	
18.	sørger jeg for at hver spiller bidrar til laget på en eller annen måte	1	2	3	4	5
19.	har jeg favorittspillere	1	2	3	4	5
20.	belønner jeg bare spillerne dersom de har spilt godt	1	2	3	4	5
21.	roses jeg spillerne som har spilt best på kamper	1	2	3	4	5
22.	prøver jeg å forklare spillerne hvorfor de skal gjøre de tingene jeg foreslår	1	2	3	4	5
23.	sørger jeg for at alle har en viktig rolle på laget	1	2	3	4	5
24.	skjeller jeg ut spillere foran andre for å få dem til å gjøre ulike ting	1	2	3	4	5
25.	får de beste spillerne spille mest	1	2	3	4	5
26.	holder jeg kontroll på treningene ved å true spillerne med straff	1	2	3	4	5



	På laget mitt...	Verken enig eller uenig				
		Svært uenig	Uenig	Enig	Svært Enig	
27.	lytter jeg åpent og uten å dømme når spillerne forteller meg om hvordan de har det	1	2	3	4	5
28.	sørger jeg for at alle spillerne opplever at de er delaktig i lagets suksess	1	2	3	4	5
29.	bruker jeg hovedsaklig belønning/ros for å få spillerne til å gjøre de tingene jeg vil de skal gjøre	1	2	3	4	5
30.	oppmuntrer jeg spillerne til å hjelpe hverandre med å lære nye ting	1	2	3	4	5
31.	prøver jeg å finne ut hva spillerne gjør på fritiden	1	2	3	4	5
32.	synes jeg det er viktig at spillerne synes det er gøy å holde på med fotball	1	2	3	4	5
33.	har jeg noen favorittspillere på laget	1	2	3	4	5
34.	oppfordrer jeg spillerne til å jobbe sammen som et lag	1	2	3	4	5

22. Alle trenere er ulike med hensyn til hva de føler at de gjør bra eller dårlig sammen med laget sitt.

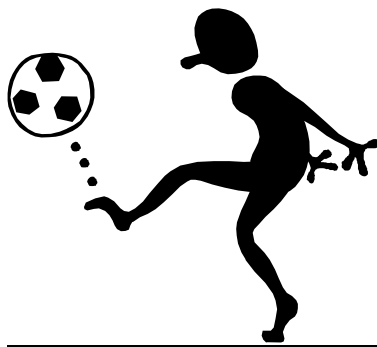
**Sett ring rundt det tallet som representerer hvor stor tro du har på dine evner i forhold til de ulike ferdighetene som står under.**

Hvor stor tro har du på at du kan:	Ingen tro										Svært stor tro
1. bidra til at spillere bevarer troen på seg selv	0	1	2	3	4	5	6	7	8	9	
2. finne ut av motstanderlagets sterke sider i kamp	0	1	2	3	4	5	6	7	8	9	
3. forberede spillerne mentalt på kamp	0	1	2	3	4	5	6	7	8	9	
4. anvende ulik taktikk i kamp	0	1	2	3	4	5	6	7	8	9	
5. oppmuntre til gode moralske holdninger	0	1	2	3	4	5	6	7	8	9	
6. bygge et positivt selvbilde hos spillerne	0	1	2	3	4	5	6	7	8	9	
7. demonstrere ferdigheter /øvelser innen fotball	0	1	2	3	4	5	6	7	8	9	
8. endre eget spill /taktikk slik at det tilpasses ulike kampsituasjoner	0	1	2	3	4	5	6	7	8	9	



Hvor stor tro har du på at du kan:	Ingen tro										Svært stor tro
9. finne ut av motstanderes svakheter i kampsituasjoner	0	1	2	3	4	5	6	7	8	9	
10. motivere spillerne	0	1	2	3	4	5	6	7	8	9	
11. ta viktige avgjørelser under kamp	0	1	2	3	4	5	6	7	8	9	
12. utvikle/bygge samhold i laget	0	1	2	3	4	5	6	7	8	9	
13. fremme en fair play holdning hos spillerne	0	1	2	3	4	5	6	7	8	9	
14. veilede spillerne i forhold til teknikk/ferdigheter	0	1	2	3	4	5	6	7	8	9	
15. utvikle spillernes tro på seg selv	0	1	2	3	4	5	6	7	8	9	
16. utvikle spillernes talent	0	1	2	3	4	5	6	7	8	9	

Hvor stor tro har du på at du kan:		Ingen tro										Svært stor tro									
17.	fremme spillernes /lagets sterke sider under kamp	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
18.	identifisere spillernes talent	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
19.	fremme god sportsånd	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
20.	oppdage tekniske /ferdighetsmessige feil	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
21.	tilpasse kampstrategier med utgangspunkt i lagets ferdighetsnivå	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
22.	lære bort ferdigheter i fotball	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
23.	bygge lagets tro på seg selv	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9
24.	fremme en holdning om å respektere hverandre	0	1	2	3	4	5	6	7	8	9	0	1	2	3	4	5	6	7	8	9



23. Alle trenere ønsker å gjøre sitt beste, men noen ganger kan dette være vanskelig på grunn av faktorer som du ikke selv har kontroll over. For hvert utsagn under, **sett en ring rundt det tallet som passer best med de utfordringene du møter som trener for laget.**

Utfordringer	Aldri problematisk							Ofte problematisk
1. Foreldre insisterer på at du bør øke fokus på prestasjoner.	1	2	3	4	5	6	7	
2. Foreldre insisterer på at du bør øke fokus på å ivareta spillernes trivsel.	1	2	3	4	5	6	7	
3. Foreldre som er opptatt av at de beste spillerne skal få spille mest i kamp.	1	2	3	4	5	6	7	
4. Foreldre som blander seg inn i dine avgjørelser som trener.	1	2	3	4	5	6	7	
5. Folk i klubben insisterer på at du bør øke fokus på prestasjoner.	1	2	3	4	5	6	7	
6. Folk i klubben insisterer på at du bør øke fokus på å ivareta spillernes trivsel.	1	2	3	4	5	6	7	
7. Mangelfulle treningsfasiliteter/utstyr.	1	2	3	4	5	6	7	
8. Disiplinærproblemer i spillergruppa.	1	2	3	4	5	6	7	
9. Vanskelig å få foreldre til å stille opp for laget.	1	2	3	4	5	6	7	



24. Sett en ring rundt det svaret som passer best med hvor ofte de følgende følelsene har preget deg når du har trent dette laget i løpet av den siste måneden.

I løpet av den siste måneden mens jeg har trent dette laget har jeg stort sett følt meg...	Sjelden/aldri		Noen ganger			Alltid	
	1	2	3	4	5	6	7
1. glad	1	2	3	4	5	6	7
2. fornøyd	1	2	3	4	5	6	7
3. misfornøyd/ulykkelig	1	2	3	4	5	6	7
4. aggressiv	1	2	3	4	5	6	7
5. lykkelig/ oppstemt	1	2	3	4	5	6	7
6. frustrert/irritert	1	2	3	4	5	6	7
7. begeistret/frydefull	1	2	3	4	5	6	7
8. trist/lei meg	1	2	3	4	5	6	7
9. entusiastisk	1	2	3	4	5	6	7
10. stolt	1	2	3	4	5	6	7

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25. Under står noen utsagn relatert til hverdagslivet ditt (alt du vanligvis gjør) og ikke bare til fotballgjerningen din. Sett en ring rundt svarene som passer best med hvordan du generelt har kjent deg den siste måneden.

