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The Motivational Process in Youth Soccer; a Self-Determination Theory Perspective

A quantitative study on the relationships between coach behavior, need satisfaction, enjoyment and performance anxiety in youth soccer players

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Preface

When I started my bachelor's degree in Sport and Exercise Science at the University of Bath in 2007 my main interest was sport physiology. It appeared useful, in relation to employment within in the sport industry, as well as comprehensible, due to its measurability. However, as part of the degree program I had to complete three modules of sport psychology. The more experience I had with psychology, the more interesting I found it. It was impossible not apply the knowledge I gained to my own sporting experience. When it came to choosing my main focus for final year, it was easy. To me, sport psychology is interesting, challenging and important.

After finishing my degree in England, I took a year to figure out what to do next. I thought about continuing my education in the UK, or perhaps moving on to Canada. But why would I continue my studies abroad when one of the best institutions for sport psychology was in my home country? I chose NIH, and I chose Oslo. I have to thank my supervisor, professor PhD Yngvar Ommundsen. Allowing me to use the data from the PAPA project increased the quality of my thesis. It solidified that coming back to Norway to do my masters degree at NIH was the right choice. The involvement and support Yngvar has contributed throughout this year has been invaluable.

I love soccer, it is my passion and way of life. To be able to combine soccer and sport psychology in this project has been ideal. I have been able to apply the knowledge that I have gained to my position at Skeid football club. Not only have I learned a lot about research, I have also evolved as a coach.

I want to thank my friends for their patients and motivational words during this time. Special thanks to my parents for their help and support. Their long-standing academic careers have benefitted me, and taught me the work ethic that got me through this year.

Siv Gjesdal, Oslo, 20.05.2013

Abstract

With regard to the physical, social and psychological benefits (Sallis & Patrick, 1994; Larson, 2000), youth sport participation becomes imperative to facilitate and encourage. In order to do so, it is crucial to further our understanding of what motivates sports participation, and how it can be influenced. The current study entailed a cross-sectional test of the motivational process in youth soccer, grounded in two sub-theories of Self-Determination Theory (Deci & Ryan, 2000); Cognitive Evaluation Theory (CET) and Basic Needs Theory (BNT). The relationships between two coaching interpersonal styles; autonomy-support and controlling, and need satisfaction were examined, and in turn how the satisfaction of needs relate to enjoyment and performance anxiety was explored. The sample consisted of 1397 (814 male, 576 female, 7 unspecified) youth soccer players (M = 13.96, SD = 1.35). The participants completed a questionnaire containing soccer-contextualized measures of the variables of interest. Structural equation modeling analysis showed that athletes' perception of coach autonomy-support and control were both positively linked to the satisfaction of the need for autonomy, competence, and relatedness. The satisfaction of the need for competence emerged as the only basic need related to enjoyment and performance anxiety. In further analysis, competence partly mediated the relationships between the coaching styles and the two outcome variables. A sequential model of the process was created to illustrate the relationships. The results suggest that the coach created environment is important in satisfying basic needs, and that a controlling interpersonal style may also allow for this satisfaction. The findings highlight the importance of competence for the quality of the sporting experience for youth athletes. Finally, the study provides support for the theorized motivational process in the youth sport environment.

Keywords: Youth soccer; self-determination theory; cognitive evaluation theory; basic need theory; autonomy-support; control; basic needs; enjoyment, performance anxiety.

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Abbreviations

SDT	Self-Determination Theory
OIT	Organismic Integration Theory
PLC	Perceived Locus of Causality
BNT	Basic Needs Theory
CET	Cognitive Evaluation Theory
AGT	Achievement Goal Theory
PE	Physical Education
HCCQ	Health Care Climate Questionnaire. Measure for autonomy support
CCBS	Controlling Coach Behaviors Scale. Measure for controlling behavior
IMI	Intrinsic Motivation Inventory. Measure for autonomy and enjoyment
SAS	Sport Anxiety Scale
SEM	Structural Equation Modeling
CFA	Confirmatory Factor Analysis
CFI	Comparative Fit Index
TLI	Tucker Lewis Index
SRMR	Standardized Root Mean Square Residual
RMSEA	Root Mean Square Error of Approximation

1. Introduction

Increases in the levels of overweight and obesity in the general public, and especially in young children, has been described as a dramatic, global epidemic with great consequences for public health (WHO, 2004). In addition, youths today are facing other potential dangers to their well-being, such as smoking, drugs, crime and depression (Fraser-Thomas, Côté & Deakin, 2005). Following this, reports call for an increase in physical activity levels, for the promotion of health and well-being (American College of Sports Medicine, 2010). An international consensus conference established guidelines for physical activity stating that youths should be active daily, as a part of their lifestyle, and should also engage in three or more moderate to vigorous activity sessions per week (Sallis & Patrick, 1994). One arena for facilitating youth development, and ensuring physical activity, is organized sports. The benefits of youth sport participation are great, and can be dived into categories; physical, social, psychological/emotional and intellectual, respectively (for review, see Fraser-Thomas, Côté & Deakin, 2005). Interestingly, children who participate in structured sports and physical activities appear to rate their entire day as more enjoyable, compared to those not involved in these activities (Fraser-Thomas & Côté, 2008). Moreover, sporting experience allow children to learn cooperation, gain initiative, be challenged, have meaningful relationships with adults and peers, as well as experience a sense of community (Larson, 2000; Fraser-Thomas & Côté, 2009). Ensuring a healthy youth is important, and not just for them as individuals. According to Fraser-Thomas, Côté & Deakin (2005) young people who are physically, emotionally and intellectually healthy will develop into adults who are willing and capable of facilitating the development of the next generation.

