The importance of the football coach on Norwegian adolescents' competence: A cross sectional study of the association between coach created climate and adolescent motivation.

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Thesis submitted in partial fulfilment of the requirements for the degree Master of Philosophy in Health Promotion, University of Bergen 2012

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Acknowledgements

I would like to dearly thank my supervisor Bente Wold for her enthusiastic support and guidance onto a new and exciting path.

I owe a great thank you to Maurice Mittelmark, whose knowledge, experience, and encouragement throughout the master's programme have brought me to this point. I am grateful for his support and the belief he had in me.

My best thanks to Ellen M. Hoff who encouraged me to apply for this study.

Many thanks to my classmates (Class of 2010) from around the world who taught me that life can be understood in many different ways. I was privilege to be with them, and I am thankful for the friendship and the time we spent together.

My special thanks to Juliane, Dennis, Dickson, and Gabriel for their valuable feedbacks and recommendations. Whenever needed, I always got constructive comments and suggestions, endless support and encouragement.

Finally yet importantly, I thank my husband, Espen, for the support, patience and love. Because of him I was able to continue my studies. To my daughter Elena, thank you for reminding me that life is precious.

Bergen

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Abstract

Introduction: Organised physical activity has been suggested as specifically conducive for adolescents' physical and psychological health. This thesis employed a health promotion approach to investigate the associations between different perceived coaching climates and competence among Norwegian youth football players.

Method: The analyses were based on the PAPA project-survey, conducted in 2011. The total sample was 1044 football players, consisting of 612 boys and 432 girls aged 12-14 years. Perceived competence was measured using the Basic Need Satisfaction in Sport Scale. Perceived coach-created climate was measure by three distinct scales indicating task-, ego-, and controlling climate. The influence of coach-created climate variables on perceived competence were tested through correlation analysis, two-way ANOVA and regression analyses performed in SPSS.

Results: Perceived competence was positively associated with perceived task climate for both genders and over age, and negatively associated with ego climate and controlling climate. Perceived competence and perception of the motivational climate being task-oriented decreased over age for both genders while perception of the climate being ego-oriented and controlling increased. Perceived task climate showed to be a strong predictor of perceived competence, even after controlling for positive affect.

Discussion: Task climate seemed to be especially beneficial for perception of competence among adolescents. The results from this study support findings from others studies on coach-created climate with a focus on mastery and its influence on adolescent's wellbeing. Nevertheless, task climate is the most recommended motivational climate to support competence and maximise the psychological benefits of organised physical activities.

Keywords: Adolescence, physical activity, competence, coach-created climate, motivation.

1.0 Introduction

1.1 Study aims

This study utilized a contemporary sport achievement goal framework to investigate the satisfaction of psychological needs among adolescents. Particular attention was given to the relationship between perceived coach-created climate and self-reported satisfaction of the need for competence in the football setting. The study had an explorative approach, aiming at identifying which climate form might contribute to the enhancement of satisfaction of need for competence for this age group.

1.2 Background

This study draws its background from the concerns over the western world's current obesity problems. While the concern about obesity among the adult population has generated considerable attention, it is the postulation that children and adolescents are fatter and less fit now than in past years that has raised the commentary almost to a state of extreme inflammation (Kirk, 2006). The World Health Organization (WHO) has described the increase in overweight and obesity cases in the general population, particularly among children, as a global epidemic with immense consequences for public health. This obesity "epidemic" has been attributed, to a large extent, to reduced physical activity and changes in food habits. There is increasing evidence that overweight and obesity in children and adolescents are associated with low psychological wellbeing and a high level of psychosomatic complaints as well as increased anxiety and depressive symptoms (Sjöberg et al., 2005). It has been stated that without robust and decisive approaches to prevention and treatment, the health

and social consequences of obesity will be substantial and long lasting for the global society (World Health Organization, 2004).

The rising incidence of obesity and generally inadequate levels of regular physical activity in young people calls for the implementation of effective intervention strategies. It is documented that physical activity has a number of positive effects on children's and adolescents' health, with substantial evidence for cardiovascular health and reduction of adiposity in overweight children and adolescents (Strong et al., 2005) Health promotion offers a positive strategy to combat obesity. Health promotion aims at understanding the underlying factors that contribute to peoples' health and develop social conditions adequate for better health (Mittelmark et al., 2008). Health promotion is defined in The Ottawa Charter for Health Promotion as the process of enabling people to increase control over, and to improve their health (WHO, 1986). Health is therefore seen as a resource for everyday life. By focusing on methods to prolong physical activity, the health promotion strategy strengthens football clubs' ability to take effective action at the local level. It also assists local football teams to improve their own health through raising awareness and development of personal skills. To implement effective health promotion measures and to prevent psychological problems among adolescents, it is important to enhance our understanding of the factors that constitute stressors and coping resources for this age group. Thus, the present study target minimizes disease and facilitates health improvements via the settings approach to health promotion.

In Europe, there have been initiatives developed to encourage active lifestyle. The European Community White Paper on a Strategy for Europe on Nutrition, Overweight and Obesity, for example, emphasizes the role of sport organizations in public health, with a special reference to young people (Communities, 2007). The White Paper in

Sport underlines the importance of sport engagement as a tool for the provision of health-enhancing physical activity. Similar views are expressed in the Norwegian Action Plan for Physical Activity 2005-2009, and a recent Norwegian report on "Ways of promoting physical activity among children and young people" (Ommundsen et al., 2008). A strategy document published by the Centre for Disease Control and Prevention (CDC, 2005) on Promoting Better Health proposes that the quality of any adolescent sport and recreation experience depends on the competence and supportiveness of its adult programme leaders, especially the coaches.

Although several authors have acknowledged that participation in sports may have the potential to enhance personal development and healthy behaviours (Danish et al., 1992; Smith et al., 2007), there is nothing about sport itself that is magical. Being on the field or the court does not necessarily contribute to positive youth development. Rather, it is the meaning and experience of one's sport engagement that may facilitate this result. Indeed, researchers who have studied the effects of participation in sport have found both positive (e.g. enhance healthy habits) and negative effects (e.g. anxiety) (Duda, 2001b; Mahoney et al., 2000). As regards to the role of the coach, new findings provide evidence for the importance of coach-athlete relationship. Perception of coach-created climate presented both positive and negative influences on self perceptions and motivation responses in sport (Papaioannou et al., 2006; Plant et al., 1985).

In other countries such as the USA, coaching of youth sports is a paid position often located within the school setting and performed by college-educated professionals. In Norway, however, the vast majority of youth sport coaches are recruited on a voluntary basis with no request for formal training. Consequently, the experience, personal aspirations and abilities of the coaches constitute considerable

variation. Most Norwegian children's football experiences predominantly depend on their football coach. Given that most of the children teams are coached by parents who have no experience and education in the field of mental health, this is a critical target for research and development.

The overall purpose of this study is to add to the body of knowledge on what motivational strategies contribute to prolong physical activities through human life span. The quality of the sporting experience in early age provides the initial input for active habits in adulthood. Football engagement can be structured so that, in addition to the teaching of football-related skills, techniques, and strategies, this experience can offer opportunities for the promotion of physical activity in general, mental health and wellbeing. Therefore, rather than concentrating on the risks associated with absence from physical activity, this thesis will have an inherently positive outlook by focusing on specific mental and health benefits that are derived from being physically active in adolescence.

1.3 Perceived Competence

Perceived competence has been among the most studied self-perception variables for the purpose of understanding individual differences in motivated behaviour (Weiss et al., 1996). Strong evidence linking perceived competence with sport participation are found in literature, for instance a recent longitudinal study concluded that perceived competence seems to increase physical activity among adolescents from both genders (Barnett et al., 2008).

Desire for competence remains invariant from infancy to old age (Brim, 1992). The first manifestation of competence is present at early childhood (White, 1959); it is reflected in the infant's natural tendency toward curiosity and exploratory

play. This process continues in adulthood, commonly triggered in competence-relevant settings revealing concerns such as self-presentation concerns, affiliative concerns, and self-worth concerns (Dweck, 2002). On the elderly, competence-relevant motivation focuses on the avoidance of incompetence (Elliot et al., 2001). It is argued that successful old age may be a function of finding newer and more appropriate competence goals to pursue (Halisch et al., 2002). Competence can be seen as a basic psychological need that has an extensive influence on daily affect, cognition and behaviour (Elliot et al., 2005). Therefore its importance lies as a building block for theories of motivation, development and wellbeing.

Competence is the accumulated result of one's interaction with the environment, of one's exploration, learning, and adaptation. It also implies a need for having an effect and for being effective in one's interaction with the surroundings (Deci et al., 1985). Therefore perception of competence has a substantial influence on emotion and wellbeing. Thus, perceived competence naturally leads to affects such joy, pride and happiness, whereas lack of perceived competence or perceived incompetence leads to affects such as sadness, shame and anxiety (Heckhausen, 1984; Stipek et al., 1992).

Competence in the football setting typically refers to the potential for, or demonstrations of, coordinated actions that accomplish valued tasks, such as score goals, dribbling, intercepting, and passing the ball. Perceived competence in the present study is concerned not with the number of skills players have or their actual competence, rather the emphasis is on the player's perception of his or her competence and what they believe they can do with what they have under a variety of circumstances experienced in a sport setting (Harter, 1982). Harter's model proposes

that perceived competence is more directly affecting motivation than actual competence (Harter, 1978).

Deci posited that need for competence leads people to seek and conquer challenges that are optimal for their capacities, and that competence acquisition results from interacting with stimuli that are challenging (Deci & Ryan, 1985). Sport settings provide an excellent opportunity to feel effective in one's ongoing interaction with the social environment and experiencing opportunities to exercise and express one's capabilities. Hence, competence is not an attained skill or capability, but rather is a felt sense of confidence in action (Ryan et al., 2000a).

Along with the biological changes associated with adolescence, adolescent's skills also increase in many ways in this period. Through participation in sports adolescents gain and develop a variety of sophisticated skills. Researchers posit that adolescents with high perceived competence perform more capably, are more likely to exert the effort needed to accomplish different activities, and make appropriate decisions about activities to do, as well as other, more complex choices (Ryan et al., 2000b; Sage et al., 2007). Thus, perceived competence is central to healthy development in sport during adolescence.

1.4 Coach climate

Within achievement goal framework, the term coach-created climate is understood as the perception adolescent-players have of motivational climate created by the coaches (Standage et al., 2003). Three climates were examined: Task-, ego- and controlling climate. *Task climate* is characterized by the perceptions that trying hard and improving were valued by the coach and that every player had an important role. *Ego climate* dimension indicated that the environment was characterized by the

players perceiving they were punished when they made a mistake and that the coach primarily recognized the better players (Newton et al., 2000). While, *controlling climate* is categorized by the perceptions that coaches behave in a coercive, pressuring, and authoritarian way to impose a form of thinking and behaving upon their athletes (K. Bartholomew et al., 2010).

1.5 The PAPA project

The present study used the baseline data from the PAPA project. "The PAPA project" stands for Promoting Adolescent Physical Activity. The project intends to promote adolescent health through an intervention aimed at improving the quality of adolescent's participation in physical activity by using football (soccer). The PAPA project has been developed in collaboration with major research groups from 8 universities representing 5 countries; France, Greece, Norway, Spain and the UK. The PAPA project has two main goals: (a) Help grassroots coaches understand how they can foster quality motivation; and (b) Provide coaches with strategies for promoting a more empowering climate and making youth sport more engaging and enjoyable (see http://www.projectpapa.org/about-papa.) These two goals are at the centre of action areas of the Ottawa Charter (WHO, 1986), namely creating supportive environments and developing personal skills. In addition, the project goals have been enhanced by the project's focus 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 presented thesis is a piece adding to the PAPA project.

2.0 Theoretical Framework

The theoretical framework used in this study combines elements from Achievement Goal Frameworks (Dweck, 1999) and Self-Determination Theory (E. L. Deci et al., 2000). These theories assume that variations in the social environment, ensuing self-regulation and motivational processes are central not only to achievement but also whether sport engagement is health/personal growth conducive or compromising.

2.1 Self-Determination Theory

Self-Determination Theory (SDT) is a widespread theory of human motivation and it has been used widely to explain and predict human motivation in a variety of life contexts, including sports (Deci & Ryan, 1985; Sarrazin et al., 2002). SDT has developed over the past three decades, by employing both quantitative and qualitative methods (R. M. Ryan & E. L. Deci, 2000b). The theory proposes that human behaviour and wellbeing must be considered in relation to people's motivation, and the socio-contextual environment they live in. According to the theory, there are three basic psychological needs that are fundamental to healthy psychological growth and wellbeing. The innate psychological needs of autonomy (the desire to be the origin and regulator of one´s own actions), relatedness (the feeling of belonging or connected relationships with others in one's social context), and competence (the desire to interact effectively with the environment, producing desired outcomes and preventing undesired events) (Deci & Ryan, 1985; R. M. Ryan & E. L. Deci, 2000b). Variations in satisfaction of these needs will directly predict differences in psychological and physical wellbeing (E. L. Deci & R. M. Ryan, 2000).

Intrinsic motivation in SDT is posited to be a natural psychological process which the sole rewards are the spontaneous feelings of interest and enjoyment that occur when one engages in the sport activities (Ryan et al., 2002). Intrinsic motivation can easily be seen in children's spontaneous play behaviour, where the main motivation to the activity is fun and enjoyment. When adolescents participate in playing football, without coercion or compulsion from external forces, their behaviour is truly self-determined, and therefore truly engaged. Intrinsic motivation is based on the organismic needs to be competent and self-determining (Deci & Ryan, 1985). The feeling that flows from competent interactions with the environment is the reward for this class of behaviour and can sustain the motivation of doing the activity without any external reinforcement.

In terms of prolonging physical activity participation among adolescents, SDT postulate factors that facilitate intrinsic motivation and positive development in sport settings. According to the theory, humans have an inherent tendency to "internalise" externally motivated behaviours or motives, and integrate them to the self, in order to experience that the behaviour or value is deriving from within (Deci, 1971; R. M. Ryan & E. Deci, 2000a). Therefore the social environment adolescents live in can have a great impact on the tendency to behave in an active and engaged manner. As proposed theoretically in this thesis, variations in the satisfaction of need for competence may be associated with variations in the perception of social environment.