Den siste måneden har jeg stort sett...	Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
1. følt meg opplagt	1	2	3	4	5
2. vært i godt humør	1	2	3	4	5
3. gledet meg til hver dag	1	2	3	4	5
4. følt meg kvikk og våken	1	2	3	4	5
5. hatt masse energi	1	2	3	4	5

26. Hva tenker du nå for tiden om hvor lenge du kommer til å fortsette å være fotballtrener?

	Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
1. Jeg har tenkt å fortsette som fotballtrener neste sesong	1	2	3	4	5
2. Jeg kan tenke meg å fortsette å trene dette laget til neste sesong.	1	2	3	4	5

27. For hvert utsagn under, sett en ring rundt tallet som passer best med din oppfatning av forholdet mellom spillerne på laget

	På fotball-laget jeg er trener for...	Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
1.	har spillerne mye til felles	1	2	3	4	5
2.	forstår spillerne hverandre godt	1	2	3	4	5
3.	er spillerne åpne med hverandre	1	2	3	4	5
4.	stoler spillerne på hverandre	1	2	3	4	5
5.	har spillerne et godt samhold	1	2	3	4	5
6.	stiller spillerne opp for hverandre	1	2	3	4	5

**TUSEN TAKK FOR HJELPEN!**





## **Appendix 9**

Application to the Norwegian Centre for Research Data UEFA





## MELDESKJEMA

Meldeskjema (versjon 1.4) for forsknings- og studentprosjekt som medfører meldeplikt eller konsesjonsplikt (jf. personopplysningsloven og helseregisterloven med forskrifter).

1. Prosjektittel		
Tittel	Motivasjon og opplevelser i jentehåndball og jentefotball	
2. Behandlingsansvarlig institusjon		
Institusjon	Norges idrettshøgskole	Velg den institusjonen du er tilknyttet. Alle nivå må oppgis. Ved studentprosjekt er det studentens tilknytning som er avgjørende. Dersom institusjonen ikke finnes på listen, vennligst ta kontakt med personvernombudet.
Avdeling/Fakultet	Seksjon for coaching og psykologi	
Institutt		
3. Daglig ansvarlig (forsker, veileder, stipendiat)		
Fornavn	Yngvar	Før opp navnet på den som har det daglige ansvaret for prosjektet. Veileder er vanligvis daglig ansvarlig ved studentprosjekt.
Etternavn	Ommundsen	
Akademisk grad	Doktorgrad	Veileder og student må være tilknyttet samme institusjon. Dersom studenten har ekstern veileder, kan biveileder eller fagansvarlig ved studiestedet stå som daglig ansvarlig. Arbeidssted må være tilknyttet behandlingsansvarlig institusjon, f.eks. underavdeling, institutt etc.
Stilling	Professor	
Arbeidssted	Norges idrettshøgskole	
Adresse (arb.sted)	Norges idrettshøgskole, Sognsveien 220, Oslo	NB! Det er viktig at du oppgir en e-postadresse som brukes aktivt. Vennligst gi oss beskjed dersom den endres.
Postnr/sted (arb.sted)	0806 Oslo	
Telefon/mobil (arb.sted)	23262420 / 91804634	
E-post	yngvar.ommundsen@nih.no	
4. Student (master, bachelor)		
Studentprosjekt	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	
5. Formålet med prosjektet		
Formål	Undersøke motivasjon og trivselsaspekter i forbindelse med jenters deltagelse i organisert fotball og håndball. Disse to idrettene er populære blant jenter, men flere jenter enn gutter slutter med lagspill i ungdomsalderen. Fokus er derfor bedre kunnskap om idrettsmiljøets betydning for de unges motivasjon og utbytte av å være med. Det vil gi oss bedre innsikt i premisser for å kunne opprettholde trivsel og motivasjon til å fortsette med håndball, fotball og annen idrett og fysisk aktivitet i denne aldersfasen. Eksempeler på forsknings spørsmål: Hvordan opplever jentene motivasjonsklimaet i eget lag? Hva særpreger de unges motivasjon for å delta? Hvilke miljø- og personfaktorer er relatert til intensjon om å slutte versus fortsette?	Redegjør kort for prosjektets formål, problemstilling, forsknings spørsmål e.l.  Maks 750 tegn.
6. Prosjektomfang		
Velg omfang	<input type="radio"/> Enkel institusjon <input type="radio"/> Nasjonalt samarbeidsprosjekt <input checked="" type="radio"/> Internasjonalt samarbeidsprosjekt	Med samarbeidsprosjekt menes prosjekt som gjennomføres av flere institusjoner samtidig, som har samme formål og hvor personopplysninger utveksles.
Oppgi øvrige institusjoner	University of Birmingham, England, University of Grenoble France, University of Valencia, Spain and University of Thessaly, Greece	
Oppgi hvordan samarbeidet foregår	Sammenliknbare data samles inn blant unge fotballspillende jenter i de fem landene, samt blant jenter i en annen individuell- eller lagidrett. Prosjektet går i forlengelsen av et allerede avsluttet EU-finansiert prosjekt (PAPA-prosjektet) hvor de samme samarbeidspartnere har vært involvert	

7. Utvalgsbeskrivelse		
Utvalget	Jentespillere i alderen 15-18 år innen fotball og jentespillere i alderen 11-18 år innen håndball.	Med utvalg menes dem som deltar i undersøkelsen eller dem det innhentes opplysninger om. F.eks. et representativt utvalg av befolkningen, skoleelever med lese- og skrivevansker, pasienter, innsatte.
Rekruttering og trekking	Spillere vil bli rekruttert via klubber innen jentehåndball i Oslo og via klubber innen jentefotball i Akershus. Vi vil benytte oss av pragmatiske utvalg innen rammen av alders- og kjønnssegmentet. Vi vil prøve å rekruttere fra større klubber med flere lag i den aktuelle aldersgruppen for slik å effektivisere datainnsamlingen	Beskriv hvordan utvalget trekkes eller rekrutteres og oppgi hvem som foretar den. Et utvalg kan trekkes fra registre som f.eks. Folkeregisteret, SSB-registre, pasientregistre, eller det kan rekrutteres gjennom f.eks. en bedrift, skole, idrettsmiljø, eget nettverk.
Førstegangskontakt	Vi tar kontakt med respektive kretser som gir oss info om kontaktpersoner for aktuelle klubber med jentelag i aktuell aldersfase. Treneren for lagene som vi finner aktuelle å kontakte blir vår primærkontakt inn mot lag/spillere og foreldre/foresatte	Beskriv hvordan førstegangskontakten opprettes og oppgi hvem som foretar den.  Les mer om dette på våre temasider.
Alder på utvalget	<input type="checkbox"/> Barn (0-15 år) <input type="checkbox"/> Ungdom (16-17 år) <input type="checkbox"/> Voksne (over 18 år)	
Antall personer som inngår i utvalget	300 jentespillere innen fotball (15-18 år) 200 jentespillere innen håndball (11-18 år)	
Inkluderes det myndige personer med redusert eller manglende samtykkekompetanse?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	Begrunn hvorfor det er nødvendig å inkludere myndige personer med redusert eller manglende samtykkekompetanse.
Hvis ja, begrunn		Les mer om Pasienter, brukere og personer med redusert eller manglende samtykkekompetanse
8. Metode for innsamling av personopplysninger		
Kryss av for hvilke datainnsamlingsmetoder og datakilder som vil benyttes	<input checked="" type="checkbox"/> Spørreskjema <input type="checkbox"/> Personlig intervju <input type="checkbox"/> Gruppeintervju <input type="checkbox"/> Observasjon <input type="checkbox"/> Psykologiske/pedagogiske tester <input type="checkbox"/> Medisinske undersøkelser/tester <input type="checkbox"/> Journaldata <input type="checkbox"/> Registerdata <input type="checkbox"/> Annen innsamlingsmetode	Personopplysninger kan innhentes direkte fra den registrerte f.eks. gjennom spørreskjema, intervju, tester, og/eller ulike journaler (f.eks. elevmapper, NAV, PPT, sykehus) og/eller registre (f.eks. Statistisk sentralbyrå, sentrale helseregistre).
Annen innsamlingsmetode, oppgi hvilken		
Kommentar		
9. Datamaterialets innhold		
Redegjør for hvilke opplysninger som samles inn	Spilleres alder (år og måned), bakgrunnsopplysninger (etnisk bakgrunn, angivelse av økonomiske hjemmressurser). Data knyttet til idrettsdeltagelse i respektiv idrett, psykologiske forhold rundt egen deltagelse i håndball/fotball (motivasjon, opplevelse av sider ved trenings- og konkurransemiljøet, opplevelse av mestring, behovstilfredshet, psykologisk velvære i idretten, intensjoner om å slutte/fortsette	Spørreskjema, intervju-/temaguide, observasjonsbeskrivelse m.m. sendes inn sammen med meldeskjemaet.  NB! Vedleggene lastes opp til sist i meldeskjema, se punkt 16 Vedlegg.
Samles det inn direkte personidentifiserende opplysninger?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	Dersom det krysses av for ja her, se nærmere under punkt 11 Informasjonssikkerhet.
Hvis ja, hvilke?	<input type="checkbox"/> 11-sifret fødselsnummer <input type="checkbox"/> Navn, fødselsdato, adresse, e-postadresse og/eller telefonnummer	Les mer om hva personopplysninger er
Spesifiser hvilke		NB! Selv om opplysningene er anonymiserte i oppgave/rapport, må det krysses av dersom direkte og/eller indirekte personidentifiserende opplysninger innhentes/registreres i forbindelse med prosjektet.