From a health and development perspective, youth sport is an important area of interest. Mageau & Vallerand (2003) stated that few domains are more apt to induce interest, enjoyment and excitement in its participants than sport. However, beneficial youth development is not automatic, and sport participation does not always equate positive experiences (Fraser-Thomas, Côté & Deakin, 2005). According to Hansen, Larson & Dworkin (2003), youth sports rated high on positive aspects (e.g. learning), yet it was the activity that scored highest on negative experiences (e.g. inappropriate adult

behavior) compared to activities such as academics and arts. Elite athletes experience stress associated with the mental and physical demands placed upon them by the sporting world (Scanlan, Stein & Ravizza, 1991). Eating disorders appear to occur more frequently among athletes compared to the general population (Sundgot-Borgen & Torstveit, 2004). Furthermore, Fraser-Thomas & Côté (2009) reported that negative developmental experiences occur in youth sports. These were, but not limited to, poor relationships with the coach, parental pressure, negative peer influence and psychological challenges regarding the competitive aspect. Coakley & White (1992) reported that several young women had been turned off sports before finishing school, often due to negative experiences. Moreover, attrition is a problem in youth sports. According to the 2012 Participation Report for sports in the US, the number of participants in team sports peak during childhood, and quickly drop after the age of 12 (Physical Activity Council, 2012). Several factors have been associated with attrition in sport, such as early focus on less enjoyable, more strenuous drills (Wall & Côté, 2007), lack of enjoyment, no feelings of belonging, and lack of support from coaches and parents (Robinson & Carron, 1982). It appears evident that although sports can facilitate positive youth development, it sometimes does the opposite. In order to promote participation, as well as adherence to sport, understanding which social-environmental factors contribute to both compromised as well as optimal functioning is imperative (Bartholomew, Ntoumanis & Thøgersen-Ntoumani, 2011).

It becomes clear that organized sport can be experienced as positive and negative. In an attempt to understand the youth soccer environment, to the point of being able to influence it in a positive direction, we ask "why" questions. "Why do children engage in soccer?" and "why do children enjoy sport?". The "why" questions fall within the field of motivation (Deci, 1975). A great deal of the research done in this area has been based on theories that focus on how much motivation individuals have or the "what" of goal pursuits (Ryan & Deci, 2000; Deci & Ryan, 2008). The "what" simply refers to the content of the goal one is acting to reach, offering no information regarding the process itself (Deci & Ryan, 2000). Although, "what" a person is trying to achieve is important for behavior and behavioral outcomes, the current rapport is more concerned with the "why". It is easy to see that individuals are moved to act by different, and often several, factors, with varied experiences and outcomes (Ryan & Deci, 2000). For example, two

athletes have equal amounts of motivation to perform in sports, however one is motivated by money and fame whilst the other is motivated by his or her love for the sport. Despite having an equal amount of motivation, their sporting experiences are likely to be very different. Their "what" for acting is similar; to try to do well in sports, yet their "why" is different. Hence, both the "what" and "why" components of motivation become important for a complete understanding of the motivational process (Deci & Ryan, 2000).

The "why" questions can be applied to the individual, as well as to the social environment surrounding the individual. Sports can provide an excellent setting for youth development, and negative adult influences can either oppose or facilitate this (Fraser-Thomas, Côté & Deakin, 2005). Although sports is often characterized as fun, Ryan & Deci (2007) stressed that the social context surrounding the sporting domain (e.g. parents, coaches, teammates) often presents behaviors and values shaping the athletes' attributions, motivations and experiences. Crocker, Hoar, McDonough, Kowalski & Niefer (2004) stated that when watching competitive youth sports, one is immediately struck by the psychological involvement of the players, coaches, parents and significant others. In the sporting context, the coach represents a social-environmental factor thought to play a significant role in relation to athlete motivation (Mageau & Vallerand, 2003). Coaches are important in many aspects, as role models, in regard to goal setting, and in communicating feedback (Fraser-Thomas & Côté, 2009). Therefore, investigating which behaviors presented by the coach translate into positive experiences and functioning on the part of the athletes is an area of importance (Amorose, 2007).

When it comes to studying and understanding human behavior, the sporting domain is an excellent avenue. According to Ryan & Deci (2007) understanding what drives our sporting activity brings us closer to understanding our active human nature. This is because sport is often performed without apparent rewards or contingencies. According to Ryan & Deci (2007) "….sport and exercise epitomize motivation – people being moved to act – for these activities require exertion, energy, focus, and sometimes a great deal of discipline". The current rapport will focus on the youth soccer environment. In 2006, FIFA carried out a large-scale survey, named the Big Count, presenting statistics

on worldwide participation in soccer (Kunz, 2007). According to the survey, the total number of registered youth players, defined as >18 years of age, was 22 million. The results showed a 7% increase in the participation numbers of youth players, from 2000 to 2006. These statistics confirm the popularity of youth soccer, and also show a growing interest for the sport. Moreover, the same survey showed that an astounding 4% of the world's population has a registered involvement in soccer, either as a player, referee or official. The complexity of opposing positive and negative developmental experiences, with the potential physical health benefits, with the prominence of youth soccer, makes this a particularly rich context to examine coach behavior and athlete motivation. Moreover, although domain specific research reduces generalizability, the point of psychological theory is not only to account for variance, but also to inform social practice (Ryan, 1995). Therefore, domain specific research gives domain specific knowledge, which has great functional value.