2.1.1 The need for competence

SDT may shed light on the potential implications of different aspects of the social environment in sport. One particular attractive concept for the sport domain is

the concept of need for competence. The need for competence is suggested by SDT as the innate energy source that seek to influence and manage challenges effectively in the environment (E. L. Deci & R. M. Ryan, 2000). The sport psychology literature indicates that ability in particular, and the perceptions of that ability, is central to task performance (Weinberg et al., 1981) and engagement (Roberts et al., 1981) in sport settings. Need for competence is the main contributor to the prediction of sport attendance, adherence and dropout (Vlachopoulos et al., 2007). It reflects the experience of pleasure of accomplishment, which is central in sport settings (White et al., 1998). Football seems to be a suitable arena where adolescents can develop their interpersonal relations, build up their physical skills and get competence feedback. Hence, if adolescents experience satisfaction of their need for competence during their football practice they are more likely to be motivated from within and to continue in physical activity for a longer time.

Researchers in sport psychology (Reinboth et al., 2004) have stated that what is particularly interesting about the concept of need for competence is that it allows scholars to identify the conditions under which this need should be satisfied and, in turn, promote adolescent's wellbeing.

2.2 Achievement Goal Framework

Anyone who has engaged in a sport contest or just watched a sport competition recognises the relevance of the coach to athletes' performance. Coaches are assumed to play a very active role in training and competition. They spend a lot of time teaching new skills, techniques and trying to motivate players. Therefore, it makes sense to examine the psychological environment they create (Ames, 1992), and how

that environment corresponds to the quality of players' subjective wellbeing (Reinboth, et al., 2004) and perception of competence.

Contemporary achievement goal frameworks have dominated research on achievement motivation since early 1990s. Achievement motivation is a function of situational and social factors (Duda, 1985). Whereas, Achievement Goal Framework are held to be the interpretive lens influencing how one thinks, feels, and acts while engaged in achievement activities such as sport (Duda, 2005). Theorists of achievement goal framework have stated common elements and some subtle differences (Ames, 1992; Dweck et al., 1988; Nicholls, 1989). One commonly shared idea is that people focus on demonstrating competence in achievement situations (Nicholls, 1989). Thus, the way one views their ability in an achievement context may result in their persistence in the activity (Barber et al., 1997; Zarrett et al., 2009). Achievement goals are presumed to indicate differences in how competence is conceived (Duda et al., 2007). That is, what are the conditions underlying the player's judgments regarding whether or not she has shown high sport ability?

In the original Achievement Goal Framework there are two primary goal perspectives operating in achievement contexts, namely task and ego involvement. These two perspectives relate to different ways of defining success and judging one's competence (Ames, 1992). When task-oriented, perceived ability is self-referenced and emphasis is placed on task mastery, the exertion of effort, and the development of personal skills in or knowledge of the activity with focus on one's own effort and improvement. When ego-oriented, individuals are concerned with demonstrating normatively referenced high ability and, thus, perceive a successful event when they think that they have done better than others or performed equally with less effort. Whether or not an adolescent is likely to be more task-or ego-oriented depends partly

on the motivational climate created by coaches and other significant others (Boyce et al., 2009). In a task-involving climate, cooperation is emphasized and players' exerted effort is reinforced. When mistakes occur in such an environment, the coach's response will be to provide information on how to correct the error. Moreover, in a task-involving environment, the coach facilitates all players to feel that they have a clear and important role to play on the team. The sport psychology literature is marked by a plethora of studies on the features of a more task- versus ego-involving climate and the implications of that climate for optimal functioning in sport and consequently perceived competence (Duda, 2001b). Duda's work strongly points to the positive psychosocial consequences and implications of a task-involving environment (e.g., children experiencing greater enjoyment, interest, intrinsic motivation, and reporting less anxiety and greater self-esteem in such settings).

Amorose and Horn (Amorose et al., 2000) have suggested that there may be other important coaching behaviour that should be considered. Therefore, in the service for further understand the coach-created climate arena, the present study included controlling climate, which is designed to assess sports coaches' controlling interpersonal style from the perspective of SDT. The pressure applied by a controlling climate is perceived by athletes as a loss of control over their own thoughts and behaviour (K. Bartholomew, et al., 2010). Therefore, controlling coaching climate can induce a change in the athletes' intrinsic motivation (Blanchard et al., 2009). The external controlled motivation is based on coercive demands, reward contingencies or one's sense of guilt and obligation. As a result, athletes are forced to engage in requested behaviours that distress their perceived competence (K. Bartholomew, et al., 2010). Researchers posit that high level of controlling climate have the capacity to thwart athletes' positive perception of competence (E. Deci et al., 2000).

As proposed theoretically in this thesis, variations in the coach-created motivational climate may lead to variations in the players' perceived competence.

2.3 Self-Determination Theory and Achievement Goal Framework: Possible links

Deci and Ryan posited that there is a general convergence of evidence from achievement goal framework and self-determination theory concerning the optimal design of learning environments (E. L. Deci & R. M. Ryan, 2000). Both bodies of literature propose that environments that promote choice and mastery enhance intrinsic motivation. It is also pointed out that intrinsic motivation is restrained in environments in which social comparison predominates and rewards are provided as performance condition. In summary, both Achievement Goal Framework and Self-Determination Theory suggest that the use of performance-based rewards and social comparisons as motivational strategies produce hidden costs. Instead, environments that are less evaluative and more supportive provide the basis for perception of competence and wellbeing.

Incorporating the fundamental tenets of SDT and Achievement Goal Theory, the present study adapted the hierarchical model of intrinsic and extrinsic motivation by Vallerand (Vallerand et al., 1999) with the purpose of illustrating the sequential pattern of motivational processes (see Figure 1). Vallerand proposes that motivational sequence of social factors (e.g. coach-created climate) could influence response behaviour (e.g. the continuity of physical activity). It should be noted that in their writings, Deci & Ryan (E. Deci & R. M. Ryan, 2000; Deci & Ryan, 1985) postulated the same logical pattern of associations.

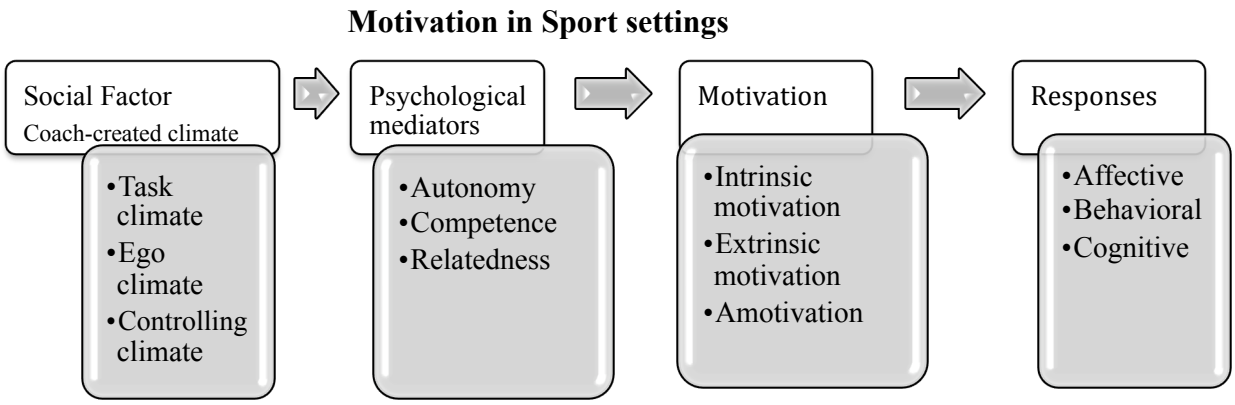

Figure 1. The proposed sequential pattern of relationships hypothesized to underlie human motivation as adapted from Vallerand (Vallerand & Losier, 1999).

Of particular interest to the present study is an examination of the two first steps of the model, namely the social factor and the psychological mediators. Particular attention is given to the correlation between perception of different climates created by the coach and adolescent's perceived competence. For the second part of the model a rather extensive body of research has focused on the motivational processes operating in different types of responses (Baard et al., 2004; Cordova et al., 1996; Plant & Ryan, 1985).

2.4 Mood affect scale: Positive- and negative affect

Feelings permeate people´s daily lives. It is now recognized that positive affect leads to cognitive flexibility (Isen, 1993) and facilitate creative problem solving (Estrada et al., 1994). Watson and colleagues (Watson, Clark, & Tellegen, 1988) posit two affect state dimensions namely positive affect and negative affect. Positive affect reveals the extent to which a person feels enthusiastic, active and alert. While, negative affect is described as feelings of sadness, lethargy, anger, fear, and guilt. Theorists have linked trait negative affect and positive affect to psychodynamic constructs of sensitivity to

signals of reward and punishment (Tellegen, 1985). For instance, negative affect is related to self-reported stress and poor coping (Clark et al., 1988) while positive affect is related to social activity and satisfaction (Watson, Clark, & Carey, 1988).

Studies provide evidence that people experiencing positive affect perceive other people more positively than those with low positive affect (Isen et al., 1992). However, it is shown that happier persons are no more likely than others to apply a negative stereotype to a negative stereotype group, but they are more likely to see neutral and weak positive stereotypes more positively. This might point to the tendency for players experiencing positive affect to view their coaches more positively.

With this background in mind, the present study intends to use the PANAS scale to control possible bias with regard to positive responses among the players.

2.5 Expectancy-value theory: The issue of gender

Gender remains a salient factor that can influence beliefs, aspirations, and experiences in modern society. Therefore the present study considers that gender must be included in academic discussions. In this section, the focus is on the relation between gender and the main study subjects, namely perceived competence and perceived coach-created climate.

Eccles asserted that identity formation is influenced, among other things, by self-perception of abilities, motivations, achievement goals, and gender-role schemas (Eccles, 1987a, 1987b). Consideration of questions of gender, competence and coach climate may provide a balanced acknowledgement of both gender differences and gender similarities. Such knowledge might offer a rich contribution to policy makers

that are interesting in develop motivational environments and enhance physical and mental health with attention to the issues each gender group faces.

Eccles posits that successful intervention requires a thorough knowledge of the socialization processes linked to psychological dynamics (Eccles, 1987b). Therefore gender-role socialization is an important cornerstone in the process of understanding motivation among adolescents.

History of research on gender and achievement motivation has showed a tremendous change since its infancy in the 1950s (McClelland et al., 1953). Most of the classic literature concluded that there were gender differences in achievement motivation, with females scoring lower level of motivation than males (Tyler, 1965). In the late 1960s and 1970s theories were constructed to explain why girls would develop less achievement motivation forces than boys (Hoffman, 1972). In 1974 Maccoby and Jacklin challenged these views, concluding that there was little evidence for lower achievement motivation in females (Maccoby et al., 1974). However, in 1983, new measurement methods were suggested by Spencer and Helmreich (Spencer et al., 1983), the new method developed a nonprojective, self-reported measure of motivation and recognized multiple domains of achievement motivation such as work, mastery and competitiveness. Later research provide evidence that women's achievement motivation has increased over time, from a lower level of achievement motivation in 1950s to no differences in 1990s (Mednick et al., 1993). It seems that the opening of educational opportunities and career options for women over the last three decades has enhanced achievement motivation among women (Jenkins, 1987). Modern research in the area of motivation shows evidence towards a more complex pattern. It appears that individuals are more likely to set objectives in domains where their gender is favoured. In other words, it seems that gender differences depend on

domain (e.g. mathematics-male domain, athletics – male domain, and psychology-female domain) and are generally consistent with gender stereotypes about competence (Hyde et al., 2005).

Eccles' expectancy-value theory of achievement-related choices is dedicated to understanding gender differences (Eccles, 1987b). The model assumes that the effects of experiences are mediated by the individual's interpretation of the event rather than by the events themselves. For instance, doing well in football is presumed to influence one's future expectation for football performance only to the extent that doing well is attributed to one's ability. Therefore, a person will undertake a challenging enterprise, such as applying to medical school or pursue a sport career, only if he or she expects to succeed at it and values the task. Gender differences in competence beliefs, then, will have a profound influence on the tasks that males and females undertake. Eccles adds that sex differences result from the way both genders understand success and what each sex value the most, and she suggests that these constructs result from gender-role socialization.

The central idea in this study is to use the expectancy-value theory, which emphasizes the important influence of social constructs such as gender roles to examine boys and girls self-perception in football. In other words, how the gender-role socialization may account for the observed sex differences in football.

3.0 Previous Research

3.1 Research on perceived competence

To understand adolescent motivation, it is important to take a look at the Self-Determination Theory of innate psychological needs which encompasses, need for

competence, autonomy and relatedness (E. L. Deci & R. M. Ryan, 2000). Previous studies have showed that perceived competence has been negatively related with anxiety (Ommundsen et al., 1999; Smith, et al., 2007; Vazou et al., 2006a), and attrition in sports (Ommundsen et al., 1997). Whereas, perceived competence is significantly positive associated with global self-esteem(Coatsworth et al., 2009; Nottelmann, 1987; Richman et al., 2000), which accordingly is related to wellbeing (Marmot, 2003; R. M. Ryan & E. L. Deci, 2000b).

In studies examining within-person processes, perceived competence predicted fluctuations in wellbeing. It was described that the more competent individuals feel with regard to the activities they spent most time with on a given day, the higher their level of positive affect and vigor, and the lower their level of negative affect and experienced physical symptoms (Reis et al., 2000; Sheldon et al., 1996).

Furthermore, Vallerand and colleagues provided support for the effect of verbal feedback on perceived competence in physical education. Positive feedback has showed to lead participants to perceptions and feelings of competence, also their level of intrinsic motivation for the assignment has increased, whereas negative verbal feedback tended to diminish motivation and perceived competence (Vallerand et al., 1984).

Adolescents with strong beliefs in their competence should perform more capably and make appropriate decisions about activities to do (Wigfield et al., 2005). Consistent findings posit that perception of competence-related beliefs seems to decline during adolescence (Anderman et al., 1994). Researchers have explained these changes in two ways. One explanation emphasises on cognitive changes. While children mature cognitively their evaluation feedback increases and they come to understand more clearly their performance (Eccles et al., 1998). The second

explanation focuses on the influence that social environment can have on motivation. For instance, when the children receive feedback that tends to compare their abilities with others, children can find it difficult to keep a strong sense of competence, and ultimately they experience a reduction in their motivation (Wigfield et al., 2008).

Research within sport has found that perceived competence in football and the emotional involvement of significant others, such as the coach, predicted enjoyment in football for boys (Ommundsen et al., 1991). Other findings pointed out that girls perceived competence and the ability to overcome barriers was a very strong predictor of physical activity (Niven et al., 2009).