Samles det inn indirekte personidentifiserende opplysninger?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	En person vil være indirekte identifiserbar dersom det er mulig å identifisere vedkommende gjennom bakgrunnsopplysninger som for eksempel bostedskommune eller arbeidsplass/skole kombinert med opplysninger som alder, kjønn, yrke, diagnose, etc.  Kryss også av dersom ip-adresse registreres.
Hvis ja, hvilke?		
Samles det inn sensitive personopplysninger?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	
Hvis ja, hvilke?	<input type="checkbox"/> Rasemessig eller etnisk bakgrunn, eller politisk, filosofisk eller religiøs oppfatning <input type="checkbox"/> At en person har vært mistenkt, siktet, tiltalt eller dømt for en straffbar handling <input type="checkbox"/> Helseforhold <input type="checkbox"/> Seksuelle forhold <input type="checkbox"/> Medlemskap i fagforeninger	
Samles det inn opplysninger om tredjeperson?	Ja <input checked="" type="radio"/> Nei <input type="radio"/>	Med opplysninger om tredjeperson menes opplysninger som kan spores tilbake til personer som ikke inngår i utvalget. Eksempler på tredjeperson er kollega, elev, klient, familiemedlem.
Hvis ja, hvem er tredjeperson og hvilke opplysninger registreres?	Trener - opplevelse av psykologisk klima i egen idrettsgruppe/opplevd treneratferd	
Hvordan informeres tredjeperson om behandlingen?	<input checked="" type="checkbox"/> Skriftlig <input type="checkbox"/> Muntlig <input type="checkbox"/> Informeres ikke	
Informeres ikke, begrunn		
<b>10. Informasjon og samtykke</b>		
Oppgi hvordan utvalget informeres	<input checked="" type="checkbox"/> Skriftlig <input type="checkbox"/> Muntlig <input type="checkbox"/> Informeres ikke	Vennligst send inn informasjonsskrivet eller mal for muntlig informasjon sammen med meldeskjema.
Begrunn		NB! Vedlegg lastes opp til sist i meldeskjemaet, se punkt 16 Vedlegg.  Dersom utvalget ikke skal informeres om behandlingen av personopplysninger må det begrunnes.  Last ned vår veiledende mal til informasjonsskriv
Oppgi hvordan samtykke fra utvalget innhentes	<input checked="" type="checkbox"/> Skriftlig <input type="checkbox"/> Muntlig <input type="checkbox"/> Innhentes ikke	Dersom det innhentes skriftlig samtykke anbefales det at samtykkeerklæringen utformes som en svarslipp eller på eget ark. Dersom det ikke skal innhentes samtykke, må det begrunnes.
Innhentes ikke, begrunn		
<b>11. Informasjonssikkerhet</b>		
Direkte personidentifiserende opplysninger erstattes med et referansenummer som viser til en atskilt navneliste (koblingsnøkkel)	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	Har du krysset av for ja under punkt 9 Datamaterialets innhold må det merkes av for hvordan direkte personidentifiserende opplysninger registreres.
Hvordan oppbevares navnelisten/koblingsnøkkel og hvem har tilgang til den?		NB! Som hovedregel bør ikke direkte personidentifiserende opplysninger registreres sammen med det øvrige datamaterialet.
Direkte personidentifiserende opplysninger oppbevares sammen med det øvrige materialet	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	
Hvorfor oppbevares direkte personidentifiserende opplysninger sammen med det øvrige datamaterialet?		

Oppbevares direkte personidentifiserbare opplysninger på andre måter?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	
Spesifiser		
Hvordan registreres og oppbevares datamaterialet?	<input type="checkbox"/> Fysisk isolert datamaskin tilhørende virksomheten <input type="checkbox"/> Datamaskin i nettverkssystem tilhørende virksomheten <input checked="" type="checkbox"/> Datamaskin i nettverkssystem tilknyttet Internett tilhørende virksomheten <input type="checkbox"/> Fysisk isolert privat datamaskin <input type="checkbox"/> Privat datamaskin tilknyttet Internett <input type="checkbox"/> Videoopptak/fotografi <input type="checkbox"/> Lydopptak <input type="checkbox"/> Notater/papir <input type="checkbox"/> Annen registreringsmetode	Merk av for hvilke hjelpemidler som benyttes for registrering og analyse av opplysninger.  Sett flere kryss dersom opplysningene registreres på flere måter.
Annen registreringsmetode beskriv		
Behandles lyd-/videoopptak og/eller fotografi ved hjelp av datamaskinbasert utstyr?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	Kryss av for ja dersom opptak eller foto behandles som lyd-/bildefil.  Les mer om behandling av lyd og bilde.
Hvordan er datamaterialet beskyttet mot at uvedkommende får innsyn?	via brukernavn & passord på forskers pc. Datamateriale vil kun bli lagret på skolens nettverksområde (H/: område)	Er f.eks. datamaskintilgangen beskyttet med brukernavn og passord, står datamaskinen i et låsbart rom, og hvordan sikres bærbare enheter, utskrifter og opptak?
Dersom det benyttes mobile lagringsenheter (bærbar datamaskin, minnepenn, minnekort, cd, ekstern harddisk, mobiltelefon), oppgi hvilke		NB! Mobile lagringsenheter bør ha mulighet for kryptering.
Vil medarbeidere ha tilgang til datamaterialet på lik linje med daglig ansvarlig/student?	Ja <input checked="" type="radio"/> Nei <input type="radio"/>	
Hvis ja, hvem?	Ja, phd student involvert i arbeidet, samt forsker (dr. Paul Appleton, Universitetet i Birmingham, som inngår i internasjonalt samarbeid i prosjektet (se opplagret prosjektbeskrivelse fra Dr Appleton)	
Overføres personopplysninger ved hjelp av e-post/Internett?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	F.eks. ved bruk av elektronisk spørreskjema, overføring av data til samarbeidspartner/databehandler mm.
Hvis ja, hvilke?		
Vil personopplysninger bli utlevert til andre enn prosjektgruppen?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	
Hvis ja, til hvem?		
Samles opplysningene inn/behandles av en databehandler?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	Dersom det benyttes eksterne til helt eller delvis å behandle personopplysninger, f.eks. Questback, Synovate MMI, Norfakta eller transkriberingsassistent eller tolk, er dette å betrakte som en databehandler. Slike oppdrag må kontraksreguleres  Les mer om databehandleravtaler her
Hvis ja, hvilken?		
<b>12. Vurdering/godkjenning fra andre instanser</b>		
Søkes det om dispensasjon fra taushetsplikten for å få tilgang til data?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	For å få tilgang til taushetsbelagte opplysninger fra f.eks. NAV, PPT, sykehus, må det søkes om