Investigating the motivational and emotional processes within sport is important for the development of effective sporting programs, aimed at improving the emotional experiences of young athletes (Croker, Hoar, McDonough, Kowalski & Niefer, 2004). It is imperative to understand what facilitates a positive sporting experience, as well as being aware of what contributes to negative experiences. The current paper will attempt to gain further understanding of the "why" aspect of youth soccer. The motivational process in youth soccer will be examined, based on Self- Determination Theory (SDT) (Deci & Ryan, 2000). The main goal is to investigate the relationships between coach behavior, basic need satisfaction, and performance anxiety/enjoyment. Firstly, a introductory piece provides an outline of the general tenets of SDT, and how it applies to the soccer environment. Enjoyment and performance anxiety is thereafter discussed as outcomes of the motivational process. This is followed by empirical research, attempting to generate a sequential model of the process, as it applies to youth soccer. Subsequently, the results are discussed in light of relevant literature.

2. Theoretical Background

The following section will provide an extensive overview of the theoretical basis for the current rapport. Several sub-theories will be explained, and relevant literature will link the theories to the sporting domain. Thereafter, the research question and hypotheses, on which the current rapport is based on, will be presented.

2.1 Self-Determination Theory

Self-Determination Theory (SDT) is an organismic, dialectic theory, based on what is referred to as an innate human trajectory towards vitality, integration and health, and that the actualization of this tendency is dependent on the social environment (Deci & Ryan, 2000). According to Ryan & Deci (2000) an individual's growth tendencies as, well as innate psychological needs, create the basis for their motivation, in conjunction with the social environments that foster the process. Therefore, the tendency to grow and evolve, innate needs, and social influences are all central to the theory.

SDT (Ryan & Deci, 2000) is one of many theoretical frameworks used to study the psychology of motivation, its antecedents and its outcomes. Many theories focus on the amount of motivation experienced. SDT, however, differentiates between the types of motivation (Deci & Ryan, 2008). According to Deci & Ryan (2008) the notion is that the type or quality (i.e. the why) of motivation is more imperative for outcomes, compared to the amount of motivation. Essentially, SDT distinguishes between the content of the desired outcomes of behavior, the "what", and the regulatory processes through which the outcomes are pursued, the "why" (Deci & Ryan, 2000).

SDT can be defined as a meta-theory comprised of separate sub-theories combined to explain the separate aspects pertaining to the motivational process, as well as subsequent behavior, based on situational influences and interpersonal perceptions (Hagger & Chatzisarantis, 2008). The following sections will review three of the sub-theories.

2.1.1 Organismic Integration Theory

One of the sub-theories of SDT is termed the *Organismic Integration Theory* (OIT) (Deci & Ryan, 1985). OIT is based on the notion that individuals are prone to internalize ambient values and practices, and the regulation of the factors internalized vary in their degree of integration with the self (Ryan, Williams, Patrick & Deci, 2009). The foundation of OIT is the perceived locus of causality (PLC), which refers to a differentiated taxonomy of motivational regulations (Ryan, Williams, Patrick & Deci, 2009). The motivational regulations are organized on a continuum (Hagger & Chatzisarantis, 2008). These regulations refer to the level of self-determination shown by an individual in a given context, indicating the degree to which an activity has been integrated with the self. If the PLC is internal, one is thought to self-determined. The more self-determined motivational regulations have been associated with greater well-being (Ryan, Williams, Patrick & Deci, 2009) as well as persistence (Pelletier, Fortier, Vallerand & Briere, 2001). Therefore, self-determined motivation is thought of as beneficial. The PLC is presented in figure 1. The motivational regulations range from non-self-determined motivation on the right, to *Extrinsic* motivation, to *Intrinsic* motivation on the left.

Behavior	Non Self-Determined	← – – – – – – – – – – – – – – – →				Self-Determined
Motivation	Amotivation	Extrinsic				Intrinsic Motivation
Regulation	Non-Regulation	External	Introjected	Identified	Integrated	Intrinsic

Figure 1: The OIT taxonomy (inspired by Ryan & Deci, 2000).

Whilst the other regulations elicits and directs behavior, *Amotivation* is defined as a lack of intent and activation (Deci & Ryan, 2008). An amotivated individual does not act at all, or does so simply by going through the motions (Ryan & Deci, 2000). An individual is amotivated if an action is seen as not reliably connected with outcomes, unlikely due

to lack of perceived competence, or impossible as a result of lacking environmental support (Ryan, 1995). It could also be due to not wanting to act, drawing no value, enjoyment or interest from the activity (Ryan, Williams, Patrick & Deci, 2009). Standage, Duda & Ntoumanis (2005) showed that amotivation in physical education was a negative predictor of concentration, and positively related to feelings of unhappiness.

Next on the continuum is extrinsic motivation, which is represented by four different regulations, differing in the degree of external control. *External regulation* is defined as when the source of motivation is alien to the individuals themselves, and is a highly externally controlled form of motivation (Ryan & Deci, 2007). According to Ryan (1995), externally regulated people perform only because they are either coerced or rewarded. It is believed that if engaging in an activity because of external contingencies, persistence will be dependent on the availability of the external prompt (Hagger & Chatzisarantis, 2008).