A plethora of studies have found evidence from youths in amateur sports that the most important factors influencing their sports enjoyment and participation were improvement of skills, sense of personal accomplishment, excitement and fun (Conroy et al., 2007; Deci & Ryan, 1985; Gill et al., 2008; Wankel et al., 1982). Other important motives to participate in physical activity were to improve health and feel a sense of achievement (Biddle et al., 2008; Wold et al., 1993). Several of these motives can be tied to perceived competence.

3.2 Research on coach-created climate

The sports psychology literature points to the importance of the coach-created motivational climate in terms of influencing adolescents' emotional, moral and behavioural responses to the sport experience (Barnett et al., 1992; Bredemeier et al., 1993). Earlier research has shown that the coaching behaviours used in sport have a significant influence upon the psychological experiences of young athletes (Smoll & Smith 2002). This influence can be positive or negative, depending on how the coach actively structures the sport context in a way that can help adolescents develop both

physically and psychologically (Coatsworth & Conroy, 2009). To understand how to motivate adolescents to pursue a lifetime commitment to physical activity it might be valuable to comprehend to what extent the perceived motivational climate created by the coach can promote adaptive motivational patterns, such as the positive interpretation of one's competence. Achievement goal theorists assert that these judgments are a product of one's personal disposition and the specific situational context (Ames, 1992; Duda, 2001a; Nicholls, 1989).

Research demonstrated that motivational climate can influence goal orientation over time, particularly when the orientation was not compatible with the perceived climate (Treasure et al., 1995). Gano-Overway and Ewing (Gano-Overway et al., 2004) tested this assertion and found that when a student possessed a high task orientation and perceived a low task climate, there was a significant drop in task orientation across the semester-long physical activity course. The same held true for those with high ego orientation in a low ego climate. Thus, when the goal orientation and climate were incompatible, the situational factors appeared to change the individual goal orientation. Therefore, appropriated motivational climate, which foster competence, commitment to long-term physical activity and satisfaction of other psychological needs should be preferred by the coach as the most reliable strategy to enhance wellbeing.

Nicholls (Nicholls, 1989) emphasized that perceived competence can be influenced by the perceived motivational climate. Therefore, players within a task climate team may have higher levels of perceived competence due to the messages instilled regarding the importance of mastery and personal improvement, whereas players within a ego climate team may not perceive an increase in competence given that individuals within this type of environment are only recognized for their

demonstration of high standards ability and are punished when they make mistakes. Empirical research supports Nicholls by identifying a positive association between task climate and perception of competence among boys youth sport participant and physical education students (Harwood et al., 2008). Furthermore, in a study investigating the effects of coach climate on the satisfaction of the need for competence among adolescent's female handball players, Sarrazin, Guillet og Curry (Sarrazin et al., 2001) measured adolescents perception of competence and their coach behaviour by a questionnaire at the beginning and the end of one season. This longitudinal study demonstrated that task climate increases, whereas ego climate undermines perceived competence across 7 months. Thus, task climate and ego climate are considered by achievement goal theorists as the core theoretical concepts required to understand how coaches might influence perception of competence among adolescents (Duda, 2001b). Nevertheless, the observed findings regarding the motivational climate is in accordance with theoretical predictions, which affirm that task climate seems to be the most favorable motivational climate to enhance perception of competence (Duda, 2005).

Based on an abundant literature on competence as a motivational climate outcome, it seems that the coach-created climate can be a key factor to support or undermine adolescent's motivation and perceived competence. Weiss and colleagues (Weiss et al., 2009) examined the association between coaches' motivational climate and the perceived competence, enjoyment and intrinsic motivation of female adolescent football players. Results showed that greater emphasis placed by the coach on task climate and less on ego climate, was significantly related to greater perceived competence, intrinsic motivation, and enjoyment. In line with these findings Bortoli and colleagues (Bortoli et al., 2011) examined the relationship between competence

(perceived and actual), motivational climate and psychobiosocial state among adolescents involved in individual and team sports. Their findings indicated that perceived competence, actual competence and task climate were the strongest predictors of pleasant psychobiosocial states. Another interesting study focusing on perceived competence over time examined adolescent school athletes over the course of their athletic seasons (Boyce, et al., 2009). It suggests that perception of task climate positively predicted perceived competence over time. These findings provide evidence for the importance of developing a task motivational climate in the sport setting.

Furthermore, findings from the coaching controlling interpersonal style literature suggest that coaches who attempt to control and restrict their athletes' behavior outside of their sport participation may also undermine perceived competence (Kerr et al., 2000). It also proposed that motivational strategies that attempt to control athlete behavior by openly manipulating or misusing the coach–athlete relationship (e.g., intimidation or conditional regard) can also damage feelings of relatedness (Assor et al., 2004). Athletes who are subjected to behaviors intended to coerce (e.g., shouted at and embarrassed) or repeatedly exposed to negative conditional regard (e.g., ignored when they are not performing well) may be left feeling humiliated and questioning their own self-worth (Barber, 2002). Therefore, as well as hindering relatedness needs, the use of intimidation and controlling behaviours can also undermine athletes' perceptions of their own competence (K. Bartholomew, et al., 2010).

The above findings indicate that coach created climate has been shown to influence players' personal perceptions over time, especially when they are not compatible. Additionally, a link has been established between perception of coach-

created climate and motivational outcomes, such as perceived competence, thus supporting this thesis' supposition that changes in perception of the coach-created climate would be related to change in players' perception of competence.

3.3 Research on adolescent gender differences

Participation in physical activity may be crucial for the enhancement of psychological wellbeing in adolescents. Generally, findings about gender differences in sport participation among adolescents reveal that boys are more active than girls (Vilhjalmsson et al., 2003), boys were also majority members at sports club (Kjonniksen et al., 2009) and the amount of activity declines with age among adolescents (Klasson‐Heggebø et al., 2003). Moreover, the attrition rates from sport show that girls tend to withdraw from sport participation at earlier age than boys (Kirshnit et al., 1989)

In sport context, gender differences in perceived competence have been observed reliably, with boys holding more positive perceptions of their competence than girls (Carroll et al., 2001; Kokkonen et al., 2010; Telama, 1998). A Canadian study examined the relationship between perceived competence and enjoyment among boys and girls physical education. Results demonstrated that girls with low perceived competence also demonstrated low enjoyment and suggest that interventions in a physical education context should consider perceive competence as an important target to achieve enjoyment among girls (Cairney et al., 2012). Furthermore, another study considered the association between perceived physical competence and gender among elite adolescents football players. The findings suggest that girls who participate in vigorous physical activities such as football have higher perception of their physical competence (which was not the case for boys). These

findings suggest that there may be a particular benefit for girls to participate in vigorous physical activities (Findlay et al., 2009).

Duda (Duda et al., 1991) identified significant differences between goal orientation and gender among male and female basketball players, with the first group reporting lower task orientation and more aggressive behaviour than their female counterpart. In a Norwegian investigation of youth football players, Lemyre (Lemyre et al., 2001) found significant gender differences in goal orientation with girls reporting higher task orientation, low ego orientation and higher moral behaviours than the boys. A more recent study including athletes from individual and team sports found that athletes competing in individual sports had a higher ego orientation than those from team sports, and females scored higher in task orientation than males (Hanrahan et al., 2009). Yet a recent study, however, reported different finding: Daniels and colleagues (Daniels et al., 2005) did not find a significant path between gender and goal orientation among adolescents attending summer sports camps. Results suggested that boys were more task orientated, while girls were more ego orientated. It was argued that one of the challenges faced by girls, which might explain their goal orientation, was the role of the athlete. To succeed in an arena traditionally dominated by males, girls who want to gain recognition as athletes must often perform better than boys.

On the realm of interaction patterns, Nicaise and colleagues (Nicaise et al., 2007) demonstrated that student gender, teacher gender, and physical education all need to be considered together to best predict the type of teacher-student interactions. They posit that the lower performance of female students in physical education could be attributed to the 'male-gendered' orientation used in the program. These results suggested that sport settings dominated by male coaches and male activities may

influence perceived competence negatively among girls, and gender balances should be pursued.

To identify athletes' motivational indices as a function of their perception of the coach climate Vazou and colleagues (Vazou et al., 2006b) examined adolescents from individual and team sports. Results suggested that young girls perceived the coach motivational climate operating on their team to be more task climate, while the boys perceived the coach motivational climate to be more ego-involving. The findings suggest that coach climate and gender differences should be considered in future research on youth motivation in sport.

With regard to the relationship between perceived motivational climate, competence and gender, Reinboth (Reinboth et al., 2006) conducted a study in a large British University addressing the association between perceived motivational climate and satisfaction of need for competence. Results demonstrated that after analyzing perceived ego-, task climate, perceived competence and gender, no gender differences were found. Reinboth posited that according to Self-Determination theory, the basic need for competence is assumed to be universal. Thus it is expected that a motivational climate that enhance perceived competence should apply across genders as well as across different types of sport.

4.0 Research Questions

Based on the theoretical framework and the literature reviewed above, this thesis examines to what extent coach–created climate may influence adolescents' perceived competence.

Research on competence in adolescence is a fairly new approach and research on the topic in Norway can still be considered investigative. The aim of this thesis was to describe the sample thoroughly, in terms of adolescents' perceived competence and associations with coach created climate.

Research question 1. To what extent do adolescents perceive themselves competent in the football setting?

. Is there a difference by gender and age?

Research question 2. To what extent do adolescents perceive the coach climate to be task-, ego- or controlling climate?

. Is there a difference by gender and age?

Research question 3. To what extent do adolescents' perception of the coach created climate (task-, ego-, and controlling climate) relate to perceived competence?

. Is there a difference by gender and age?

5.0 Methods

The analyses conducted for this study was based on Norwegian data from the Promoting Adolescent Physical Activity project (PAPA project). PAPA is a European-based project committed to enhancing young peoples' health and wellbeing through positive experiences in sport. Their goal is to develop, deliver and evaluate a theoretically-grounded and evidence-based coach education programme that can help coaches foster quality motivation and make youth sport engaging, empowering, and enjoyable (Biddle et al., 2003). The Papa project network consists of 8 universities

representing five countries. The PAPA Project is funded by the EC under the Framework 7 programme. The HEMIL-centre, Centre for Research on Health Promotion in Bergen, is responsible for the national data bank.

5.1 Sample characteristics

Participants in the study were recruited in 2011. The sample was selected by systematic cluster sampling, and the primary sampling unit was football teams. The teams were randomly assigned into control and intervention groups. For the purpose of this study both groups were analysed.

The entire sample consisted of 3 regions, 45 clubs (response rate 82 %), and 119 teams (response rate 52 %); with a total of 1380 players (approximate response rate from total initial sample is 50 %. Responses from 11 years old were not used, as they did not answer some of the required questions needed for the present thesis. The sample (n= 1044) thus consisted of 612 boys (58.6%) and girls 432 (41.3%), aged 12-14 years (with a mean age of 13 years).

5.1.1 Sampling procedures

The participating clubs were identified with the help of representatives from three regions of the Norwegian Football Association (FA) (Vestfold, Hordaland and Trøndelag). The teams in the intervention group were chosen through a three-stage sampling procedure:

1. Random selection of clubs from a list of clubs that fulfilled the following criteria: experienced in arranging workshops, having necessary localities & equipment, well organized, reliable contact person, and quite a large club in the region.

2. Using a random sampling procedure, neighborhood community clubs to the clubs selected in stage 1 were identified based on geographical location.

3. Clubs that accepted to participate listed their teams and coaches within the age group 11-14, boys and girls. The teams should have maximum 2 coaches, minimum one training session per week, and take part in at least one formal game per week. Teams (with coaches) were randomly selected and invited to the workshop participation and data collection pre-season and post-season.

The control clubs were randomly selected from the remaining clubs in the list. Clubs that accepted to take part provided a list of boys and girls teams in the age group 11-14 as well as coaches for the respective teams. The teams should fulfill the same requirements as the intervention teams. Teams (with coaches) were randomly selected and invited to the data collection pre-season and post-season.

5.1.2. Design effect

As the sampling unit was teams and not individuals, a design effect can be expected as players at the same team may resemble one another more than players from another team. The design effect was calculated and the intraclass correlation was .04 for perceived competence, .21 for perceived ego climate, .17 for perceived controlling climate, and .09 for perceived task climate. Thus 4 % of the total variance in perceived competence is at the team level, and the remaining at the individual level. The climate indicators exhibited more variance at the team level than competence, as could be expected as competence is a characteristic of the individual, while climate is a characteristic of the team. As perceived competence is the dependent variable in this thesis, and basically seems to be an individual level measure, the design effect has not been taken into account in the analyses (i.e. multilevel modeling has not been applied,

also because multilevel modeling is a statistical technique that would be too advanced for a thesis at the master level).

5.2 Data Collection

There have been two data collections in Norway since March 2011. The first (baseline) collection was in March-May 2011, and the second collection in September-November 2011. The basis for the analyses carried out in this study is the baseline data. This data was collected before the major intervention.

5.3 Procedure

The questionnaires were administered by academic staff and bachelor student volunteers and carried out in the club facilities. Before handing out the forms, a short instruction letter describing the procedure was read aloud by the volunteers responsible for the data collection. A standard procedure was followed by the volunteers to ensure that the conditions were as similar as possible for all participants, such as to secure players anonymity, to make sure that the players had peace and quiet when filling in the forms, and that the players completed the survey forms individually.

The procedure to guarantee confidentiality by certifying that no one in the club could see the completed survey responses. First of all, participants did not put their names on the forms, and no codes were used to identify individual students. The completed forms were punched and checked manually in cases of doubt. Finally, the information was transformed to an SPSS data file.

5.4 Ethical considerations

The project has been approved by the ethical board at the University of Birmingham, which is the international coordinator of the PAPA project. Upon application, the Regional Ethical Committee in Helse Vest has reviewed the project, and concluded that the project is not within their mandate, and that "The project may therefore be conducted without approval from the ethical committee, and the committee has no objections to the publishing of the results".

The clubs and coaches received information about the project, in which it is made clear that all participation is voluntary, and that information about clubs, teams, coaches and players will be treated confidentially.

As adolescents, they are not able to provide a legally valid consent. Therefore, the adolescent's parents, guardian or other legally recognised person as defined by national laws, needed to be informed and was the person(s) asked to provide the legal consent through an opt-out (passive consent) procedure for their child's participation in the project. An information sheet was given to the parents/guardians, as well as to the adolescents.

In order to acknowledge the adolescent's own rights, the youth was provided with a clear opportunity and choice of not participating despite legal consent from their parents or guardians. All participants were also be given the opportunity to withdraw from the questionnaire at any point.