Kommentar		dispensasjon fra taushetsplikten. Dispensasjon søkes vanligvis fra aktuelt departement. Dispensasjon fra taushetsplikten for helseopplysninger skal for alle typer forskning søkes  Regional komité for medisinsk og helsefaglig
Søkes det godkjenning fra andre instanser?	Ja <input type="radio"/> Nei <input checked="" type="radio"/>	F.eks. søke registreier om tilgang til data, en ledelse om tilgang til forskning i virksomhet, skole, etc.
Hvis ja, hvilke?		
<b>13. Prosjektperiode</b>		
Prosjektperiode	Prosjektstart:01.11.2014  Prosjektstlutt:31.03.2015	Prosjektstart Vennligst oppgi tidspunktet for når førstegangskontakten med utvalget opprettes og/eller datainnsamlingen starter.  Prosjektstlutt Vennligst oppgi tidspunktet for når datamaterialet enten skal anonymiseres/slettes, eller arkiveres i påvente av oppfølgingsstudier eller annet. Prosjektet anses vanligvis som avsluttet når de oppgitte analyser er ferdigstilt og resultatene publisert, eller oppgave/avhandling er innlevert og sensurert.
Hva skal skje med datamaterialet ved prosjektstlutt?	<input checked="" type="checkbox"/> Datamaterialet anonymiseres <input type="checkbox"/> Datamaterialet oppbevares med personidentifikasjon	Med anonymisering menes at datamaterialet bearbejdes slik at det ikke lenger er mulig å føre opplysningene tilbake til enkeltpersoner.NB! Merk at dette omfatter både oppgave/publikasjon og rådata.  Les mer om anonymisering
Hvordan skal datamaterialet anonymiseres?	Hvert enkelt spørreskjema gis et løpenummer (01, 02, 03 osv.)	Hovedregelen for videre oppbevaring av data med personidentifikasjon er samtykke fra den registrerte.
Hvorfor skal datamaterialet oppbevares med personidentifikasjon?		Årsaker til oppbevaring kan være planlagte oppfølgingsstudier, undervisningsformål eller annet.
Hvor skal datamaterialet oppbevares, og hvor lenge?		Datamaterialet kan oppbevares ved egen institusjon, offentlig arkiv eller annet.  Les om arkivering hos NSD
<b>14. Finansiering</b>		
Hvordan finansieres prosjektet?	Prosjektet finansieres av tildelte midler fra UEFA (Europeiske fotballforbund) til berørte samarbeidspartnere, samt av egne interne forskningsmidler ved Norges idrettshøgskole, seksjon for coaching og psykologi	
<b>15. Tilleggsopplysninger</b>		
Tilleggsopplysninger	I forbindelse med datainnsamlingen vil alle besvarte spørreskjemaer bli sjekket for at anonymitet sikres, dvs at ingen spillere - mot formodning og gitt forhåndsinformasjon - har skrevet navn på skjemaet. Besvarte skjemaer vil forøvrig bli samlet inn umiddelbart og lagt i lukket konvolutt av ansvarlig for datainnsamlingen, og bli brakt tilbake til prosjektansvarlig for trygg lagring ved institusjon (låsbar skap). Vedrørende prosjektstlutt: Sluttdato for skriving av rapport til UEFA vil være utgangen av mars 2015, og vil bli utført av ansvarlig forsker ved Universitetet i Birmingham, dr. Paul Appleton. I og med at den norske delen av datamaterialet også skal inngå som del av phd student Siv Gjesdal, Norges idrettshøgskole sin phd avhandling, vil sluttdato for hennes bruk være senere. Hun er tilsatt på en 4-årig stipendiatkontrakt 2014-2018.	



16. Vedlegg	
Antall vedlegg	7

## **Appendix 10**

Response from the Norwegian Centre for Research Data UEFA





Yngvar Ommundsen  
Seksjon for coaching og psykologi Norges idrettshøgskole  
Postboks 4014 Ullevål stadion  
0806 OSLO

Vår dato: 17.09.2014

Vår ref: 39721 / 3 / LT

Deres dato:

Deres ref:

## TILBAKEMELDING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 08.09.2014. Meldingen gjelder prosjektet:

39721	<i>Motivasjon og opplevelser i jentehåndball og jentefotball</i>
<i>Behandlingsansvarlig</i>	<i>Norges idrettshøgskole, ved institusjonens øverste leder</i>
<i>Daglig ansvarlig</i>	<i>Yngvar Ommundsen</i>

Etter gjennomgang av opplysninger gitt i meldeskjemaet og øvrig dokumentasjon, finner vi at prosjektet ikke medfører meldeplikt eller konsesjonsplikt etter personopplysningslovens §§ 31 og 33.

Dersom prosjektopplegget endres i forhold til de opplysninger som ligger til grunn for vår vurdering, skal prosjektet meldes på nytt. Endringsmeldinger gis via et eget skjema, <http://www.nsd.uib.no/personvern/meldeplikt/skjema.html>.

Vedlagt følger vår begrunnelse for hvorfor prosjektet ikke er meldepliktig.

Vennlig hilsen

Katrine Utaaker Segadal

Lis Tenold

Kontaktperson: Lis Tenold tlf: 55 58 33 77

Vedlegg: Prosjektvurdering

*Dokumentet er elektronisk produsert og godkjent ved NSDs rutiner for elektronisk godkjenning.*

*Avdelingskontorer / District Offices:*

*OSLO:* NSD, Universitetet i Oslo, Postboks 1055 Blindern, 0316 Oslo. Tel: +47-22 85 52 11. [nsd@uio.no](mailto:nsd@uio.no)

*TRONDHEIM:* NSD, Norges teknisk-naturvitenskapelige universitet, 7491 Trondheim. Tel: +47-73 59 19 07. [kyrre.svarva@svt.ntnu.no](mailto:kyrre.svarva@svt.ntnu.no)

*TROMSØ:* NSD, SVF, Universitetet i Tromsø, 9037 Tromsø. Tel: +47-77 64 43 36. [nsdmaa@sv.uit.no](mailto:nsdmaa@sv.uit.no)



Det foreliggende prosjektet er en melding for en spørreundersøkelse til ungdom som driver med fotball og håndball, totalt 500 ungdommer.

Det gis skriftlig informasjon og samtykke for deltakelse er ensbetydende med utfylling av spørreskjema. Revidert spørreskjema mottatt 15.09.2014 medfører etter personvernombudets vurdering ikke innsamling/behandling av personopplysninger. Spørreskjemaet inneholder ikke spørsmål som direkte eller indirekte kan identifisere den enkelte ungdom. Skjemaet er heller ikke merket med et løpenummer som viser til en identifiserbar navneliste. I revidert versjon har prosjektleder fjernet mulige indirekte personidentifiserbare opplysninger som navn på laget og navn på trener.

At undersøkelsen er anonym medfører at en del forhold må endres i informasjonsskrivet. Personvernombudet anbefaler at fjerde avsnitt som begynner "Det er helt....." endres til ". "Spørreskjemaundersøkelsen gjennomføres anonymt, det betyr at det ikke vil bli samlet inn og registrert opplysninger som kan identifisere deg. Du skal ikke skrive navnet ditt på spørreskjemaet. "

På bakgrunn av dette finner personvernombudet at prosjektet ikke er omfattet av meldeplikt all den tid den beskrevne prosedyren følges og undersøkelsen gjennomføres anonymt.

## **Appendix 11**

Information Letters UEFA (Coach, Parent/Legal Guardian, Athlete)



## Informasjon om prosjektet "Motivasjon og opplevelser i jentefotball"

Kjære trener i *jentefotball*

Vi er en gruppe forskere fra Norges Idrettshøgskole som i samarbeid med forskere fra fire andre europeiske nasjoner gjennomfører et prosjekt innen **organisert fotball og håndball blant jenter i barne- og ungdomsalderen**. Deltakerne i Norge innen fotball er et utvalg på rundt 200 jentespillere i alderen 15-18 år som deltar i organisert klubbefotball.