According to Ryan & Deci (2007) an individual can control their own engagement by internal contingencies of rewards and punishment, which is referred to as *introjected regulation*. This type of motivation is experienced when external regulations have been partly internalized (Lonsdale, Hodge & Rose, 2008). The motivational impetus is therefore internal, however the value of the activity is still conflicting and extrinsic to the self (Ryan, 1995).

On the more self-determined side of the PLC is *Identified regulation*, which reflects behaving because one is identified with the purpose and the value of the activity (Ryan & Deci, 2007). This regulation allows for increased autonomy compared to the former two regulations, however the value is not necessarily integrated with other aspects of personal experience (Ryan, 1995).

The last regulation falling under extrinsic motivation is *Integrated regulation,* which refers to having the value of an action reflectively brought into congruence with other values and needs, becoming anchored within an individual's personality (Ryan & Deci, 2007). This is the most self-determined form of extrinsic motivation.

Lastly*, Intrinsic motivation* is the cornerstone of SDT, and is defined as the inherent propensity to actively attempt to develop skills, engage in challenges and take interest in new activities, even in the absence of external prompts and rewards (Ryan & Deci, 2007). Intrinsic motivation is the most significant behavioral phenomenon that illustrates the active, innate, tendencies within individuals (Ryan, 1995). According to Deci & Ryan (2007), when intrinsically motivated, rewards are embedded in the activity itself. Intrinsically motivated behaviors can be seen when individuals act naturally and spontaneously, as they experience freedom to follow their inner interests (Deci & Ryan, 2000). Intrinsic motivation, and the more self-determined forms of extrinsic motivation, has been found to be positively related to sportsmanship and negatively linked to antisocial attitudes (Ntoumanis & Standage, 2009). Moreover, intrinsic motivation has been linked to concentration, preference for challenging tasks and positive affect, whilst being negatively related to feelings of unhappiness (Standage, Duda, Ntoumanis, 2005).

Intrinsic motivation is thought to be important for progress and development. Concerning physical mobility and skills, a disposition to be actively moving and challenging oneself will contribute an adaptive advantage to a growing organism (Ryan, Williams, Patrick & Deci, 2009). Deci (1975) wrote that if one is concerned with performance, and not intrinsic motivation, an extrinsic rewards system can be effective if administered correctly. However, Deci also stressed that if the goal is more long-term, for example learning, intrinsic motivation becomes increasingly imperative.

The PLC reflects the level of self-determination, indicating to which degree an individual has internalized the value of a given behavior (Hagger & Chatzisarantis, 2008). It is theorized that the more self-determined regulations show more stable behavioral patterns as they are more imbedded in the self (Deci & Ryan, 2000). However, the regulations do not infer information regarding level or amount of motivation. According to Ryan (1995) introjected regulations can be as energized and effortful as identified, however the experiences linked to the activity is likely be different. In order to demonstrate the contrasting regulations in regard to soccer, an illustrative example is presented in table 1. The example shows how the “why” for participating in soccer could differ depending on the type of motivational regulation experienced.

Table 1: PLC in regard to participation in soccer.

Motivational Regulation	Amotivation	External regulation	Introjected regulation	Identified regulation	Integrated regulation	Intrinsic motivation
Why	He questions why he puts himself through participating in soccer	He is forced to play soccer by his parents	He is a failure if he quits	Soccer teaches him important things	He is a soccer player	Soccer is fun

Amorose (2007) commented on the increased focus on intrinsic motivation in sport psychology research, stating that other regulations are important. Ryan, Williams, Patrick & Deci (2009) supported this, stating that extrinsic motivation is highly relevant regarding physical actions. Although sport is oftentimes thought of as being fun, it regularly requires a great deal of practice and skills building, which is usually repetitive, and not novel nor interesting (Ryan & Deci, 2007).

2.1.2 Basic Needs Theory

Unfortunately, most human behavior is not intrinsically regulated, and many externally referenced activities are required in our daily lives. Ryan (1995) stated that these behaviors are crucial for socialization, and necessary for individuals to integrate into larger social cultures. However, individuals can internalize the external values, referring to the process in which individuals assimilate and reconstitute previously external regulations (Deci & Ryan, 2000). This does not occur automatically, and is dependent on the perceived satisfaction of basic psychological needs (Deci & Ryan, 2000). *Basic Needs Theory* (BNT), another sub-theory of SDT, describes the psychological needs required for internalization to occur. Deci & Ryan (2000) defined basic needs as "innate psychological nutriments that are essential for ongoing psychological growth, integrity, and well being" (p. 229). BNT assumes that individuals have an innate tendency to attempt to satisfy these needs (Deci & Ryan, 2000). According to SDT, goal-directed behavior and development cannot be fully understood without looking at these needs, as they are the foundation of the psychological potency of goals, and decide which motivational regulations are directing behavior in a given activity (Deci & Ryan, 2000).

The three basic psychological needs are autonomy, competence and relatedness, respectively.

Autonomy refers to the degree to which an individual perceives the activity to be endorsed by oneself (Deci & Ryan, 2000). In regard to soccer this could be the perception that one is involved in deciding which drills are performed during practice. Deci & Ryan (2000) stressed that autonomy should not be misinterpreted as detachment or independence, and does not include being separate or independent of others. Whilst autonomy refers to volition and internal coherence, independence is related to whether one relies on others or not. Several studies have reported a positive relationship between perceived autonomy and intrinsic motivation in youth athletes (Reinboth, Duda & Ntoumanis, 2004; Almagro, Sáenz-López & Moreno, 2010). The satisfaction of the need for autonomy in sport has also been linked to self-reported vitality (Reinboth, Duda & Ntoumanis, 2004). Furthermore, studies have shown low levels of autonomy to be related to physical exhaustion in sport (Adie, Duda & Ntoumanis, 2008) and athlete burnout throughout a season (Balaguer, González, Fabra, Castillo, Mercé & Duda, 2012).