5.5 Instruments

The PAPA-survey focus on health and health behaviour patterns in 10 to 14 years old adolescents. The survey views health in its broadest sense, as a resource for everyday living. It therefore includes questions that tap into aspects of social environment,

physical, and mental/emotional well being. The questionnaire is developed by an international research network, and was piloted in a sample of the participating countries before data collection. The standard questionnaire was used by all participating countries. It contains a core set of questions which examine individual and social resources, health behaviours, demographics and social background.

The Norwegian questionnaire is translated from English by two individual translators who are bilingual, familiar with the theoretical underpinning of the concepts that are being translated, and also familiar with the "football lingo" in the cultures involved (Cordova & Lepper, 1996; J.L. Duda et al., 1998) (See appendix Figure 7-12 for Norwegian questionnaire).

The players completed questionnaires that measured their 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 effects), self-reported physical activity, healthy eating, social economic status (SES), gender, team and age. The majority of the measures used in the surveys have been used in previous studies, and their validity and reliability have been well established. Participants answered using a 5-point Likert scale from 'strongly disagree' to 'strongly agree'.

The variables available in the PAPA project and that are found to be of relevance of this study were: Satisfaction of the need for competence among players, players perceptions of coach-created climate, indices of emotional well being, gender of players, and age. These variables will be described in more detail in the following sections.

5.5.1 Perceived competence among players (Outcome variable)

The outcome variable of competence were measured by the Basic Need Satisfaction in Sport Scale (BNSSS) (Ng et al., 2010). In the PAPA project, competence is defined as a satisfaction of the need to feel capable in playing football. In the questionnaire, competence items were distributed with two other psychological need, namely autonomy and relatedness (E. L. Deci & R. M. Ryan, 2000), with a total sum of 15 items. However just five items measured competence were used.

Participants were asked to what extent the statements correspond to their feelings and experiences over the past month. The five statements were: *"I think I was quite good at football"; "I am satisfied with what I did"; "I was skillful"; "I felt quite competent";* and *"I felt I performed very well"*.

Participants answered using a 5-point Likert scale from 'strongly disagree' to 'strongly agree'. A new variable was computed for the total score on the competence-scale. The higher the score, the more competence did participants experience. The scale was constructed by adding the items together as a sum score.

The reliability of a scale demonstrates how free it is from random error. The most commonly used statistic to assess internal consistence is Cronbach's coefficient alpha. Internal consistency is the degree to which the items are measuring the same attribute. Values range from .7 to 1.0 is recommended (Balaguer et al., 1999). The internal consistency of competence scale scores presented a Cronbach's alpha of .90.

5.5.2 Player perceptions of coach-created climate (Independent variable)

Perceived climate was measured by 34 items, and consists of several dimensions, namely support of needs for competence, autonomy and relatedness, as well as perception of coaches being goal or ego oriented. Thus, climate was measured by

different climate scales, such as Perceived Motivational Climate in Sport (Newton, et al., 2000), Controlling Coaching Behaviour (K. Bartholomew, et al., 2010), Autonomy Supportive Coaching Behaviours (Williams et al., 1996), and Socially Supportive Coaching Behaviours (Sarason et al., 1987). In the questionnaire five scales were used, explicitly task climate, autonomy climate, socially support climate, ego climate and controlling climate (see appendix Table 6 for original items).

The 34 items of the five different scales were subjected to factor analysis with Varimax rotated solution with Kaiser Normalization using SPSS version 18. Principal components analysis disclosed the presence of three main components. This signifies, task climate with 12 coefficient items (all above .5), controlling climate with 9 coefficients (above .6), and ego climate presented 4 coefficients (all above .6). The three chosen scales will be described as following. (see Table 7 in appendix)

5.5.2.1 Task Climate

Task climate is defined in the PAPA project as the emphasis given by the coach to cooperation, players' effort, the belief that each member had an important role on the team, and the perception that mistakes are viewed as part of the learning process (Newton et al., 2010). Exploratory factor analysis and internal consistence to check reliability were conducted. The task climate measure assessing to what extent did adolescents perceive their coach more mastery oriented (Cordova & Lepper, 1996).

Players were asked to think about what their main coach normally says or does. The items used in the study were: "*My coach encourages players to try new skills"; "My coach tries to make sure players feel good when they try their best"; "My coach can really be counted on to care, no matter what happens"(Socially support item); "My coach really appreciates players as people, not just as*

footballers"(Socially support item); "My coach answers players' questions fully and carefully"(Autonomy item); "My coach makes sure that each player contributes in some important way"; "When my coach asked players to do something, he or she tries to explain why this would be good to do so"(Autonomy item); "My coach makes sure everyone has an important role on the team"; "My coach listens openly and does not judge players' personal feelings"(Socially support item); "My coach lets us know that all the players are part of the team's success"; "My coach encourages players to help each other learn"; and "My coach encourages players to really work together as a team".

Participants answered using a 5-point Likert scale from 'strongly disagree' to 'strongly agree'. A new variable was computed for the total score on the task climate-scale. The higher the score, the more mastery climate did participants experience.

Reliability analysis exposed a Cronbach's alpha of .90. The high level of intern consistence of the task climate scale revealed that the present scale, even if was build by 2 autonomy climate items and another 3 items from socially support climate still measuring the same attribute, in this case, task climate.

5.5.2.2 Ego Climate

In the PAPA project ego climate is defined by the coach's emphasis on competition between players, low tolerance for mistakes and well-known favourites among the players (Newton, et al., 2000). The ego climate measure assessing to what extent did adolescents perceive their coach enhancing competition between players (Deci et al., 1994). The items are described as following.

"*My coach gives most attention to the best players"; "My coach has his or her favourite players"; "My coach thinks that only the best players should play in a match"; and "My coach favours some players more than others".*

Participants answered using a 5-point Likert scale from 'strongly disagree' to 'strongly agree'. A new variable was computed for the total score on the ego climate-scale. The higher the score, the more competitive climate did participants experience.

High internal consistency was found on the ego climate scale with Cronbach's alpha of .83. Reliability analysis confirmed the measuring attributes of the final scale. Subsequently, these four items shaped the ego climate scale.

5.5.2.3 Controlling Climate

This scale addressed how adolescents perceive the controlling coaching behaviours. Motivation based upon coercive demands or adolescent's sense of guilt or obligation reflects a lack of personal endorsement (K. J. Bartholomew et al., 2010). Nine items were addressed as following.

"My coach is less friendly with me if I don't make the effort to see things his/her way"; "My coach substitutes players when they make a mistake"; "My coach is less supportive of me when I am not training and competing well"; "My coach yells at players for messing up"; "My coach pays less attention to players if they have displeased him or her"; "My coach is less accepting of players if they have disappointed him or her"; "My coach only praises players who perform the best during a match"; "My coach shouts at players in front of others to make them do certain things"; and "My coach threats to punish players to keep them in line during training".

Participants answered using a 5-point Likert scale from 'strongly disagree' to 'strongly agree'. A new variable was computed for the total score on the controlling climate-scale. The higher the score, the more controlled environment did participants experience.

The controlling climate measure assessing to what extent adolescents perceived their coach using controlling strategies, negative conditional rewards and/or intimidate behaviour (K. Bartholomew, et al., 2010) presented an internal consistence during reliability analysis, Cronbach's alpha of .87. The total of nine items contributed to create the controlling climate scale.

5.5.3 The Socioeconomic Status measure (SES)

There is consistence evidence findings that people at socio-economic disadvantage suffer a heavier burden of illness than their better-off counterparts (Goldman, 2001; Whitehead et al., 1992). Other findings suggest that a combination of neighborhood and household can contribute to sports participation (Kamphuis et al., 2008). Therefore the present study incorporated one item about subjective socioeconomic status. The criteria used were in agreement with the ideas presented by other authors (Andersen et al., 2008; Currie et al., 2008). The purpose was to examine the relationship between socioeconomic status adolescents recognize as their own and adolescents' perceived competence.

Participants answered using a 5-point Likert scale from 'very good means" to 'limited means'. The question was *how good is your family economic means?*

A total SES-score was calculated for each student based on hers/his responses to the item. The total score ranged from one to five, with one indicating the lowest possible SES, and five being the highest possible SES.

5.5.4 Mood affect measure

The positive affect and negative affect scale (PANAS) is a mood scale that has been inserted just in the Norwegian questionnaire's to measure these factors (Watson, Clark, & Tellegen, 1988). The aim is to facilitate explanations over potential psychodynamic constructs of sensitivity to signals of reward and punishment. One explanation of the importance of PANAS is to safeguard that the powerful influences of moods might shade adolescents' experiences of the coach climate and/or their own competence. PANAS was used to enhance the clarity of the results as much as possible. Evidence of validity and reliability has been reported extensively in the literature (Crawford et al., 2004; Watson, Clark, & Tellegen, 1988)

Participants answered using a 5-point Likert scale from 'very slightly' to 'extremely'. The question was *to what extent do you feel generally?* Ten options were given: "*Interested"; "Ashamed"; "Despair"; "Happy"; "Inspired"; "Nervous"; "Afraid"; "Enthusiastic"; "Jittery"; and "Determined"*.

Five of the questions correspond to positive affect (interested, happy, inspired, enthusiastic, and determined), while the other five questions regard negative affect (ashamed, despair, nervous, afraid, and jittery). Two new variables were separately computed for the total score on the positive affect-scale and the negative affect-scale. The higher the score in the positive affect-scale, the more positive affect did participants experience. The opposite was true for the negative affect-scale, with negative affects corresponding high scores in the negative affect-scale.

Reliability analysis presented a Cronbach's alpha of .77 for positive affect and negative affect scale with an equal Cronbach's alpha of .77.

5.6 Data preparation and steps of analysis

The analytical software SPSS for Mac, version 18, was used to perform the statistical analyses. Next follows a presentation of the steps taken to analyze the data:

1. The sample was selected based on which items in the questionnaire participants had responded to.

2. Missing data was considered acceptably low, 7 missing cases on gender.

3. The main variables (Competence, task-, ego-, and controlling climate) were checked for outliers. Although several respondents reported maximum and minimum scores on these measures, the outliers were not excluded from the data because they were considered to be within a reasonable range.

4. Items that were worded in a certain way to avoid response bias were reversely coded where applicable.

6. Scales were computed where appropriate, and total scores of scales were calculated.

7. Scale properties were explored and reliability checked by Cronbach's alpha.

8. Preliminary analysis included frequency distributions and descriptive statistics. Relevant variables were also explored using graphs to check for normality distributions.

9. Independent sample t-tests were performed to check for gender differences. In cases where the variance of the groups was very different according to Levene's test for equality of variance, the compensating t-value was reported.

10. Correlation analyses were performed on the variables that met the following assumptions that underlie a range inferential statistics techniques (Pallant, 2010):

. Continuous variables (one IV can be dichotomous)

. Random sampling

. Related pairs

. Independence of observations

. Normal distributions

. Linearity

. Homoscedasticity.

Analyses were run on the competence, task climate-, ego climate-, and controlling climate variables to test for correlational relationships.

12. Two-way ANOVA's were performed to check for gender and age differences within the four scales (competence, task-, ego-, and controlling climate).

13. The relevant variables were checked for the underlying assumptions of regression analysis (Pallant, 2010):

. Sample size

. Outliers

. Normality, linearity, homoscedasticity, independence of residuals.

16. Several hierarchical regression analyses were performed to test for interaction effects.

Only variables that met the assumptions underlying the statistical techniques were included in analyses.

6.0 Results

Sections 6.1 to 6.4 present preliminary descriptive statistics, independent sample t-tests, two way between-groups ANOVA, correlation, and multiple regression, to describe and compare groups within the sample.

Given the large sample size, a more rigid alpha level was used for all significance tests, i.e. $p < .01$.

6.1 Descriptive statistics

The descriptive statistics are presented in Table 1, and are enhanced in more details in the following sections.

Table 1. Distributions of perceived competence, coach ego climate, coach controlling climate, and coach task climate scores, across gender

Type of Scale (Range)	All			Boys			Girls			t^a (η^2)
	N	**Mean (SD)**	Skewness/ Kurtosis	N	**Mean (SD)**	Skewness/ Kurtosis	N	**Mean (SD)**	Skewness/ Kurtosis	
Competence (5-25)	1039	**18.71 (3.80)**	-.65/ .94	606	**18.99 (3.75)**	-.69/ 1.07	433	**18.30 (3.83)**	-.59/ .85	2.90[b] (.01)
Ego climate (4-20)	1044	**10.62 (4.08)**	.30/ -.55	612	**11.28 (3.92)**	.19/ -.50	432	**9.69 (4.12)**	.56/ -.34	6.31[c] (.03)
Control. cli. (9-45)	1001	**18.55 (6.60)**	.65/ .42	584	**19.97 (6.54)**	.59/ .51	417	**16.57 (6.16)**	.84/ .64	8.32[c] (.06)
Task climate (12-60)	998	**48.70 (7.20)**	-.91/ 2.29	583	**48.46 (7.13)**	-.95/ 2.58	415	**49.03 (7.29)**	-.88/ 1.96	-1.23[d] (.002)

Note:
[a] t-value from independent samples t-tests
Equal variances assumed in all scales
[b] $p = .004$, [c] $p < .001$, [d] $p > .005$
η^2 = eta squared
Competence, measured by BNSSS (Ng, Lonsdale & Hodge, 2010)
Ego climate, measure by PMCSQ-2 (Newton, Duda & Yin, 2010)
Controlling climate, measured by CCBS (Bartholomew, Ntoumanis & Thøgersen, 2010)
Task climate, measured by PMCSQ-2 (Newton, Duda & Yin, 2010)

The effect size provides an indication of the magnitude of the differences between groups by calculating an eta-squared value (η^2), ranging from 0 to 1. Eta squared represents the amount of variance in the dependent variable that is explained by the independent variable (Balaguer, et al., 1999). To calculate eta squared value for independent sample t-tests the following formula was used: $\frac{t2}{t2+(N1+N2-2)}$. It was suggested by Cohen (1988, in Pallant, 2010) that effect size .01 is considered small,

.06 moderate and above.14 large, with practical significance.

Concerning the normality distribution of the variables, a variable with statistically significant skewness usually does not make a substantive difference in the analysis in a large sample, as it was the case in the current study (Tabachnick et al., 2007). Therefore the scores that marginally diverged from the normal curve do not have implications for the additional analysis conducted.