Til tross for at fotball og håndball har stor tilslutning på jentesiden i Norge, er det en kjensgjerning at flere jenter enn gutter slutter med organisert fotball- og håndballspill, i løpet av barne- og ungdomsalderen. Målet med prosjektet er å undersøke hvordan fortsatt aktive unge jenteutøvere i fotball og håndball opplever ulike sider ved idretten sin i trening og konkurranse. Dette kan gi oss bedre kunnskap om idrettsmiljøets betydning for de unges motivasjon og utbytte av å være med. Slik kan vi bedre forstå hva som skal til blant jenter for å opprettholde trivsel og motivasjon til å fortsette med fotball, håndball og annen idrett og fysisk aktivitet i denne aldersfasen.

Vi ønsker å invitere spillerne på ditt lag til å ta del i undersøkelsen. Spillerne dine vil bli bedt om å svare på et spørreskjema som de fyller ut i forbindelse med en trening med laget. Spørreskjemaet tar omtrent 20 minutter å besvare. Spørsmålene vil omhandle forhold så som spillerens motivasjon, tro på egne fotballferdigheter, motiverende atmosfære på laget, fysisk aktivitet og trivsel.

Spørreskjemaundersøkelsen gjennomføres anonymt, det betyr at det ikke vil bli samlet inn og registrert opplysninger som kan identifisere enkeltpillere. Spillerne skal ikke skrive sitt navn på skjemaet. Vår primærhensikt er forøvrig å undersøke spillernes opplevelser og vurderinger for utvalget som helhet, ikke innen det enkelte lag. Datainnsamlingen er planlagt gjennomført innen november 2014.

### Din rolle i datainnsamlingen

- Meld tilbake hvorvidt du sier JA eller NEI til deltagelse for ditt lag via e-post [siv.gjesdal@nih.no](mailto:siv.gjesdal@nih.no) eller sms (mobil; 97896818) til: Siv Gjesdal
  - Oppgi klubb, lag, ditt navn og din funksjon (trener, lagleder, oppmann)
- Dersom du vil at ditt lag skal delta, ber vi deg om å melde tilbake på **e-post** til [siv.gjesdal@nih.no](mailto:siv.gjesdal@nih.no) følgende:
  - Aktuelt tidspunkt og sted for gjennomføring av datainnsamlingen (gjærne ifm med en trening hvor du selv også kan være til stede). Det vil da etter avtale med deg komme en person fra Norges idrettshøgskole som vil organisere datainnsamlingen den aktuelle dagen
  - Hvorvidt det finnes egnet sted/klubblokale eller annet hvor det er greit å fylle ut spørreskjema
  - Hvor mange spillere du har i din gruppe



I forbindelse med datainnsamlingen blant spillerne, vil vi gjerne at du som trener svarer på noen korte spørsmål på et eget spørreskjema rundt det å være trener i jentefotballen. Dette vil ta maksimum 4-5 minutter å fylle ut. Dette er selvsagt også frivillig og anonymt.

#### *Vedrørende samtykke fra spillere og foreldre/foresatte*

Dersom du sier ja til at ditt lag kan delta, vil spillere og deres foreldre/foresatte informeres om undersøkelsen i eget skriv hvor vi ber om deres samtykke (godkjenning) til deltagelse. Dette er basert på passivt samtykke hvilket betyr at de melder tilbake kun dersom foreldre/foresatte og/eller spiller ikke ønsker å delta. Dersom spilleren ikke er fylt 15 år, må foreldre/foresatte samtykke på vegne av egen datter, og gi tilbakemelding dersom de selv eller datteren ikke ønsker at hun skal delta. Dersom spilleren er fylt 15 år, gir hun selv beskjed dersom hun ikke ønsker å delta.

En eventuell tilbakemelding om *ikke-deltagelse* går til oss. Skulle du likevel få en slik tilbakemelding, er det viktig at vi får beskjed slik at spilleren ikke deltar under utfyllingen av skjemaet.

I forbindelse info/samtykkeskjema til foreldre/foresatte og spillere vil vi be om din hjelp til å utlevere dette til alle berørte. Dette kan gjøres på ulike måter, og vi inviterer deg til å løse dette på en hensiktsmessig måte som f.eks:

- Vi sender deg skjemaet som du formidler videre til dem pr e-post
- Du legger ut skjemaet på lagets hjemmeside/nettsted og informerer om dette i en sms eller e-post til foreldre/foresatte
- Vi sender deg skjemaet i et tilstrekkelig antall kopier som du så deler ut til spillere

Gi beskjed hva du foretrekker, og vi forholder oss til det.

#### **Prosjektets nytteverdi**

Prosjektet er viktig med sikte på å fremme gode idrettsmiljøer for barn og unge, og slik bidra til mestring, læring og god prestasjonsutvikling. Vi vil bruke datamaterialet til vitenskapelig arbeid, og publisere resultatene i vitenskapelige tidsskrifter. Det vil ikke være mulig å gjenkjenne enkeltpersoner i publikasjoner. Hvis du/dere har spørsmål angående undersøkelsen, vennligst ta kontakt ved hjelp av kontaktopplysningene gitt nedenfor. Vi håper at du/dere vil støtte dette verdifulle prosjektet!

Prosjektet er meldt til Personvernombudet for forskning, Norsk samfunnsvitenskapelig datatjeneste AS. Norges idrettshøgskole er behandlingsansvarlig institusjon for prosjektet og professor Yngvar Ommundsen er daglig ansvarlig.

Prosjektet er støttet av Norges idrettshøgskole og det internasjonale fotballforbundet (UEFA). Ved Norges idrettshøgskole vil Phd student Siv Gjesdal bruke datagrunnlaget som underlag for deler av sin doktorgrad i idrettsvitenskap.

Vennlig hilsen

Professor Yngvar Ommundsen, prosjektansvarlig Norges idrettshøgskole  
Siv Gjesdal, doktorgradsstudent, Norges idrettshøgskole

Kontaktopplysninger for prosjektleder:

Yngvar Ommundsen, Norges idrettshøgskole, Ullevaal stadion/Sognsveien 220, postboks  
4014, 0806, Oslo.

[yngvar.ommundsen@nih.no](mailto:yngvar.ommundsen@nih.no), tlf. 23262420, mobil 91804634.

## Informasjon om prosjektet "Motivasjon og opplevelser i jentefotball"

Kjære spiller og foreldre/foresatte i *jentefotball*

Vi er en gruppe forskere fra Norges Idretthøgskole som i samarbeid med forskere fra fire andre europeiske nasjoner gjennomfører et prosjekt innen **organisert fotball og håndball blant jenter i barne- og ungdomsalderen**. Deltakerne i Norge innen **fotball** er et utvalg på rundt 200 jentespillere i alderen **15-18 år** som deltar i organisert klubbefotball.

Til tross for at fotball og håndball har stor tilslutning på jentesiden i Norge, er det en kjensgjerning at flere jenter enn gutter slutter med organisert fotball- og håndspill i løpet av barne- og ungdomsalderen. Målet med prosjektet er å undersøke hvordan fortsatt aktive unge jenteutøvere i fotball og håndball opplever ulike sider ved idretten sin i trening og konkurranse. Dette kan gi oss bedre kunnskap om idrettsmiljøets betydning for de unges motivasjon og utbytte av å være med. Slik kan vi bedre forstå hva som skal til blant jenter for å opprettholde trivsel og motivasjon til å fortsette med fotball, håndball og annen idrett og fysisk aktivitet i denne aldersfasen.