The basic need for *competence* relates to mastery, ability, and interacting effectively with the environment to elicit desired outcomes (Hagger & Chatzisarantis, 2008). Ryan, Williams, Patrick & Deci (2009) stated that a person must experience some level of effectiveness and confidence to perform behaviors. Feeling that one can effectively perform what is expected during a training session is likely to satisfy the need for competence in soccer. According to previous research, the satisfaction of competence is associated with concepts such as self-esteem and positive affect (Coatsworth & Conroy, 2009; Kipp & Weiss, 2013).

Lastly, *Relatedness* refers to experiencing a sense of support, belonging and security (Ryan & Deci, 2000). In an environment where athletes feel a sense of connection with others, internalization can occur more readily (Ryan, Williams, Patrick & Deci, 2009). A perception that others considered ones opinion is an example of how the need for relatedness can be supported. Moreover, relatedness has been linked to positive affect and self-esteem in youth gymnasts (Kipp & Weiss, 2013).

The functional basis of BNT is that the more opportunity there is for need satisfaction offered by a given activity, the more likely it is that the activity will be internalized, and self-determined motivation is experienced. This is, as posteriorly explained, beneficial. Figure 1 shows a partial, albeit simple, graphic presentation of the motivational process as it is described by SDT. The level of need satisfaction is linked to the motivational regulation experienced by the individual, which is subsequently associated with different outcomes. These can be cognitive, affective or behavioral (Vallerand & Perreault, 2007).

Relatedness →

Competence → *Motivational regulation* → *Outcomes*

Autonomy →

Figure 2: The motivational process, according to SDT

Deci & Ryan (2000) stressed that all the psychological needs are required for optimal functioning, satisfying one or two is not sufficient. Internalizing values and behaviors require relatedness and a sense of efficacious functioning, however for this to be fully integrated within oneself the feeling of autonomy is needed (Deci & Ryan, 2000). All three needs have been empirically found to be direct and positive predictors of self-determined motivation (Ntoumanis & Standage, 2009). Simply put, the needs are complementary, meaning that integration and optimal functioning can only occur if all three needs are met (Hagger & Chatzisarantis, 2008). However, some authors have commented on the misconception that autonomy is an antagonist to relatedness (Ryan & Deci, 2000). As mentioned earlier, autonomy does not reflect being isolated or completely independent of others. According to Deci & Ryan (2000) the human psyche is based on the interplay between deep adaptive tendencies for autonomy as well as relatedness. These are part of our "archaic heritage", and will be complementary under optimal circumstances. However, Deci & Ryan (2000) warned that under less than optimal circumstances these could become antagonistic.

Intrinsically motivated behavior will occur when all three needs are met, but the needs will not be reduced, as they are by definition omnipresent (Deci, 1975). Deci & Ryan (2000) stated that the set point for behavior is growth-oriented activity. Simple put, behavior is not necessarily initiated by a need deficient, rather an innate tendency to engage, and evolve through the satisfaction of needs. An individual does not have to wait for a feeling of incompetence to engage in an activity that will satisfy the need to feel competent. Moreover, although this natural tendency towards growth requires the satisfaction of the three basic needs, need satisfaction is not necessarily the aim of the actions themselves (Deci & Ryan, 2000). For example, a young child can feel mastery when kicking a soccer ball, however he or she does not kick the soccer ball in order to feel competent. When individuals are experiencing reasonable need satisfaction, they will not necessarily act in a way to satisfy needs, and will rather do what they think is important or interesting (Deci & Ryan, 2000). However, it is not therefore said that one cannot act to deliberately satisfy needs. Deci & Ryan (2000) mentioned that many behaviors are in fact aimed at satisfying needs. Hence, a child who feels a lack of relatedness may engage in soccer in a conscious attempt to gain relationships and friendships with others.

According to Deci & Ryan (2008) SDT does not focus on the varying strength of needs, but to what degree the needs have been satisfied versus thwarted. According to Bartholomew, Ntoumanis & Thøgersen-Ntoumani (2009), the same social agents that can satisfy basic needs may also act to thwart athletes' feelings of competence, relatedness and autonomy. Need thwarting is not so much low levels of need satisfaction, as it is the perception that the needs are being actively obstructed (Bartholomew, Ntoumanis & Thøgersen-Ntoumani, 2009). In the case of need thwarting in sport, the athletes are compelled to act in ways that could impede their need satisfaction in order to comply with the expectations of the coach (Mageau & Vallerand, 20003). Events that cause need thwarting are thought to diminish energy for the activity (Ryan, Williams, Patrick & Deci, 2009). Moreover, need thwarting has been linked to disordered eating, negative affect, burnout as well as physiological responses to stress (Bartholomew, Ntoumanis, Ryan, Bosch & Thøgersen-Ntoumani, 2011).

SDT acknowledges spontaneous and intrinsically motivated action in regard to sport, and also describe factors that may enhance or debilitate this activity (Ryan & Deci, 2007). Ryan & Deci (2000) stated that at their best, individuals are agentic and inspired, striving to learn, master new skills and extend themselves. However, as the authors go on to discuss, there are ample evidence of individuals not extending themselves, giving up or not applying themselves at all. "The persistent, proactive, and positive tendencies of human nature are not invariantly apparent" (Ryan & Deci, 2000, p. 68). Ryan, Williams, Patrick & Deci (2009) commented that while ideally humans are "active organisms", modern persons do not necessarily display this (p.107).