6.1.1 Perceived competence

The average frequency of scores in perceived competence, to the extent that the adolescents reported to what degree they perceive themselves competent, was 18.70 points (see Table 1). The range was large, going from 5 to 25 points. The distribution of scores in the frequency measure of satisfaction of need for competence was negatively skewed and had a small positive kurtosis. Thus, this should not violate the assumption underlying the statistical analyses, as long as the sample size is large (Tabachnick & Fidell, 2007).

Figure 2 is based on the five items measuring perceived competence. Result shows high scores of perceived competence (all above 50%) among the participants. It was found a statistically significant difference between genders, with boys reporting higher perception of their competence than girls. This tendency towards a difference on how boys and girls perceive their competence, however, had a small effect size.

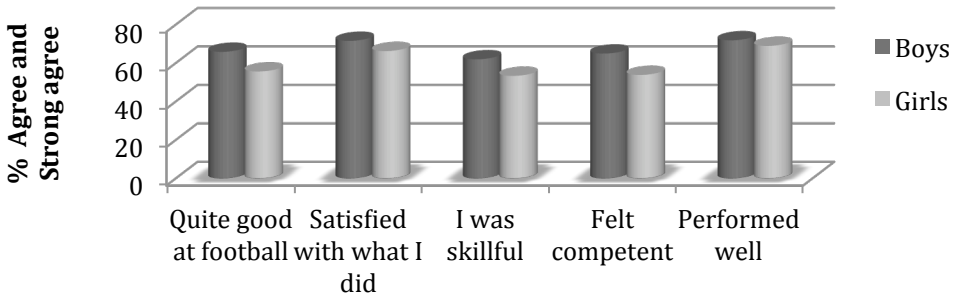

Figure 2. Perception of competence by gender

6.1.2 Ego climate

On a range from 4 to 20, with a score of twenty indicating that adolescents perceived the climate created by the coach highly ego oriented, the average score was 10.63 (see Table 1). Boys scored significantly higher than girls, but the magnitude of the difference had little practical effect due to the low eta squared value. This indicates that the gender differences in perception of ego climate were limited. The normality curve for ego climate measure titled slightly to the left, and had a small positive kurtosis.

6.1.3 Controlling climate

The mean score on the controlling climate measure was 18.58, on a range from 9 to 45 (see Table 1). Boys scored higher than girls. The difference had a moderate effect size of .06. The distribution of controlling climate scores had a positive skew, and also a positive kurtosis.

6.1.4 Task climate

The average frequency of task climate, to the extent that the adolescents perceive the climate created by the coach greatly mastery oriented, was 48.69 points (see Table 1). The range was large, going from 12 to 60 points. There was no significant difference between boys and girls. The normality curve for the task climate measure tilted to the right, and had a large positive kurtosis.

6.2 Two way between groups ANOVA

The subsequent sections present a series of two-way, between groups ANOVA's. They were performed to investigate the impact of gender variations within the age groups on levels of perceived competence, ego-, controlling-, and task climate.

Participants were divided into three groups according to their age (Group 1: 12 years; Group 2: 13 years; Group 3: 14 years). In order to obtain the age difference with gender groups, the sample was split into boys and girls. Turkey's Honestly Significant Different (HSD) post hoc test was used (Balaguer, et al., 1999). In analyses where the assumption of homogeneity of variance was violated, a more rigorous significance level ($p<.01$) was set (Pallant, 2010). Effect sizes of the group differences were reported using partial eta squared. It was suggested by Cohen (Cohen, 1988) that effect size .01 is considered small, .025 moderate and above .04 large effect with practical significance. Table 2 gives the descriptive statistics relevant for the two-way analyses.

Table 2. Descriptive statistics, two-way ANOVA's: impact of gender and age on frequency of perceived competence, ego-, controlling-, and task climate

	Age	Competence		Ego climate		Controlling climate		Task climate	
		M (SD)	N	M (SD)	N	M (SD)	N	M (SD)	N
Boys	12	19.20 (3.43)	219	10.36 (3.75)	222	18.93 (6.16)	213	31.05 (3.83)	220
	13	19.34 (4.15)	161	10.66 (4.09)	161	19.69 (6.50)	150	31.31 (3.61)	160
	14	18.55 (3.70)	226	12.62 (3.61)	229	21.17 (6.76)	221	30.37 (3.63)	232
Girls	12	18.90 (3.73)	185	8.02 (3.52)	186	15.39 (5.62)	178	31.41 (3.23)	193
	13	18.33 (4.08)	157	10.45 (4.34)	154	17.35 (6.69)	149	31.42 (3.20)	157
	14	17.03 (3.25)	91	11.79 (3.50)	92	17.60 (5.90)	90	30.38 (2.93)	92

Note:
Competence, measured by BNSSS (Ng, Lonsdale & Hodge, 2010)
Ego climate, measure by PMCSQ-2 (Newton, Duda & Yin, 2010)
Controlling climate, measured by CCBS (Bartholomew, Ntoumanis & Thøgersen, 2010)
Task climate, measured by PMCSQ-2 (Newton, Duda & Yin, 2010)

6.2.1 Perceived competence

Considerations about whether perception of competence varies through age were taking into account (see Figure 13 in appendix).

In order to obtain the age difference with gender groups, the sample was split into boys and girls. The effect of age alone was not significant for boys $F(2, 603) = 2.61$, $p = .074$. In the girls reports, there was a significant difference in age $F(2, 430) = 7.48$, $p = .001$ with a moderate partial $\eta^2 = .03$. The interaction effect between gender and age was not statistically significant, $F(2, 1033) = 2.19$, $p = .112$.

Post Hoc comparisons using the Turkey HSD test indicated that the twelve years age girls group ($M = 18.90$, $SD = 3.74$) was significantly different from the fourteen years old girls ($M = 17.03$, $SD = 3.25$). There was no significant difference within age groups for boys. There was a decrease in the perception of competence for

both genders over age (see Figure 3). Fourteen years old girls reported the lowest perception of competence, with a significant difference from the twelve years group.

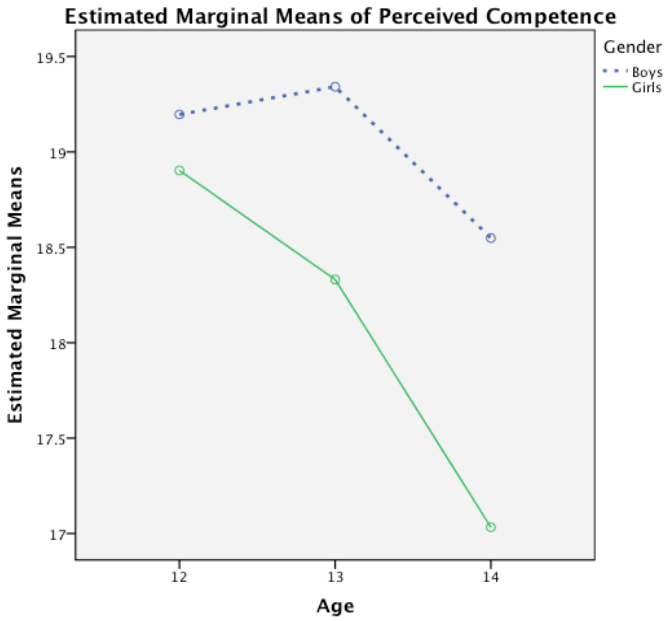

Figure 3. Perception of competence by gender and age

6.2.2 Ego Climate

On average boys (M = 11.28, SD = 3.92) seem to perceive ego climate higher than girls (M = 9.69, SD = 4.12). There was a statistically significant main effect of age for boys F (2, 609) = 23.04, $p < .001$ with a large effect, partial $\eta^2 = .07$. There was also a statistically significant main effect of age for girls, F (2, 429) = 34.49, $p < .001$, with a large effect of partial $\eta^2 = .13$. The interaction effect between gender and age was statistically significant, F (2, 1038) = 7.46, p = .001 with a small effect, partial $\eta^2 = .01$.

Post-Hoc comparisons using the Turkey HSD test showed that the mean score for the 14 years old boys group (M = 12.62, S = 3.61) was significantly different from the 12 years old boys group (M =10.36, SD = 3.75) and the 13 years old boys group

(M =10.66, SD = 4.09). There was no significant difference between 12 and 13 years old boys. Post-Hoc comparison for girls reported a mean score for 12 years old girls group (M = 8.02, SD = 3.52) was significant difference from 13 (M = 10.45, SD = 4.34) and 14 years old girls group (M = 11.79, SD = 3.50).

Figure 4 shows the increase in perception of ego climate for both boys and girls over age.

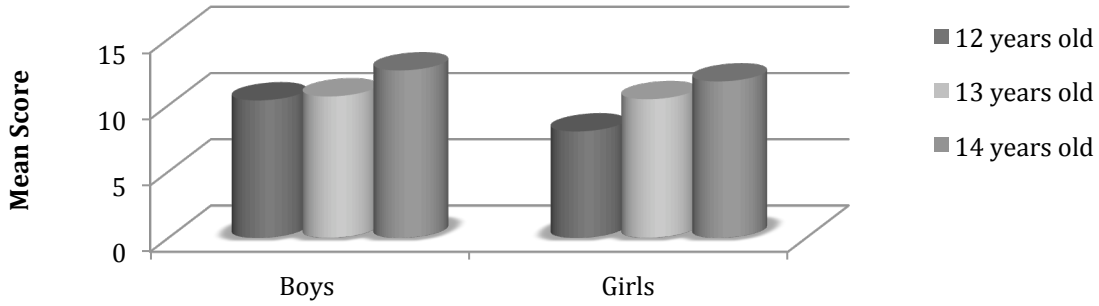

Figure 4. Perception of ego climate by age and gender

6.2.3 Controlling Climate

Boys (M =19.97, SD = 6.5) reported the climate to be significantly more controlling than girls (M =16.57, SD = 6.16). There was a statistically significant main effect of age for boys F (2, 581) = 6.65, p = .001 with a small effect, partial η^2 = .02. There was also a statistically significant main effect of age for girls, F (2, 414) = 5.86, p = .003, with a moderate effect of partial η^2 = .02. The interaction effect between gender and age was not statistically significant, F (2, 995) = .932, p = .394.

Post-Hoc comparisons using the Turkey HSD test showed that the mean score for the 14 years old boys group (M = 21.17, SD = 6.76) was significantly different from the 12 years old boys group (M =18.93, SD = 6.16). The 13 years old boys

group (M =19.69, SD = 6.50) did not differ significantly from either of the other groups. There was no significant difference within girls' age groups.

A significant increase in the perception of controlling climate was found for gender over age (see Table 2). However, boys (M = 19.97, SD = 6.5) were significantly higher than girls (M = 16.57, SD = 6.16; t (999) = 8.32, p < .001, two-tailed). The magnitude of the difference in the means (mean difference = 3.40, 95% CI: 2.60 to 4.21) was large (η^2 = .06) (see Figure 5).

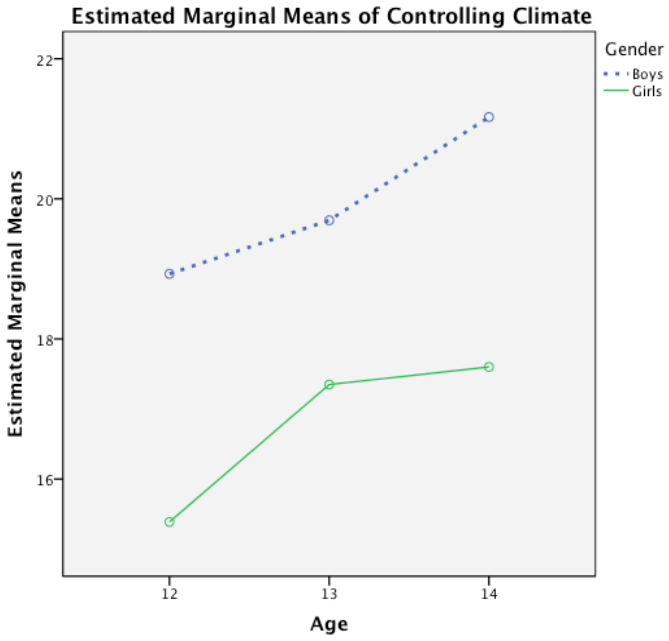

Figure 5. Perception of controlling climate by gender and age

6.2.4 Task Climate

It seems that both boys and girls experience task climate similarly. There was found significant difference of age for boys F (2, 609) = 3.52, p = .03 with a small practical effect, partial η^2 = .01. Girls also reported a significant difference of age F (2, 439) =

3.88 with a small practical effect, partial $\eta^2 = .01$. The interaction effect between gender and age was not statistically significant, F (2, 992) = .849, p = .428.

Post-Hoc comparisons using the Turkey HSD test showed that the mean score for the 14 years old boys group (M = 30.37, SD = 3.63) was significantly different from the 13 years old boys group (M =31.31, SD = 3.61). Girls reported a significantly difference between 14 years old groups (M = 30.38, SD = 2.93) and 12 years old groups (M = 31.41, SD = 3.23) and 13 years old group (M = 31.42, SD = 3.20). After the age of 13, a significant decline was found on the level of perceived task climate for both boys and girls (See Figure 6).

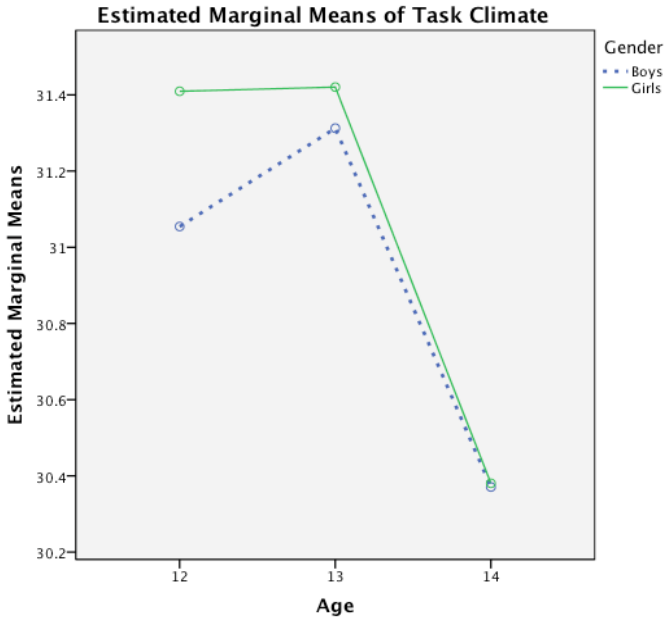

Figure 6. Perception of task climate by gender and age

6.3 Correlations

Table 3 demonstrates the correlations between the main variables in the study, which are perceived competence, task-, ego-, and controlling climate. See in appendix Table

8 for description of perceived competence in different age groups by gender, and Table 9 for correlations between key variables including both genders.