### VI ØNSKER Å INVITERE DEG SOM JENTESPILLER I FOTBALL TIL Å VÆRE MED I UNDERSØKELSEN.

Deltagelse innebærer at du svarer på et spørreskjema i forbindelse med en trening i laget ditt i fotball. Spørreskjemaet tar omtrent 20 minutter å besvare. Spørsmålene vil omhandle forhold så som motivasjon, tro på egne fotballferdigheter, motiverende atmosfære på laget, fysisk aktivitet og trivsel.

Spørreskjemaundersøkelsen gjennomføres anonymt, det betyr at det ikke vil bli samlet inn og registrert opplysninger som kan identifisere deg. Du skal ikke skrive navn på skjemaet. Selv om det hjelper vår studie om alle spørsmål er besvart, er du ikke forpliktet til å svare på alle spørsmålene. Du kan trekke deg fra studien på ethvert tidspunkt. Dersom du ikke vil delta i studien, eller blir med, men senere velger å trekke deg, vil det ikke få innvirkning på forholdet ditt til treneren din, klubben din eller forbundet.

### Samtykke(ønsker/ønsker ikke delta):

- Til foreldre/foresatte dersom spilleren **ikke er fylt 15 år**: Dersom dere ønsker at deres datter skal delta, og hun selv ønsker å være med, gir dere tillatelse gjennom passivt samtykke. Det innebærer at dere **kun** gir beskjed dersom dere og/eller henne selv **ikke** ønsker at hun skal svare på spørreskjemaet til prosjektansvarlig Yngvar Ommundsen (e-post eller sms; se kontaktinformasjon under).
- Til deg som spiller dersom du er **fylt 15 år**: Dersom du vil delta, sier du ja gjennom passivt samtykke. Det innebærer at du kun gir beskjed dersom du **ikke** ønsker å delta (til prosjektansvarlig Yngvar Ommundsen; e-post eller sms; se kontaktinformasjon under).

Vi vil bruke datamaterialet til vitenskapelig arbeid, og publisere resultatene i vitenskapelige tidsskrifter. Det vil ikke være mulig å gjenkjenne enkeltpersoner i publikasjoner.

Hvis du eller dere foreldre/foresatte har spørsmål angående undersøkelsen, vennligst ta kontakt ved hjelp av kontaktopplysningene gitt nedenfor. Vi håper på stor deltagelse fra dere jentespillere i dette verdifulle prosjektet!

Prosjektet er meldt til Personvernombudet for forskning, Norsk samfunnsvitenskapelig datatjeneste AS. Norges idretthøgskole er behandlingsansvarlig institusjon for prosjektet og professor Yngvar Ommundsen er daglig ansvarlig.

Prosjektet er støttet av Norges idretthøgskole og det internasjonale fotballforbundet (UEFA). Ved Norges idretthøgskole vil Phd student Siv Gjesdal bruke datagrunnlaget som underlag for deler av sin doktorgrad i idrettsvitenskap.

Vennlig hilsen

Professor Yngvar Ommundsen, prosjektansvarlig Norges idretthøgskole

Kontaktopplysninger for prosjektansvarlig:

Yngvar Ommundsen, Norges idretthøgskole, Ullevaal stadion/Sognsveien 220, postboks 4014, 0806, Oslo.  
[yngvar.ommundsen@nih.no](mailto:yngvar.ommundsen@nih.no), tlf. 23262420, mobil (sms) 91804634.

## **Appendix 12**

Questionnaire UEFA (Athlete)





**NORGES IDRETTSHØGSKOLE**

**MOTIVASJON OG OPPLEVELSER I JENTEFOTBALL**

**SPØRRESKJEMA TIL SPILLERE**

**2014**



## INSTRUKSJONER

Vennligst svar på alle spørsmålene så ærlig og nøye som mulig.

Husk at verken treneren din eller noen andre på laget får se skjemaet etter at du har fylt det ut. Det er heller ingen riktige eller gale svar, så svar slik du virkelig føler.

Hvis noe er forvirrende, be om hjelp, så skal vi hjelpe deg.

Mange av spørsmålene handler om ditt fotballag, din hovedtrener, eller dine følelser og meninger når du deltar på dette laget.

Noen av spørsmålene kan virke veldig like. Det skal de også være.

På forhånd takk for hjelpen!

Yngvar Ommundsen,  
professor  
Norges Idrettshøgskole

Siv Gjesdal  
Dr. gradsstudent  
Norges idrettshøgskole

1. Hvor gammel er du, og i hvilken måned er du født?

a. Skriv alder her: \_\_\_\_\_ år

b. Skriv fødselsmåned her: \_\_\_\_\_ mnd

2. Hvor mange brødre og søstre har du? (inkludert halv-brødre og halv-søstre)

0	1	2	3	4	5	6	Mer enn 6
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**\*De neste spørsmålene handler om din erfaring med å spille fotball\***

Tenk på fotballaget du er med på nå. Det er dette laget og denne treneren du skal tenke på når du svarer på spørsmålene i skjemaet.

3. Hvor mange **sesonger (år)** har du spilt på dette laget? \_\_\_\_\_

4. Hvor mange **ganger i uka** trener og spiller du for dette laget?

\_\_\_\_\_ ganger.

5. Hvor mange **timer per uke** trener og spiller du for dette laget?

\_\_\_\_\_ timer

6. Hvor mange år har du spilt fotball på et fotball-lag?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mindre enn 1 år	1 år	2 år	3 år	4 år	5 år	6 år	Mer enn 6 år

7. Hvor mange år har du spilt fotball for denne klubben?

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mindre enn 1 år	1 år	2 år	3 år	4 år	5 år	6 år	Mer enn 6 år



**8. Hvor mange fotballtreninger med laget ditt deltar du vanligvis på i løpet av en uke?**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
0	1	2	3	4	Mer enn 4

**9. Spiller du på andre fotballag i klubben? Hvis ja, hvor mange andre lag?**

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ingen	1	2	3	Mer enn 3 lag

10. Sett en ring rundt tallet som viser hvor godt de ulike grunnene til å spille fotball stemmer for deg.

Jeg spiller fotball...	Svært uenig	Uenig	Verken uenig eller enig	Enig	Svært enig
1. fordi jeg synes at det er moro	1	2	3	4	5
2. fordi jeg mener at det er bra for meg	1	2	3	4	5
3. fordi jeg ville fått dårlig samvittighet hvis jeg sluttet	1	2	3	4	5
4. fordi noen presser meg til å spille	1	2	3	4	5
5. fordi jeg vil vinne kamper	1	2	3	4	5
6. men jeg lurer på hvorfor jeg fortsatt er med	1	2	3	4	5



Jeg spiller fotball...	Svært uenig	Uenig	Verken uenig eller enig	Enig	Svært enig
7. fordi jeg liker det	1	2	3	4	5
8. fordi jeg mener det er mange fordeler ved å spille fotball	1	2	3	4	5
9. fordi jeg ville følt meg flau hvis jeg sluttet	1	2	3	4	5
10. for å gjøre andre fornøyd	1	2	3	4	5
11. for å vinne cup og medaljer	1	2	3	4	5
12. selv om jeg egentlig ikke vet hvorfor jeg gjør det	1	2	3	4	5
13. fordi det er gøy	1	2	3	4	5
14. fordi det lærer meg å ha kontroll over meg selv	1	2	3	4	5
15. fordi jeg er nødt til å fortsette	1	2	3	4	5

Jeg spiller fotball...	Svært uenig	Uenig	Verken uenig eller enig	Enig	Svært enig
16. fordi noen tvinger meg til å fortsette	1	2	3	4	5
17. fordi jeg har lyst på premier	1	2	3	4	5
18. selv om jeg ikke aner hvorfor lenger	1	2	3	4	5
19. fordi jeg synes det er spennende	1	2	3	4	5
20. fordi jeg lærer ting som er nyttig for meg i livet	1	2	3	4	5
21. fordi jeg ville føle meg mislykket hvis jeg ikke var med	1	2	3	4	5
22. fordi andre ville bli misfornøyd med meg hvis jeg lot være	1	2	3	4	5
23. men jeg lurer på hva poenget med det er	1	2	3	4	5