It appears that humans can be both active and passive. What therefore becomes interesting is what decides if an individual is active and engaged or not. If human nature allows for either being active or passive, it is likely that there is more than a dispositional difference present (Ryan & Deci, 2000). According to Ryan & Deci (2000) it is the social contexts that catalyzes both within- and between-person differences in motivation and activation. Variations in perceived opportunities for need satisfaction potentiate differences between specific domains and situations (Ryan 1995). Hence, if a person is self-determined in soccer and amotivated in academics, one could assume that academic domain is not offering the individual great opportunities for need satisfaction, compared to soccer. Furthermore, Quested, Bosch, Burns, Cumming, Ntoumanis & Duda (2011) suggested that the satisfaction of basic needs is also the psychological differences between individuals, in a given situation. Therefore, the satisfaction of basic needs is thought to account for both within- and between-person differences in regard to motivation and outcomes.

2.1.3 Cognitive Evaluation Theory

Ryan & Deci (2000) wrote that "human beings can be proactive and engaged or, alternatively, passive and alienated, largely as a function of the social conditions in which they develop and function" (p. 68). Individuals are motivationally complex, and motivation is also a social phenomenon (Vallerand & Perrault, 2007). The organismic view of SDT is reflected in the belief that the environment does not cause motivation, as this is a property of the living organism, however it either nurtures or diminishes it (Ryan & Deci, 2007). *Cognitive Evaluation Theory* (CET), put forward by Deci & Ryan

(1985), is a sub-theory of SDT explaining how the environment can facilitate or undermine self-determined motivation. Intrinsic motivation is a basic motivational propensity that is continually present, and is the primary motivational regulation unless the process is interrupted by some other factor (Deci, 1975). Therefore, intrinsic motivation will flourish if circumstances allow for it (Ryan & Deci, 2000). Deci (1975) stated that when making choices about what to do and how to act, individuals work with a cognitive representation of the environment. This cognitive representation includes the external environment, memory, as well as internal states such as fatigue. Hence, an individuals' behavior is dependent on how external stimuli is interpreted. Whether there are supportive conditions allowing for need satisfaction, in both the now and the past, is pertinent to the display of vitality and mental health for any given individual (Deci & Ryan, 2000).

Here, the concept of basic needs becomes useful, as it provides an avenue for investigating how the social environment influences motivation (Deci & Ryan, 2008). According to Ryan & Deci (2000) when social agents, e.g. a coach, act to facilitate the satisfaction of basic needs, internalization is more readily done, and consequently positive outcomes ensues (Ryan & Deci, 2000). Furthermore, internalization may be undermined by conditions that do not facilitate need satisfaction (Deci & Ryan, 2000). Based on this, social agents in the sporting environment become important in regard to motivation, through the satisfaction of needs. Moreover, applying a SDT perspective is operationally beneficial, as it allows subsequent interventions to be centered on facilitating, conducing, supporting and nurturing the innate tendencies (Ryan, 1995).

Variations pertaining to the social environment created by significant others and the impact it has on the athletes' motivation are key determinants regarding the sporting experience (Balaguer, González, Fabra, Castillo, Mercé & Duda, 2012). The critical issue, according to Deci & Ryan (2000), is to which degree an individual is able to satisfy their basic needs whilst pursuing and attaining their goals (Deci & Ryan, 2000). As mentioned earlier, internalization is highly dependent on contextual support for the three basic needs (Ryan 1995). According to Deci (1975), by striving to satisfy needs, individuals are involved in a continues process of seek and conquer. Activities are chosen based on their ability to satisfy the three fundamental needs (Amorose, 2007),

and the notion is that the energy for action comes either directly or indirectly from this satisfaction (Deci & Ryan, 2008).

SDT pose universal significance of need satisfaction for optimal functioning, despite recognizing cultural influences on values and needs (Ryan & Deci, 2007). Regardless of culture and social structure, all three basic needs must be satisfied for individuals to experience optimal functioning (Deci & Ryan, 2000). The theory that the needs are universal suggests that there are similarities in the underlying processes that relate to internalization. However, the relative salience of needs and the ways by which the needs are satisfied are not necessarily the same throughout the lifespan and across cultures (Ryan & Deci, 2000). The mode and the degree of individuals' psychological need satisfaction is influenced by their own competencies, but also by ambient demands, obstacles and possibilities in their sociocultural contexts (Ryan & Deci, 2000). Therefore, the environment can impact motivation by the demands and possibilities that are present.

Reinboth, Duda, Ntoumanis (2004) suggested that in the sporting context, competence is relatively more salient compared to the other two basic needs. The competitive aspect of sport is pervasive, and the opportunities to measure competence are ample, especially normatively. In theory, competition is thought to decrease intrinsic motivation, as it is by definition an extrinsic factor (Weiss & Ferrer-Caja, 2002). Anyone who has experienced winning knows the enjoyment that it often brings. Deci, Betley, Kahle, Abrams & Porac (1981) reported that competition does motivate, however when individuals are instructed to compete they begin to see the activity as an instrument to win, and not as rewarding in itself. However, previous research has shown winners to be more intrinsically motivated compared to losers (Vansteenkiste & Deci, 2003). According to Vansteenkiste & Deci (2003), the athletes' perceived competence mediate the enjoyment associated with winning. Vallerand & Reid (1984) stated that if the informational aspect of an environment is salient, as it is in youth soccer, intrinsic motivation would vary as a function of perceived competence. Therefore, the informational role of the coach becomes imperative in competitive settings.