Table 3. Pearson product-moment correlation between key variables

		Competence (N)	Task Climate (N)	Controlling Climate (N)	Ego Climate (N)
Boys	Competence	1	.38	-.15	-.14
		(606)	(559)	(559)	(586)
	Task Climate	.38	1	-.47	-.38
		(559)	(583)	(550)	(579)
	Controlling Cli.	-.15	-.47	1	.65
		(559)	(550)	(584)	(574)
	Ego Climate	-.14	-.38	.65	1
		(586)	(579)	(574)	(612)
Girls	Competence	1	.32	-.20	-.14
		(433)	(401)	(402)	(415)
	Task Climate	.32	1	-.58	-.51
		(401)	(415)	(394)	(403)
	Controlling Cli.	-.20	-.58	1	.65
		(402)	(394)	(417)	(407)
	Ego Climate	-.14	-.51	.65	1
		(415)	(403)	(407)	(432)

Note:
All correlations: $p < .01$ (two-tailed)

The relationships were investigated using Pearson product-moment correlation coefficient. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity and homoscedasticity. To determine the strengths of the associations, the subsequent guidelines were applied: r= ± .10 to ± .29 indicates a small relationship, r= ± .30 to ± .49 signifies a medium relationship, and r= ± .50 to ± 1 indicates a strong relationship between the variables (Adie et al., 2008). It was suggested by Edwards (in Pallant, 2010) that z_{obs} value verifies whether the correlation between two groups are significantly different. Obtained scores between -1.96 to 1.96 is considered not statistically significant different (Balaguer, et al., 1999). There was no statistically difference in the strength of the relationship between

perceived competence and task- (z_{obs}= .96), ego- (z_{obs}= -.89), or controlling climate (z_{obs}= -.15) for boys and girls. The difference observed for the two groups may have occurred as a function of a sampling error. Both genders seem to experience the effect of the perceived coach created climate (task-, ego-, and controlling) on perceived competence the same way. Ego- (-.12) and controlling climate (-.14) were weakly negatively related to perceived competence. Nonetheless, task climate obtained a medium positively correlation with perceived competence. Final Results disclosed that task climate had a positive and significant relationship to perceived competence for both boys and girls.

Table 4 displays the correlations between the main variables in the study within different age groups.

Table 4. Pearson product-moment correlation, including age.

	Boys Competence			**Girls Competence**		
	12 y.o (N)	13 y.o (N)	14 y.o (N)	12 y.o (N)	13 y.o (N)	14 y.o (N)
Ego Climate	-.06 (213)	-.21** (157)	-.09 (216)	.02 (174)	-.09 (153)	-.30** (88)
Task Climate	.39** (201)	.36** (147)	.39** (211)	.34** (162)	.26** (150)	.38** (89)
Controlling Climate	-.18** (204)	-.22** (146)	-.04 (209)	-.09 (168)	-.16 (148)	-.43** (86)

Note:
** Significant at the p < .01 level (2-tailed)

Again, Pearson product-moment correlation coefficient was used together with z_{obs} value. Task climate was the only climate found to be positively and significantly correlated to perceived competence in all age groups for both boys and girls. z_{obs} value was calculated to verify possible differences within age groups. Task climate explained significantly more of the variance in perceived competence for 12 years old boys than 12 years old girls z_{obs} value= 3.86. No significantly difference was found

within 13 years old z_{obs} value= 1.0. At the age of 14, task climate explicated significantly more of the variance in perceived competence for boys than girls z_{obs} value= 3.38. Results revealed that task climate was positively and significantly related to perceived competence for both genders and over age.

6.4 Multiple regression

Multiple regression analysis was done splitting the analyses into boys and girls. The predictors were the same for both genders (see Table 5).

Table 5. Regression model with social status, achievement theory and mood affects predicting competence

	Competence							
	Boys				**Girls**			
	B (SE)	95% CI	β	R^2	B (SE)	95% CI	β	R^2
Model 1				.03				.05
Family Wealth	-.88 (.21)	-1.3, -.45	-.17**		-.83 (.25)	-.1.3, -.33	-.16**	
Age	-.27 (.18)	-.63, .08	-.06		-.82 (.24)	-1.3, -.34	-.16**	
Model 2				.05				.08
Family Wealth	-.85 (.21)	-1.2, -.43	-.16**		-.78 (.24)	-1.2, -.29	-.15**	
Age	-.14 (.18)	-.51, .22	-.03		-.80 (.25)	-1.3, -.29	-.16**	
Ego Climate	-.07 (.05)	-.18, .02	-.07		.07 (.06)	-.05, .19	.07	
Controlling Climate	-.04 (.03)	-.10, .01	-.08		-.13 (.04)	-.21, .05	-.21**	
Model 3				.16				.14
Family Wealth	-.79 (.20)	-1.19, -.40	-.15**		-.62 (.24)	-1.1, -.15	-.12**	
Age	-.22 (.17)	-.57, .12	-.05		-.85 (.25)	-1.3, -.36	-.17**	
Ego Climate	-.02 (.05)	-.12, .07	-.02		.14 (06)	.01, .26	.15*	
Controlling Climate	.04 (.03)	-.02, .10	.07		-.05 (.04)	-.13, .03	-.08	
Task Climate	.20 (.02)	.16, .25	.39**		.17 (.03)	.10, .22	.31**	
Model 4				.25				.21
Family Wealth	-.54 (.19)	-.92, -.16	-.11**		-.40 (.23)	-.86, .06	-.07	
Age	-.17 (.16)	-.49, .15	-.04		-.75 (.24)	-1.2, -.28	-.15**	
Ego Climate	-.00 (.04)	-.10, .08	-.00		.12 (.06)	.00, .24	.13*	
Controlling Climate	.04 (.03)	-.01, .10	.08		-.01 (.04)	-.09, .06	-.02	
Task Climate	.12 (.02)	.08, .17	.25**		.10 (.03)	.04, .16	.20**	
Negative affect	-.17 (.04)	-.26, -.07	-.15**		-.11 (.05)	-.22, -.00	-.10*	
Positive affect	.32 (.05)	.22, .43	.27**		.36 (.06)	.23, .49	.28**	

Note:
** p < .01, * p < .05

Task climate was found during correlation analysis to be positively associated with perceived climate. Therefore, hierarchical multiple regression was conducted to assess the ability of task climate to predict levels of perceived competence for boys and girls, after controlling for the influence of social economic status (family wealth), age, ego climate, controlling climate, and mood affects (positive and negative affects). Preliminary analyses were conducted to ensure no violation of the assumptions of normality, linearity, and homoscedasticity.

Correlation analysis also revealed that ego-, controlling-, and task climate were highly related with each other (see table 3). Therefore, preliminary analyses were conducted to ensure no violation of the assumption of multicollinearity. No multicollinearity was found among the three coach climates for both boys and girls.

6.4.1 Regression model for boys

Family wealth and age were entered at model 1, explaining 3% $F(2, 547) = 9.93$, $p < .001$ of the variance in perceived competence for boys. After entry of the ego climate- and controlling climate scale at model 2 the total variance explained by the second model was 5% $F(4, 545) = 7.93$, $p < .001$. Task climate was entered at model 3, the total variance explained by the third model was 16% $F(5, 544) = 22.73$, $p < .001$. Task climate measures explained an additional 12% of variance in perceived competence (R squared change = .12, F change $(1, 544) = 77.47$, $p < .001$).

In order to control problems of general response bias operating over all self-report indices, mood affect scale was introduced at the last model. After entry of the positive and negative affect scale at model 4 the total variance explained by the model as a whole was 25%, $F(7, 542) = 27.36$, $p < .001$. Negative affect measures explained an additional 4% of variance in perceived competence R squared change = .04, F

change (1, 543) = 25.69, p < .001. Positive affect measures explained an additional 5% of variance in perceived competence for boys R squared change = .05, F change (1, 542) = 37.35, p < .001. In the final model four measures were statistically significant, with the positive affect scale recording a higher beta value (beta = .27, p < .001), followed by task climate (beta = .25, p < .001), negative affect (beta = -.15, p < .001), and family wealth (beta = -.11, p = .005).

6.4.2 Regression model for girls

Family wealth and age were entered at model 1, explaining 5% F (2, 391) = 12.05, p < .001 of the variance in perceived competence. After entry of the ego climate- and controlling climate scale at model 2 the total variance explained by the model was 8% F (4, 389) = 9.36, p < .001. Task climate was entered at model 3, the total variance explained by the third model was 14% F (5, 388)= 13.60, p < .001. Task climate measures explained an additional 6% of variance in perceived competence R squared change = .06, F change (1, 388) = 27.94, p < .001. After entry of the positive and negative affect scale at model 4 the total variance explained by the model as a whole was 21%, F (7, 386) = 16.25, p < .001. Negative affect measures explained an additional 2% with R squared change = .02, F change (1, 387) = 9.71, p = .002. Positive affect measures explained an additional 6% with R squared change = .06, F change (1, 386) = 28.80, p < .001. Three measures were statistically significant in the final model, with the positive affect scale recording a higher beta value (beta = .28, p < .001), followed by task climate (beta = .20, p < .001), age (beta = -.15, p = .002), negative affect (beta = -.10, p = .04), and ego climate (beta = .13, p = .04).

Moreover, these results revealed that even with positive and negative affect included in the regression model, associations between perceived task climate and

perceived competence remained statistically significant in the final model for both boys and girls.

7.0 Discussion

This thesis investigated the association between adolescents' perceived competence and the perceived coach-created climate. The overall results validate the theoretical assumptions and previous research findings of the relation between mastery climate in organized physical activity and perception of competence.

The results suggest a high level of perceived competence among Norwegian adolescents football players, with a mean of 18.70 on a scale from 5 to 25 points. There were significant, though modest gender differences within competence, with boys scoring higher. There was a decrease in the levels of perceived competence over age for boys and girls. Older girls showed the lowest overall score on perceived competence.

Results indicated a high level of perceived task climate among Norwegian adolescent football players, with a mean score of 48.69 on a scale from 12 to 60. There was no significant difference between boys and girls in their perception of task climate. There was a decrease in levels of perceived task climate over age for boys and girls.

With regard to ego- and controlling climate, both climates were negative related with competence for both boys and girls. Additionally, there was an increase in the perception of ego- and controlling climate over age for both genders.

One main purpose of this study was to examine the extent to which adolescents' perception of motivational climate is associated with perceived

competence. Results confirmed a positive association between perceived task-oriented climate and perceived competence, to the extent that Norwegian adolescents football players seem to experience satisfaction of need for competence when performing the activity. In addition, perception of a task-oriented climate was positively related to competence within all age groups for both genders, to the extent that coaches that exhibit task-oriented behaviour may contribute to the player's satisfaction of need for competence despite their age and gender.

7.1 Perceived competence differ by gender over time

Despite the high levels of perceived competence among Norwegian adolescents football players, further analyses disclosed new information about how perceived competence is experienced by girls and boys over time.

Regarding gender differences, modest differences were found with boys scoring higher than girls. Previous findings on gender differences in perceived competence, demonstrate that boys perceive themselves more competent than girls in sport (Eccles et al., 1993). Traditionally, sport has been a male dominated arena and a symbol of masculine identity development (Messner, 1990). The current study however, revealed minor discrepancy between the genders' perceived competence in football, indicating that the traditional gender roles might be changing in the Norwegian society. Previous research indicated that physical activity participation among girls was higher in countries with high equality between the genders (Wold et al., 1998).

The results revealed a decrease in levels of perceived competence in football over time for both genders. These findings are in line with previous research on perceived competence rates during adolescence (Jacobs et al., 2002). One explanation

for such decline is that in a skill-based domain such as football, adolescents inevitably become aware of others' levels of competence and where their own skills rely (Jacobs et al., 2000). This inbuilt comparison propensity among adolescents is however boosted by the football setting that in general becomes more competitive as players get older. Previous findings posited that satisfaction of need for competence was found to be the only reliable variable associated with exercise attendance and predicted adherence/dropout in organized physical activities (Vlachopoulos & Neikou, 2007). Therefore, low perceived competence can lead to undesirable outcomes, such as dropout. Grounded on these results, competitive climate should be avoided by coaches in order to maintain perceived competence rather constant over time among adolescent football players.

Results indicated age as an important factor in predicting perceived competence for girls. The 14 years old group (girls) from the present sample represented the most fragile group with the lowest perceived competence score. A French study showed that at the age of 14, girls presented the highest dropout rate (Delorme et al., 2010). It is interesting to notice that low score of perceived competence and high rates of dropout happens around the same time. These results suggest that older girls perceive themselves less competent in football, and as consequence they are at a greater risk of drop out. Together with low perceived competence, previous research identified some representative reasons for girls dropping out, such as professional strains, lack of support from important individuals, and negative social environment (Bussmann, 1995).

7.2 Levels of perceived task climate decreases over time for both genders

Task climate was in the present work defined as the perception of the climate created by the coach, which is focussed on encouraging self-development, exertion of effort, cooperation, and self-referenced competence (Duda, 2005). Task climate has been found to correspond with greater enjoyment and satisfaction (Carpenter et al., 1999; Ntoumanis et al., 1999), positive perception of teamwork and performance (Balaguer et al., 2002), the belief that effort is an important contributor to sport success (Seifriz et al., 1992), and persistence (Sarrazin, et al., 2002).

Findings have generally shown that males tend to perceive an ego climate while females tend to perceive a task climate (Carr et al., 2001; J. L. Duda et al., 1998). However, more recent findings have suggested no difference between genders in their perception of task climate (Cunningham et al., 2008). In line with the latter findings, there was no significant difference found between boys and girls and their perception of task climate in the present study.

One noticeable finding deals with the continuity of task climate perception. Results showed a significant decrease in the levels of perceived task climate over age for boys and girls. As previously suggested, the benefits of task climate on players are related to the satisfaction of need for competence (Alvarez et al., 2009), global self-esteem (Coatsworth & Conroy, 2009), persistence (Sarrazin, et al., 2002), and more adaptive coping strategies (Kim et al., 2011). However the results from the present study demonstrated that perception of task climate rates decrease over the years for both genders. Therefore, an important question must be asked: Is there any environment change that could explain the decrease in levels of perceived task climate?