11. Det er ulike årsaker til hvorfor barn og unge føler at de gjør det bra i fotball. Sett ring rundt det passende tallet som viser hvor mye du er enig eller uenig med hvert utsagn i forhold til hva **du føler når du gjør det bra i fotball.**

Jeg føler jeg gjør det bra i fotball når...	Svært uenig	Uenig	Verken uenig eller enig	Enig	Svært enig
1. jeg er den eneste som kan gjøre noe som ingen andre kan	1	2	3	4	5
2. jeg lærer noe nytt (for eksempel triks, finte)	1	2	3	4	5
3. jeg kan gjøre det bedre enn lagkameratene mine	1	2	3	4	5
4. de andre ikke kan gjøre det like bra som meg	1	2	3	4	5
5. jeg lærer noe som er gøy å gjøre	1	2	3	4	5
6. andre mislykkes, men ikke jeg	1	2	3	4	5
7. jeg lærer noe nytt ved å prøve hardt	1	2	3	4	5



Jeg føler jeg gjør det bra i fotball når...	Svært Uenig	Uenig	Verken enig eller uenig	Enig	Svært Enig
8. jeg jobber virkelig hardt	1	2	3	4	5
9. jeg scorer flest mål, har flest redninger, eller gjør de beste pasningene.	1	2	3	4	5
10. når jeg lærer noe nytt og så får lyst til å trene enda mer	1	2	3	4	5
11. jeg er best	1	2	3	4	5
12. jeg lærer noe som jeg fikk veldig godt til	1	2	3	4	5
13. jeg gjør mitt aller beste	1	2	3	4	5

12. De følgende påstandene handler om dine **generelle følelser og opplevelser på fotballaget ditt den siste måneden**. Sett en ring rundt tallet som passer for deg.

I løpet av den siste måneden på laget...		Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært Enig
1.	bestemte jeg hvilke øvelser vi gjorde på treningen	1	2	3	4	5
2.	synes jeg at jeg var ganske god til å spille fotball	1	2	3	4	5
3.	følte jeg meg støttet	1	2	3	4	5
4.	var jeg med på å bestemme hva jeg skulle jobbe med på trening	1	2	3	4	5
5.	var jeg fornøyd med det jeg presterte i fotball	1	2	3	4	5
6.	følte jeg at andre forsto meg	1	2	3	4	5
7.	var jeg med på fotball fordi jeg ville det selv	1	2	3	4	5



I løpet av den siste måneden på laget...		Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært Enig
8.	var jeg dyktig i fotball	1	2	3	4	5
9.	følte jeg at andre hørte på meningene mine	1	2	3	4	5
10.	følte jeg at jeg kunne gjøre en del ting slik jeg selv ville	1	2	3	4	5
11.	var jeg ganske god	1	2	3	4	5
12.	følte jeg at andre satt pris på meg					
13.	tror jeg at jeg gjorde det ganske bra i fotball	1	2	3	4	5
14.	hadde jeg mulighet til å velge hva jeg ville gjøre	1	2	3	4	5
15.	fikk jeg til mye av det jeg prøvde på	1	2	3	4	5

13. De følgende påstandene handler om dine **generelle følelser og opplevelser på fotballaget ditt den siste måneden**. Sett en ring rundt tallet som passer for deg.

I løpet av de siste <b>3-4 ukene</b> , på laget mitt...	Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært Enig
1. Følte jeg meg hindret i selv å velge hvordan jeg lærte.	1	2	3	4	5
2. Var det situasjoner hvor jeg følte meg ubrukelig.	1	2	3	4	5
3. Følte jeg meg presset til å oppføre meg på visse måter.	1	2	3	4	5
4. Følte jeg meg uønsket av de rundt meg.	1	2	3	4	5
5. Følte jeg meg nødt til å gjøre det noe andre hadde bestemt for meg.	1	2	3	4	5
6. Følte jeg meg utilstrekkelig fordi jeg ikke fikk mulighet til å vise hva jeg er god for.	1	2	3	4	5
7. Følte jeg meg presset til å godta måten treneren min legger opp treninger på.	1	2	3	4	5
8. Følte jeg at treneren og/eller lagkameratene mine behandlet meg som om jeg ikke betydde noe.	1	2	3	4	5
9. Oppstod det situasjoner som fikk meg til å føle at alt var håpløst.	1	2	3	4	5
10. Følte jeg at treneren og /eller lagkameratene mine mislikte meg.	1	2	3	4	5
11. Ble det sagt ting som fikk meg til å føle at jeg presterte skikkelig dårlig.	1	2	3	4	5
12. Følte jeg at lagkameratene mine ble misunnelig når jeg gjorde det bra.	1	2	3	4	5

14. Sett en ring rundt tallet som beskriver hvordan du VANLIGVIS føler deg før eller mens du spiller fotballkamp. Der er ingen rette eller feile svar. Vær så ærlig som du kan.

Før eller mens jeg spiller fotballkamp...	Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
1. er jeg redd for at jeg skal spille dårlig	1	2	3	4	5
2. er jeg bekymret for at jeg skal svikte de andre på laget	1	2	3	4	5
3. er jeg bekymret for at jeg ikke skal gjøre mitt beste	1	2	3	4	5
4. er jeg redd for at jeg ikke skal spille godt nok	1	2	3	4	5
5. er jeg engstelig for at jeg skal rote det til under kampen	1	2	3	4	5



15. Sett en ring rundt tallet som passer best med hvor enig eller uenig du er med hver av påstandene. Når du svarer, må du tenke på **hvordan du som regel hadde det på laget ditt den siste måneden.**

I løpet av den siste måneden...	Svært Uenig	Uenig	Verken enig eller uenig	Enig	Svært Enig
1. likte jeg vanligvis øvelsene vi hadde på trening	1	2	3	4	5
2. syntes jeg at det var interessant å spille fotball	1	2	3	4	5
3. syntes jeg at tiden gikk veldig fort når jeg spilte fotball	1	2	3	4	5
4. var det gøy å spille fotball	1	2	3	4	5





16. Denne lista beskriver ting som trenere kan gjøre eller si til spillere. Når du svarer på disse spørsmålene, er det viktig at du tenker på hva hovedtreneren din vanligvis sier eller gjør. Hvordan er det på laget ditt mesteparten av tiden?

	Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
1. Treneren oppmuntrer spillerne til å prøve nye ting de ikke kan fra før.	1	2	3	4	5
2. Treneren er mindre grei med spillerne om de ikke prøver å se ting slik han/hun gjør	1	2	3	4	5
3. Treneren gir spillerne valg og alternativer	1	2	3	4	5
4. Treneren sørger for at spillerne føler at de lykkes godt når de gjør sitt beste	1	2	3	4	5
5. Treneren bytter ut spillere når de gjør en feil	1	2	3	4	5
6. Treneren synes det er viktig at vi spiller fotball fordi vi vil det selv	1	2	3	4	5
7. Treneren er mindre støttende for spillere når de ikke trener og spiller godt	1	2	3	4	5



	Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
8. Spillerne kan stole på at treneren bryr seg, uansett hva som skjer	1	2	3	4	5
9. Treneren er mest oppmerksom på de beste spillerne	1	2	3	4	5
10. Treneren skjeller ut spillere når de gjør feil	1	2	3	4	5
11. Treneren roser spillere som forbedrer seg	1	2	3	4	5
12. Spillere som gjør treneren misfornøyd får mindre oppmerksomhet	1	2	3	4	5
13. Treneren belønner de spillerne som prøver hardt	1	2	3	4	5
14. Treneren setter pris på spillerne som personer, ikke bare som fotballspillere	1	2	3	4	5