Vallerand & Perrault (2007) generated a hierarchal model of motivation, which encompasses social factors, basic needs and consequences on three different levels. The

model explains how an individual can be intrinsically motivated in one area, and externally motivated in another. The highest level of model is the global level, which refers to a general motivational orientation. The next level is the contextual level, for example soccer. The bottom of the hierarchical model is the situational level, which refers to the "right here and now". According to Vallerand & Perreault (2007) motivation is influenced in two ways, (1) social factors and (2) other levels of motivation. For example, a player that is intrinsically motivated for soccer may is more likely to be intrinsically motivated in different situations within the activity of soccer. Moreover, if a high level of intrinsic motivation on the contextual level last for some time, it may serve to influence motivation on the global level. Functionally, this indicates that by satisfying the basic needs coaches may influence motivation on different levels, also in areas outside of soccer. Furthermore, Vallerand & Perreault (2007) stated that motivational consequences also exist on levels. The generality of a motivational consequence, therefore, depends on the level on which it occurs. For example, if a youth player is amotivated for soccer, the consequences of the amotivation are likely to be contextual and situational.

Hagger, Chatzisarantis, Hein, Soós, Karsai, Lintunen & Leemans (2009) investigated the trans-contextual model of motivation in four different nations; Britain, Estonia, Finland and Hungary, respectively. The study was set in the physical education (PE) domain, and the aim was to see whether there was a link between motivation in PE and motivation for leisure time activity. Hagger et al. (2009) reported that self-determined motivation in PE was associated with self-determined motivation for physical activity in the leisure-time context. Furthermore, the authors showed an indirect link between perceived support from PE teachers and physical activity in leisure-time. The results lend support to the theory of Vallerand and Perrault (2007), suggesting that motivation exists on different contextual levels, which may influence each other. The findings underlines the potential importance a teacher (or coach) can have on the student motivation.

2.2. Coach Created Environment

Ntoumanis & Biddle (1999) stated that coaches represent an important feature of the recreational sporting domain, as they find themselves in a position to create the

foundation for success. This appears to be true for elite sports as well, as both players and coaches rated strong coach-team relationships to be positive for performance during international youth soccer tournaments (Pain & Harwood, 2008). Based on the CET sub-theory of SDT, the coach created environment in soccer becomes an integral part of athletes' motivation for sport. For the sake of their athletes, coaches should act to facilitate the athletes' intrinsic motivation and self-determined regulations, by perceptively allowing for the satisfaction of needs (Mageau & Vallerand, 2003). The following section will focus on the role of the coach in the motivational process, and will review empirical evidence for the relationship between coach behavior and athlete motivation.

2.2.1 Autonomy-Supportive Interpersonal Style

Much of the coach-centered research based on SDT has looked at an autonomy-supportive coaching style. Autonomy-support has been defined as an interpersonal style that allows the coach to facilitate an internal PLC, by increasing the levels of perceived autonomy (Àlvarez, Balaguer, Castillo & Duda, 2009). However, it has been suggested that this of definition of autonomy support is rather simplistic, and according to Mageau & Vallerand (2003) being autonomy-supportive entails a great deal more than facilitating a sense of autonomy. Mageau & Vallerand put forward seven behavioral strategies describing the autonomy-supportive interpersonal style. Firstly, providing as much choice as possible within reason is an autonomy-supportive strategy. Further, providing rationale for task, rules and restrictions is imperative. According to Mageau & Vallerand (2003), this facilitates the internalization of the underlying reasons for activation. Another strategy is taking interest in the feelings of others. Specifically, this requires the coach to discuss tasks with the athletes, and acknowledge potential resentment or disagreement on the part of the athletes. Moreover, a coach must allow for initiative and independent work. Mageau & Vallerand warned that coaches often behave in a "controlling-supportive" manner. This involves providing support when it is not needed, whilst coercing the players in other situations. The authors stressed the importance of self-initiated behavior, and allowing the athletes to be creative. Providing non-controlling, competence feedback is an important aspect of the autonomy-supportive interpersonal style, together with avoiding overt control and

tangible rewards. Lastly, an autonomy-supportive coach prevents normative comparison and ego-involvement.

Àlvarez, Balaguer, Castillo & Duda (2009) carried out a study investigating a sequential model of motivation in soccer. The study included 379 players, between the ages of 12 and 16. The variables measured were autonomy-support, need satisfaction, motivational regulation, and enjoyment/boredom. The authors reported support for a link between autonomy-support from coaches and the satisfaction of the basic needs. The result of the study suggests that by considering the players viewpoint, allowing for some decision-making and by explaining why certain behaviors are valued a coach can allow for feelings of autonomy, relatedness as well as competence. Further, in line with theory, need satisfaction was positively linked to more self-determined types of motivation. The results of Àlvarez et al. (2009) support the applicability of CET to the sport domain, showing that the behavior of a coach appear to be associated with need satisfaction, allowing for more self-determined motivational regulations.