A possible contributor to such a decrease may lie in the social context

experienced by players during that period. Until the age of 12, Norwegian football players are mainly encouraged to learn and play football for fun, without the possible pressure of a formal competition. After players reach 13 years of age, their teams are inserted in a formal competition table. Each match and goal scored is now ranked. During that transitional time coaches are, as much as adolescents, exposed to the challenges imposed by the new rules. In reality no team wants to be the last, and as a natural consequence the coach climate may also suffer a change. Noteworthy, at the end of the first season competing formally, the results from the present study indicated a drop in levels of perceived competence in football together with a decrease in levels of perceived task climate. So, how can coaches maintain high levels of perceived task climate on a setting ruled by competition? There is no easy answer. However it seems that when the focus is on winning at all costs players report more physical complains and less motivation to play (Ntoumanis et al., 1998). Therefore, an informal but well-known motto that says: "the most important thing is not to win but to take part!" might contribute as an idea towards high levels of perceived task climate in youth football.

7.3 Higher levels of perceived ego climate at higher age

Ego climate was in this study defined by the perceptions that coaches give more attention to the most skilled players, and cultivate comparison among team members (Duda, 2005).

Results indicated a medium level of perceived ego climate among Norwegian adolescents football players, with a mean of 10.63 on a scale of 4 to 20 points. Contrary to task climate, results showed a significantly increase in levels of perceived ego climate over age for both genders.

One possible explanation to the high levels of perceived ego climate at higher age might be due to the increase in competition. As mentioned above, the formal competition table may influence coach's behaviour, and consequently, it seems that boys and girls feel pressured by their coaches to get good results at the end of the competition season.

Gender differences results within perceived ego climate from the present study pointed to boys perceiving the climate more ego oriented than girls. One possible explanation for that sharp perception may lie in the tendency among boys to be more performance-oriented and more competitive than girls (Vazou, et al., 2006b). Nonetheless, studies have shown that ego climate may diminish satisfaction of basic psychological needs (Papaioannou, et al., 2006; Vlachopoulos & Neikou, 2007). If that is the case, boys may also be in a higher risk than girls to suffer from lack of competence, autonomy and relatedness when the environment is predominantly ego oriented. Possible consequences of ego climate among boys can be found in studies assessing the differences between boys and girls and their identity development (Wigfield & Wagner, 2005). Boys are more likely to play in groups during leisure time (e.g. football), while girls tend to choose individual activities (e.g. reading) (Gibbons et al., 1997). Though boys may present a tendency to compete and to be focussed on performance, an ego oriented-environment that focuses on competition among players, can damage what Messner called 'boyhood' (Messner, 1990), the term is an adaptation of the word brotherhood and describes the group as a necessary setting for boys to build their masculinity. Therefore, damages on the 'boyhood' derivative from ego climate would inhibit not just the satisfaction of the need for belonging and competence among boys but potentially their identity process.

7.4 Perceived controlling climate rates are higher among boys

The third climate analysed in the present study was controlling climate, and it was categorized by the perceptions that coaches behave in a coercive, pressuring, and authoritarian way to impose a form of thinking and behaving upon their athletes (K. Bartholomew, et al., 2010)

Results displayed a low level of perceived controlling climate among Norwegian adolescent football players, with a mean score of 18.58 on a scale from 9 to 45. Together with perceived ego climate, perceived controlling climate displayed a significantly increase over age for both genders. On possible explanation to the increase of controlling climate might lie on its central aim, which is win rather than self-improvement (K. Bartholomew, et al., 2010). As hypothesizes hypothesized in previous section, players in the present study sample were exposed to competitive social context (the formal competition table). Therefore it was not surprising that perception of both competitive oriented climates, namely ego and controlling climate increase, as adolescents get older.

Despite the increase in levels of perceived controlling climate for both genders, differences between boys and girls were found to be significantly large. Boys' level of perceived controlling climate was significantly higher than the girls. One possible explanation to the amount of controlling used by the coach with boys could lie on temperament differences. Empirical evidence in the developmental literature suggests temperament differences between genders. Differences such as girls' greater ability to regulate attention and impulses against boys' greater incidence of externalizing behaviour problems and being slightly more active and less shy have been reported (Else-Quest et al., 2006). These temperament differences might elicit controlling behaviours among coaches (Mageau et al., 2003). Nevertheless, previous

research suggest that coach-controlling climate hinder satisfaction of the three basic psychological needs, and reduce intrinsic motivation to continue playing football (Hollembeak et al., 2005). Therefore, future strategies focussing on football coaching and adolescents' wellbeing, especially among boys should consider the negative psychological influences of controlling climate.

7.5 Association between climates

Due to the results from the correlation analysis, some interesting findings concerning the coach-created climate were revealed. It seems that perceived ego climate goes along with perceived controlling climate. This suggests that when players perceived their coach ego-oriented, they are more likely to also describe their coach as controlling. However, when players described their coach as task-oriented, they do not perceive the coach as controlling or ego-oriented, and vice-versa. Therefore, it appears that there are two different dimensions with regard to coach climate; a positive one identified as task climate and a negative one defined as ego- and controlling climate (they seem to go together). It looks as if the coach cannot exhibit all three climates at the same time. Thus, coaches seem to be dominated by one coaching climate, according to how they are perceived by their players.

7.6 Perceived task climate stands out

The theoretical assumptions stemming from research on perceived competence in the domain of SDT in combination with coach-created climate constructs, made the basis for proposing that perceived task climate might contribute to enhance perceived competence. However, it is important to know how and to what extent this relation exists in order to understand which motivational mechanisms are conducive to

organized physical activity settings.

The first step was to investigate the relationship between the three coach-created climates and perceived competence. Findings described a negative correlation between perceived ego climate and perceived competence for boys and girls. Previous researchers have suggested that ego-oriented coach climate was more likely to diminish perceived competence among adolescent football players, to the extent that ego-oriented climate is related to anxiety (Ntoumanis & Biddle, 1998), thwarted intrinsic motivation (Deci & Ryan, 1985), undermined satisfaction of basic psychological needs, and leads to intention of dropout (Sarrazin, et al., 2002).

With Regard to controlling climate, there was also a negative correlation between perceived controlling climate and perceived competence for both genders. These results contradict those reported by Blanchard (Blanchard, et al., 2009), which did not find a negative correlation between the two variables. Blanchard suggested that the time of the season may be concealing real differences that exist among adolescents' perception of the coach. Participants tested at the beginning of the season may not have had enough time to perceive the coach's controlling climate. It would appear that influence of controlling climate on perceptions of competence might be perceived more intensely after the beginning of the season. The results from the present study suggest that controlling behaviour promoted by coaches may also diminish players' perceived competence. Additionally, previous findings have suggested that controlling behaviour are related to feeling of intimidation and fearful of the coach (Baker et al., 2000). Therefore, these manipulative behaviours leave players questioning their own self-worth. This leaves them with limited choice and in most cases comply with advocated behaviours to avoid conflict with their coach (K. Bartholomew, et al., 2010).

Regarding perceived task climate, results revealed that among Norwegian adolescent football players, perception of task climate seems to enhance perceived competence in all age groups for both genders. These results are in line with previous findings (Duda, 2005) and suggest that perceived task climate is beneficial to adolescent's satisfaction of need for competence. Grounded on Self-Determination theory tenets (Deci & Ryan, 1985), these results indicate that the adolescents in this study sample are more likely to be experiencing feelings of competence. They may also be exposed to positive and empowering football settings where their psychological needs for competence are largely satisfied. These results also suggest that most of players perceived their coaches more task-oriented. It seems that most Norwegian coaches, even without a formal education in motivational psychology, are reinforcing primarily the importance of learning and sharing over the competing and winning attitudes.

To better understand the extent to which perceived task climate contributes to enhance perceived competence, predictors such as family wealth, age, ego climate, controlling climate, positive affect, and negative affect were controlled. Noteworthy, perceived task climate turned out as a strong predictor to enhance perception of competence even after positive affect was controlled for both genders.

One main reason why positive and negative affect scales were included in the regression analysis was to ensure that perceived task climate was not an underlined confounding variable. Such control would reveal whether the climate perceived by the players was due to the influence of the mood affects or not. It appears that players from the present study tend to answer positively with regard to their perception of competence and task climate. However, after controlling for positive and negative affect, task climate still stands out. This suggests that perceived task climate seems to

enhance perceived competence regardless of the influence of positive and negative affect on players.

With regard to the high correlation between the three climate dimensions and its influences on regression results, correlation analysis showed that controlling and ego climate shared a lot of variance and both were also highly correlated to task climate. Preliminary analyses were conducted to ensure no multicollinearity. Nevertheless, the three climates still share much variance, which makes the results more unstable. The high correlation may have caused some unexpected result in the regression analysis such as the perception of ego climate enhancing levels of perceived competence among girls. Therefore, careful conclusions should be taken with regard to the influence of perceived ego climate on girls' perceived competence. Further research is needed to increase the scientific understanding of these associations.

Task climate and positive affect were the stronger predictors of perceived competence. This finding is consistent with the view that both task-orientation climate and positive affect are determinants of satisfaction of need for competence (Deci & Ryan, 1985). When positive affect was entered, the relation of task climate to perceived competence states was still positively significant for both genders. Thus high levels of task climate seem to be beneficial for adolescent football players to improve and assist their perceived competence. Moreover, high levels of controlling and ego climate appear unfavourable for perceived competence. This result may derive from the coaches' high competitive expectations on competent players and the pressure they put on them to attain high achievement standards.

Task climate seems to be beneficial for both genders' perceived competence. They may be due to the fact that task climate focuses on self-improvement, effort in

mastering, and self-referenced perception of competence. Furthermore, Deci and Ryan (Deci & Ryan, 1985) proposed that the basic need for competence is assumed to be universal. Thus it is expected that a motivational climate that enhance perceived competence should apply across genders. Nevertheless, it appears that adequate coach motivational climate, such as task climate, is important for both boys and girls in developing a positive perception of competence which corresponds with subsequent physical activity and fitness.

An important challenge faced by public health is related to maintaining the health benefits of physical activity over a long period of time, most preferably from adolescence into adulthood. This is meant to reduce the prevalence of lifestyle diseases such as obesity that seems to increase among the Western population. Therefore, it is crucial to shape positive physical activity environments that satisfy basic needs and consequently keep adolescents active. In the present study, perceived task climate appeared to be the best climate coaches could create to satisfy the need for competence among players. The satisfaction of the need for competence have been shown in other studies to be the most important predictor of psychological and physical wellbeing (Reinboth, et al., 2004). Therefore, coaches targeting task climate may assist player's satisfaction of basic needs, enhance motivation in the team, and prolong participation in football. It is worth mentioning that the mastery climate approach addresses some of the core health promotion principles. These are: develop personal skills, create supportive environment, and strengthen community (team) participation. Thus, task climate used as a motivational approach may contribute to the decrease in obesity rates among adolescents by enhancing players' perception of competence and consequently prolonging participation in physical activity.

7.7 Strengths and limitations

First of all, this thesis adds to previous work in the field of sport psychology and mental health. By investigating the relationship between the perceived competence and perceived coach created climate, this study enriches the literature with regard to Self-determination theory and Achievement goal theory. Research on these relationships is a relatively new endeavour – and most of it has taken place in North America. Consequently, – it is important to apply the newly developed instruments on large samples in different places of the world. This thesis therefore strengthens the theoretical foundation of Duda, Deci and Ryan's work, by substantiating the assumption that perceived task coach climate are especially conducive for enhance adolescents perceived competence also among adolescents in Norway.

Secondly, this thesis included a large representative sample of Norwegian adolescents. The random selection of team clubs, in combination with the large sample size is considered to be representative of 12 to 14 year old Norwegian adolescents' football players. The scales had a high Cronbach's alpha, which is a strength of this study.

Thirdly, the findings in this study may have implications for future settings-based programs and the way society organises football activities for adolescents. Scientific knowledge about the basic features which underlie the relationship of important variables in adolescents' lives, may facilitate, and impact existing practice.

However, methodological limitations must also be considered. Firstly, the cross sectional design used in the study cannot provide predictions about causality. Rather, the study explores possible associations between perceived competence, perceived coach climate, and gender. Further longitudinal design is needed to predict

causal relationships between these variables.

Another limitation of this study is the use of different scale measures for coach climate. Whilst the scales have presented high reliability scores, and the items were chosen after exploratory factor analysis, validity results were built upon different scales. For instance, task climate was composed by 2 items from original autonomy scale, and 3 items from social support scale and therefore further validation would be beneficial (Ntoumanis & Biddle, 1999). Nevertheless, the coach-created climate scales (task, ego and controlling) were chosen for this study with utmost consideration. Their potential lies in their robustness in identifying and quantifying most aspects of coach's behavior and are acceptable to the target group (Newton, et al., 2000) in accordance to motivational theories.

Due to limited space, the present study focused on two motivational theories, namely SDT, and achievement goal theory. However, this work would be enhanced by other motivational theories, such as Bandura's social cognitive theory (Bandura, 2001) which would have contributed to the understanding of the coach as a role model in sport.

In the present study, family wealth was found to be important for the 12 years old boys, which suggests that younger boys coming from wealthy families reported the highest competence scores. However, this result may not be very reliable. During different analysis, the importance of family wealth for boys varied from significant to not significant. Therefore these results should be taken carefully into account and future research should include more items to measure SES.

In addition, there are methodological issues regarding the survey method, and the instruments used to measure perceived competence, and perceived coach climate. First of all, the survey method "dictate" the responses participants can give. The

provided questions and response categories limit participants' opportunity to express their true feelings and experiences, and the researchers cannot easily obtain clarifications or elaborations from the participants. On the other hand, an advantage of survey design is that a large number of people are reached in a relatively short period of time.

Secondly, self-report measures are likely to be biased in terms of social desirability, over- and under representation, and recall issues (Sallis & Saelens, 2000), which must be considered when interpreting the results. The methodological challenges just mentioned are overstated in research with adolescent participants, because measurement error is likely to increase (Boreham & Riddoch, 2001). Furthermore, because of the large sample size, the nature of the associations between the variables in this study is likely to be reliable, in spite of increased error. Thus, even though there are important issues regarding subjective measures of perceived competence, it is assumed that the instruments used in this study captured the intended elements of adolescents' perception of coach created climate.