	Svært uenig	Uenig	verken enig eller uenig	Enig	Svært Enig
15. Vi får noen ganger lov til å gjøre noe ekstra gøy mot slutten av treningen, men bare dersom vi har vært flinke	1	2	3	4	5
16. Dersom vi spør treneren om noe, svarer han/hun grundig og skikkelig på spørsmålene våre	1	2	3	4	5
17. Treneren overser spillere som gjør han/henne misfornøyd	1	2	3	4	5
18. Treneren sørger for at hver spiller bidrar på en eller annen måte	1	2	3	4	5
19. Alle på laget vet hvilke spillere treneren liker best	1	2	3	4	5
20. Vi får noen ganger ros eller belønning av treneren, men bare dersom vi har spilt godt	1	2	3	4	5
21. Treneren roser bare de som spiller best på kamper	1	2	3	4	5



	Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
22. Når treneren ber spillerne om å gjøre noe, prøver han/hun å forklare hvorfor det vil være bra å gjøre det slik	1	2	3	4	5
23. Treneren sørger for at spillerne har en viktig rolle på laget	1	2	3	4	5
24. Treneren skjeller noen ganger ut spillerne foran andre for å få dem til å gjøre ting	1	2	3	4	5
25. Treneren lar de beste spillerne spille mest på kamp	1	2	3	4	5
26. Treneren truer noen ganger med å straffe spillere for å holde orden på dem	1	2	3	4	5
27. Treneren hører på hva vi har å si dersom vi forteller han/hun hvordan vi har det	1	2	3	4	5
28. Treneren sier at alle spillerne er viktige for at laget skal lykkes.	1	2	3	4	5

		Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
29.	Treneren bruker belønninger for å få spillerne til å gjennomføre øvelsene på treningen	1	2	3	4	5
30.	Treneren oppmuntrer spillerne til å hjelpe hverandre til å lære mer	1	2	3	4	5
31.	Treneren er altfor opptatt av hva spillerne gjør på fritiden.	1	2	3	4	5
32.	Treneren mener det er viktig at spillerne er med fordi de selv har lyst til det	1	2	3	4	5
33.	Treneren har favoritter blant spillerne	1	2	3	4	5
34.	Treneren oppmuntrer spillerne til å jobbe sammen som et lag	1	2	3	4	5



**17. Hva tenker du nå for tiden om hvor lenge du kommer til å fortsette å spille fotball?**

	Svært uenig	Uenig	verken enig eller uenig	Enig	Svært enig
1. Jeg kommer til å slutte å spille fotball etter denne sesongen	1	2	3	4	5
2. Jeg har tenkt å fortsette å spille fotball neste sesong	1	2	3	4	5
3. Jeg tenker på å slutte på dette laget	1	2	3	4	5
4. Jeg kan tenke meg å fortsette å spille for hovedtreneren min etter denne sesongen	1	2	3	4	5

**18. Utenom trening og kamper med laget ditt, hvor mange GANGER i uka spiller du fotball på fritiden?**

- hver dag
- 4-6 ganger i uka
- 2-3 ganger i uka
- en gang i uka
- en gang i måneden
- mindre enn en gang i måneden
- aldri

Med fysisk aktivitet mener vi aktiviteter som gjør at du en del av tiden får økt puls og blir andpusten. Fysisk aktivitet er for eksempel idrettsaktiviteter etter skolen, aktiviteter på skolen, det å leke med venner eller å gå til skolen. Andre eksempler er å løpe, stå på skateboard, sykle, svømme, spille fotball, stå på ski/snowboard eller danse.

**19. Utenom skoletid: Hvor mange GANGER i uka driver du idrett, eller mosjonerer du så mye at du blir andpusten og/eller svett?**

- hver dag
- 4-6 ganger i uka
- 2-3 ganger i uka
- en gang i uka
- en gang i måneden
- mindre enn en gang i måneden
- aldri

**20. Utenom skoletid: Hvor mange TIMER i uka driver du idrett, eller mosjonerer du så mye at du blir andpusten og/eller svett?**

- ingen
- omtrent 1/2 time
- omtrent 1 time
- omtrent 2-3 timer
- omtrent 4-6 timer
- 7 timer eller mer

**\*\*\*De neste spørsmålene handler IKKE om fotball, men om hvordan du har det generelt i livet ditt.\*\*\***

Under finner du en rekke påstander som handler om hva du tenker om deg selv.

**21.** Når du svarer på spørsmålene, tenk på **hvordan du SOM REGEL tenkte den siste måneden**. Sett en ring rundt tallet som passer best for hvor enig du er i hver av påstandene.

I løpet av den siste måneden, har jeg følt at...	Svært uenig	Uenig	Verken Enig eller uenig	Enig	Svært enig
1. jeg har mye å være stolt av	1	2	3	4	5
2. jeg ikke var verdt noe	1	2	3	4	5
3. mye av det jeg har gjort har vært fint	1	2	3	4	5
4. lite av det jeg gjorde ble bra	1	2	3	4	5
5. mesteparten av det jeg gjorde gikk greit	1	2	3	4	5

22. I løpet av den siste måneden...	Svært Uenig	Uenig	Verken enig eller uenig	Enig	Svært Enig
1. følte jeg meg opplagt	1	2	3	4	5
2. var jeg i godt humør	1	2	3	4	5
3. gledet jeg meg til hver dag	1	2	3	4	5
4. følte jeg meg kvikk og våken	1	2	3	4	5
5. hadde jeg masse energi	1	2	3	4	5

**\*\*\*De neste spørsmålene er generelle spørsmål om fotball og om bakgrunnen din**

23. Har du ...

- a. mannlig trener
- b. kvinnelig trener

24. Hvis du kunne velge, ville du ha valgt en: (sett ett kryss)

- a. mannlig trener
- b. kvinnelig trener
- c. jeg bryr meg ikke om treneren er en mann eller kvinne

25. Se bort i fra gymlærere, har du noen gang hatt en kvinnelig fotballtrener?

- d. Ja
- e. Nei

26. Hvorfor begynte du å spille fotball? Skriv kort hvorfor under:

27. På en skala fra 1 (veldig dårlig) til 5 (Veldig bra), hvordan vurderer du (sett et tall mellom 1 og 5) i firkantene.

- Treningsbaner
- Treningstider
- Kamp baner
- Garderober
- Kvaliteten på trenere

28. Dersom du spiller i en klubb hvor herrenes a-lag er dominerende:

- a. Har klubben din en økonomisk ordning for jentespillere?
  - i. Ja
  - ii. Nei
- b. Føler du deg som en del av klubbfamilien, eller på siden av herresiden?
  - i. Ja
  - ii. Nei
- c. Føler du at daglig leder gir nok oppmerksomhet til jentesiden?
  - i. Ja
  - ii. Nei

29. Hvilket land kommer din mor fra?

- |                       |                          |             |                          |
|-----------------------|--------------------------|-------------|--------------------------|
| Norge                 | <input type="checkbox"/> | USA         | <input type="checkbox"/> |
| Sverige               | <input type="checkbox"/> | Canada      | <input type="checkbox"/> |
| Andre Europeiske land | <input type="checkbox"/> | Sør Amerika | <input type="checkbox"/> |
| Afrika                | <input type="checkbox"/> | Vet ikke    | <input type="checkbox"/> |
| Asia                  | <input type="checkbox"/> |             |                          |

30. Hvilket land kommer din far fra?

- |                       |                          |             |                          |
|-----------------------|--------------------------|-------------|--------------------------|
| Norge                 | <input type="checkbox"/> | USA         | <input type="checkbox"/> |
| Sverige               | <input type="checkbox"/> | Canada      | <input type="checkbox"/> |
| Andre Europeiske land | <input type="checkbox"/> | Sør Amerika | <input type="checkbox"/> |
| Afrika                | <input type="checkbox"/> | Vet ikke    | <input type="checkbox"/> |
| Asia                  | <input type="checkbox"/> |             |                          |

31. Hvor god råd har din familie?

- svært god råd
- god råd
- middels god råd
- ikke særlig god råd
- dårlig råd

**TUSEN TAKK FOR HJELPEN!**