Another limitation was the non-response. Quite a few players were not present at the day of data collection, and never sent their questionnaire and therefore there is the possibility of a selection bias. Another type of selection bias which may limit the generalizability of results was related to the response rate. The sample was composed by a high response rate from the clubs (82%) but just half (52%) from the teams. There are three possible levels of dropout rates. The first being at the club level, followed by the team and at last the players level. Each level may have different implications. The high response rates from the clubs indicate that the survey is based on a representative sample of Norwegian grass-root football clubs. However the low response rates from the team level may point out that the team survey is likely to be

selective. Thus, it is conceivable that the teams from the most motivated coaches were the ones answering the survey questionnaire. Consequently, the players from the survey have more positive perceptions of coach-climate than the average.

In addition, variables such as self-esteem, perceived relatedness, and perceived autonomy were absent in the statistical analyses. Nevertheless, the impossibility of gathering enough numbers of female coaches limited the present study's attempt to investigate whether male coaches differ from female coaches in levels of perceived coach climate.

7.8 Further research

Bearing in mind that research on positive youth development is only in its infancy, there are abundant opportunities for further research in this area.

It would be interesting to examine male and female coaches separately, in order to increase our understanding of how adolescents experience participation in football differently.

Regarding the satisfaction of need for competence construct, more longitudinal study is needed together with across countries research to improve the adaptability and generalizability of the instrument. More exploration is needed concerning mediation study exploring the extent to which Self-determination Theory constructs (need for competence, autonomy and relatedness) would mediate the relation between task climate and dropout rates. Results would be valuable on the understanding of adolescents' mental health.

In contrast to research on the ramifications of perceived competence in sport, relatively less work has been conducted on the implications of perceived controlling climate on gender. The present study found very distinct differences in perceived

controlling climate for boys and girls. Therefore, it could be suggested that work in this area will be relevant to subsequent intervention effort in this setting.

As climate is a team characteristic, further analysis of these data should take the design effect into account, and apply multilevel modeling.

In addition to quantitative research, it is considered necessary to perform complimentary qualitative research, to get a more in-depth understanding of adolescents' experiences in sport, and the associations with motivation and wellbeing. Both interview and observational studies can bring forward useful and rich information regarding adolescents' perspectives of coach climate. A mixed approach might contribute to the wider understanding of the complex phenomenon of positive youth development.

7.9 Implications

The present findings may have implication for health promotion practice, and for sport associations.

These findings propose that task climate and coach support are positive measures to prevent dropout among older girls in football. The same age pattern was not found for boys, which suggest that coaches of older girls might face different challenges than coaches of older boys

The findings from the current study shows that organized physical activity can be a crucial arena for health promotion efforts among adolescents. Considering that physical activity is highly valued in the Norwegian culture, a large proportion of the population can be reached if efforts are aimed at the adolescents' group.

The present study may offer a contribution to the understanding and development of personal skills, supportive environments and empowerment. These

values are broadly espoused in the Ottawa Charter; the foundational document for health promotion theory and practice.

In adding to the body of knowledge on adolescent's motivation, this study may assist sport associations implementing interventions for improving the structural systems affecting wellbeing in adolescents. Furthermore, the study contributes to a new perspective on how the role of the coach may enhance the chances of a long-term physical activity, and consequently health.

8. Conclusion

This study investigated the associations between perceived coach created climate and perceived competence among Norwegian adolescents football players. The present findings revealed that coaches might enhance perception of competence among players by creating a task-oriented climate which focuses on effort, personal improvement and cooperation between team members.

The findings of this study suggested that football coaches have the potential for positive and negative influences over their players, but even so, football coaches are underestimated. The idea that coaches are a serious contributor to adolescent's development is still ignored in practice. Norwegian grassroots coaches are mainly composed of parents with no theoretical knowledge. The present study would call for attention toward this scenario. Based on the results, football coaches may be one of the most important agents in football. Therefore, the importance of educational courses to promote awareness and knowledge among coaches is crucial to the safeguarding of positive experiences in sport and long-term physical activities. If coaches are interested in preventing attrition in football and enhancing levels of perceived competence, it may be helpful to emphasize aspects of a task climate in

their practice sessions. An enriched experience in the field, promoted by football coaches may also result in a decrease in obesity rates, better health and wellbeing.

In addition, if adolescents can learn in organised physical activity that efforts and engagement over time will bring about positive outcomes, they are more likely to be successful and happy in other domains of life as well.

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Appendix

Figure 7. Competence - Norwegian questionnaire

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…		Svært uenig	Uenig	Nøytral	Enig	Svært enig
1.	Synes jeg at jeg var 100anske god til å spille fotball.	1	2	3	4	5
2.	Var jeg fornøyd med det jeg presterte i fotball.	1	2	3	4	5
3.	Var jeg dyktig I fotball	1	2	3	4	5
4.	Var jeg ganke god	1	2	3	4	5
5.	Tror jeg at jeg gjorde det ganske bra i fotball	1	2	3	4	5

Figure 8. Task climate - Norwegian questionnaire

Denne lista beskriver ting som trenere kan gjøre eller si til spillere på laget. 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 deres mesteparten av tiden?

		Svært uenig	Uenig	Nøytral	Enig	Svært enig
1.	Treneren oppmuntrer spillerne til å prøve nye ting de ikke kan fra før.	1	2	3	4	5
2.	Treneren sørger for at spillerne føler at de lykkes godt når de gjør sitt beste	1	2	3	4	5
3.	Spillerne kan stole på at treneren bryr seg, uansett hva som skjer	1	2	3	4	5
4.	Treneren setter pris på spillerne som personer, ikke bare som fotballspillere	1	2	3	4	5
5.	Dersom vi spør treneren om noe, svarer han/hun grundig og skikkelig på spørmålene våre	1	2	3	4	5
6.	Trenerer sørger for at hver spiller bidrar på en eller annen måte	1	2	3	4	5
7.	Når treneren ber spillerne om å gjøre noe, prøver han/hun å forklare hvofor det vil være bra å gjøre det slik	1	2	3	4	5
8.	Treneren sørger for at spillerne har en viktig rolle på laget	1	2	3	4	5
9.	Treneren hører på hva vi har å si dersom vi forteller han/hun hvordan vi har det	1	2	3	4	5
10.	Treneren sier at alle spillerne er viktige for at laget skal lykkes	1	2	3	4	5
11.	Treneren oppmuntrer spillerne til å hjelpe hverandre til å lære mer	1	2	3	4	5
12.	Treneren oppmuntrer spillerne til å jobbe sammen som et lag	1	2	3	4	5

Figure 9. Ego climate - Norwegian questionnaire

Denne lista beskriver ting som trenere kan gjøre eller si til spillere på laget. 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 deres mesteparten av tiden?

		Svært uenig	Uenig	Nøytral	Enig	Svært enig
1.	Treneren er mest oppmerksom på de beste spillerne	1	2	3	4	5
2.	Alle på laget vet hvilke spillere treneren liker best	1	2	3	4	5
3.	Treneren lar de beste spillerne spille mest på kamp	1	2	3	4	5
4.	Treneren har favoritter blant spillerne	1	2	3	4	5

Figure 10. Controlling climate - Norwegian questionnaire

Denne lista beskriver ting som trenere kan gjøre eller si til spillere på laget. 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 deres mesteparten av tiden?

		Svært uenig	Uenig	Nøytral	Enig	Svært enig
1.	Treneren er mindre grei med spillerne om de ikke prøver å se ting slik han/hun gjør	1	2	3	4	5
2.	Treneren bytter ut spillere når de gjør en feil	1	2	3	4	5
3.	Treneren er mindre støttende for spillere når de ikke trener og spiller godt	1	2	3	4	5
4.	Treneren skjeller ut spillere når de gjør feil	1	2	3	4	5
5.	Spillere som gjør treneren misfornøys får mindre oppmerksomhet	1	2	3	4	5
6.	Treneren overser spillere som gjør han/henne misførnøyd	1	2	3	4	5
7.	Treneren roser bare de som spiller best på kamper	1	2	3	4	5
8.	Treneren skjeller noen ganger ut spillerne foran andre for å få dem til å gjøre ting	1	2	3	4	5
9.	Treneren truer noen ganger med å strafe spillere for å holde orden på dem	1	2	3	4	5

Figure 11. Social Economic Status - Norwegian questionnaire

Hvor god råd har din familie?

- ☐ Svært god råd
- ☐ God råd
- ☐ Middels god råd
- ☐ Ikke særlig god råd
- ☐ Dårlig råd

Figure 12. Positive and negative affect - Norwegian questionnaire

De neste spørsmålene handler IKKE om football, men om hvordan du hard et generelt I livet ditt

- I hvilken grad føler du deg vangligvis…?

	Svært uenig	Uenig	Nøytral	Enig	Svært enig
1. Interessert	1	2	3	4	5
2. Skamfull	1	2	3	4	5
3. Fortvilet	1	2	3	4	5
4. Likkelig	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

Figure 13. Difference in perception of competence, including age variation

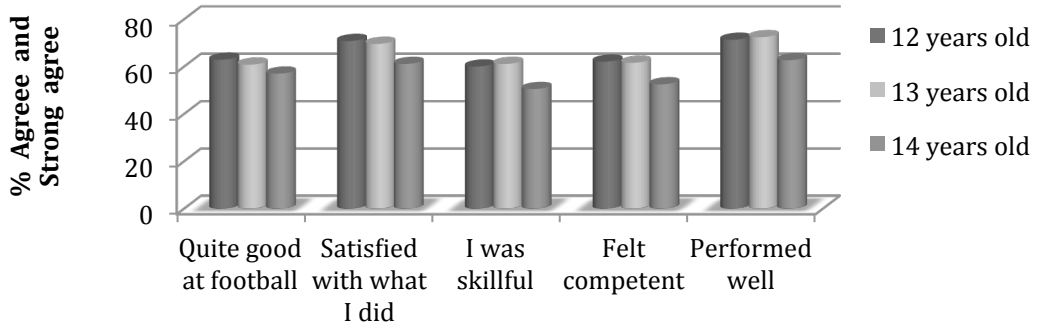

Table 6. Perceived Climate Scales - English questionnaire

Perceived Motivational Climate in Sport - Task-Involving
1. My coach encourages players to try new skills.
2. My coach tries to make sure players feel good when they try their best.
3. My coach makes sure players feel successful when they improve.
4. My coach acknowledges players who try hard.
5. My coach makes sure that each player contributes in some important way.
6. My coach makes sure everyone has an important role on the team.
7. My coach let's us know that all players are part of the team's success.
8. My coach encourages players to help each other learn.
9. My coach encourages players to really work together as a team.
Perceived Motivational Climate in Sport - Ego-Involving
10. My coach substitutes players when they make a mistake.
11. My coach gives most attention to the best players.
12.My coach has his or her favourite players.
13. My coach only praises players who perform the best during a match.
14. My coach thinks that only the best players should play in a match.
15. My coach favours some players more than others.
Socially Supportive Coaching Behaviours
16. My coach can really be counted on to care, no matter what happens.
17. My coach really appreciates players as people, not just as footballers.
18. My coach listens openly and does not judge players' personal feelings.
Autonomy Supportive Coaching Behaviours
19. My coach gives players choices and options.
20. My coach thinks that it is important that players participate in football because the players really want to.
21. My coach answers players' questions fully and carefully.
22. When my coach asked players to do something, he or she tries to explain why this would be good to do so.
23. My coach thinks it is important for players to play football because they (the players) enjoy it.

Controlling Coaching Behaviours

24. My coach is less friendly with players if they don't make the effort to see things his or her way.
25. My coach is less supportive of players when they are not training and/or playing well.
26. My coach yells at players for messing up.
27. My coach pays less attention to players if they have displeased him or her.
28. My coach only allows something we like to do at the end of training if players have done well during the session.
29. My coach is less accepting of players if they have disappointed him or her.
30. My coach only rewards players with prizes or treats if they have played well.
31. My coach shouts at players in front of others to make them do certain things.
32. My coach threats to punish players to keep them in line during training.
33. My coach mainly uses rewards/praise to make players complete all the tasks he or she sets during training.
34. My coach tries to interfere in aspects of players' lives outside of football.

Table 7. Coach created climate Factor Analyses - Rotated component matrix

	Task Climate	Controlling Climate	Ego Climate
Try new skills	.71		
Feel good when trying	.70		
Coach can be counted on	.67		
Appreciating as people	.60		
Answering questions	.65		
Making sure everybody contributes	.56		
Explaining instructions	.62		
Important roles for everybody	.69		
Listen to feelings	.64		
All are part of success	.56		
Help each other learn	.64		
Encouraging to work together as a team	.58		
Less friendly		.64	
Substitute if mistake		.63	
Less supportive		.66	
Yelling at players		.75	
Pay less attention if displeasing		.64	
Less accepting if disappointing		.66	
Praise best players		.52	
Shouting at players		.73	
Threats to punish		.61	
Attention to best players			.63
Favourite players			.73
Best players should play			.68
Favouring some players			.78

Extraction Method: Principal Component Analysis / Rotation Method: Varimax with Kaiser Normalization

Table 8. Perception of competence in different age groups among boys and girls

	12 years old		13 years old		14 years old	
	Boys M (SD)	**Girls M (SD)**	Boys M (SD)	**Girls M (SD)**	Boys M (SD)	**Girls M (SD)**
I was quite good at football	3.79 (.79)	**3.68 (.94)**	3.83 (.99)	**3.57 (.91)**	3.69 (.86)	**3.36 (.81)**
Satisfied with what I did	4.03 (.89)	**3.91 (.85)**	3.89 (.95)	**3.82 (.94)**	3.76 (.90)	**3.54 (.90)**
I was skilful	3.74 (.84)	**3.66 (.88)**	3.85 (.97)	**3.60 (.93)**	3.63 (.85)	**3.34 (.68)**
I felt quite competent	3.75 (.84)	**3.69 (.95)**	3.84 (.93)	**3.51 (.97)**	3.67 (.86)	**3.26 (.78)**
Felt I performed very well	3.89 (.82)	**3.91 (.93)**	3.95 (.94)	**3.84 (.95)**	3.76 (.82)	**3.54 (.80)**

Note:
N= 1039 for the whole competence sample, n= 606 for boys, and n= 433 for girls

Table 9. Pearson product-moment correlation between key variables including both genders

	Competence (N)	Ego Climate (N)	Task Climate (N)	Controlling Cli. (N)
Competence	1 (1039)	-.12 (1001)	.35 (960)	-.14 (961)
Ego Climate	-.12 (1001)	1 (1044)	-.43 (982)	.66 (981)
Task Climate	.35 (960)	-.43 (982)	1 (998)	-.51 (944)
Controlling Cli.	-.14 (961)	.66 (981)	-.51 (944)	1 (1001)

All correlations: $p < .01$ (two-tailed)