The results of Àlvarez et al. (2009) have been corroborated by studies investigating autonomy-support in dance environments (Quested & Duda, 2011) and a variety of individual and team sports (Ntoumanis & Standage, 2009). Quested & Duda (2011) furthered the evidence base for CET, reporting a negative link between autonomy-support and amotivation. Moreover, Ntoumanis & Standage (2009) showed an autonomy-supportive environment and need satisfaction to indirectly predict sportsmanship, through self-determined motivation. The authors suggested that this was due to self-determined athletes being more likely to play by the rules, as they wish to enjoy the activity and hold some intrinsic interest towards it (Ntoumanis & Standage, 2009). Ntoumanis & Standage (2009) suggested that athletes who are motivated by external factors, such as feelings of guilt or fear of punishment could be more likely to cheat to appease pressure or gain rewards. Furthermore, such athletes might be more likely to behave disrespectfully towards others if and when their motives are not being met. It becomes a matter of "the ends justify the means" (Ntoumanis & Standage, 2009).

Mallett (2005) presented a case study based on his own experience as the Australian national 4 x 100 m and 4 x 400 m relay coach. In the article, Mallett described how he

attempted to create an autonomy-supportive environment, specifically giving the athletes a sense of choice, and providing competence-related feedback. Although no investigative measures were included to assess the effectiveness of the strategies, the author pointed to successful sporting results and a subjective evaluation as indicators that it worked. However, most importantly, Mallett (2005) reported that attempting to be autonomy-supportive was experienced as intrinsically rewarding for him as a coach. One cannot ignore the potential benefits for the coaches themselves when they are attempting to create an autonomy-supportive environment.

Adie, Duda & Ntoumanis (2008) reported links between autonomy-support from a coach to the need for autonomy, relatedness and competence in adult athletes. Interestingly, the strongest relationship was between autonomy-support and the need for relatedness. Perhaps by acting in an autonomy-supportive manner, the athletes feel a stronger connection to others and allows for developing meaningful and respectful relationships (Adie, Duda & Ntoumanis, 2008). Furthermore, competence emerged as having the weakest link to the perception of coach autonomy-support. The authors argued that this could be due to older athletes having their need for competence satisfied by performance measures rather than coach relationships. It is comprehensible that older individuals are more able to deduce competence feedback from results, as well as evaluate their own competencies. This could effectively make them less dependent on, or sensitive to, the coach regarding satisfaction of the need for competence.

Reinboth, Duda & Ntoumanis (2004) did a study investigating three coaching dimensions simultaneously; autonomy-support, improvement and social support, respectively. The setting for the study was youth team sports. The authors reported a positive link between all the three coaching dimension and the connecting needs. Autonomy-support was linked to the need for autonomy, whilst a focus on improvement and mastery was associated with competence. Social support, meaning providing assistance and emotional support, emerged as a strong predictor of the athletes' sense of relatedness. The results suggest that by providing support for autonomy, emphasizing effort and improvement, and being socially supportive a coach can satisfy all the basic needs.

The previously mentioned studies have mainly focused on youth sports, however also elite athletes appear to be influenced by the behavior of their coach. Amorose & Horn (2000) reported that low levels of autocratic behavior on the coaches' part, paired with high frequencies of positive and informational based feedback, was related to elite college athletes' intrinsic motivation. An autocratic interpersonal style was defined as not allowing athlete input in decision-making. Furthermore, this way of behaving was negatively linked to intrinsic motivation.

Another study by Amorose & Horn (2001) showed that certain coaching behaviors were predictive of changes in athletes' intrinsic motivation from pre- to post-season in college level athletes. The authors reported that training-instruction, defined as the degree to which a coach is engaged in instructing athletes during practice, had a positive relationship with increases in intrinsic motivation. Amorose & Horn (2001) attributed this to high levels of training-instruction helping athletes improve but also indirectly communicating that they are capable of performing better in the future. This may effectively satisfy the athletes' need for competence. On the other hand, an autocratic leadership style had a negative relationship with changes in intrinsic motivation. Interestingly, however, Amorose & Horn (2001) found that a democratic leadership style was not related to changes in intrinsic motivation. The authors argued that perhaps it is not so much being democratic, as its not being autocratic, which influences motivation. Simply put, it could be that an autocratic leadership style is more powerful in influencing motivation, albeit in a negative way, compared to that of a democratic leadership style. Nevertheless, the findings by Amorose & Horn (2001) do point to the potential predictive nature of coach behavior on athlete motivation, also in elite athletes.

Although the studies by Amorose & Horn did not include the concept of autonomy-support, several of the aspects measured (e.g. instruction) could fall under the broad definition presented by Mageau & Vallerand (2003). However, with such a comprehensive definition, it is somewhat difficult to ascertain details regarding autonomy-support as an interpersonal style. According to Conroy & Coatsworth (2007), athletes can differentiate between strategies pertaining to an autonomy-supportive interpersonal style. When investigating motivation and self-perception in youth swimmers over the course of a 7-week season, Coatsworth & Conroy (2009) reported

that autonomy-support was related to need satisfaction. However, what was interesting was the finding that it was praise for autonomous behavior and not sincere interest in athlete's input which emerged as a significant predictor for the satisfaction of needs. The authors explained this by the youth athletes being less sensitive to passive strategies such as sincere interest in athletes input. Perhaps more direct strategies have a greater influence on youth athletes' perceptions. Regardless of the reasons why, the results indicate that different strategies may differ in their relationship with need satisfaction.

2.2.2 Controlling Interpersonal Style

An autonomy-supportive interpersonal style appears to repeatedly emerge as beneficial, therefore this should be the behavior of choice for youth sport coaches. However, according to Mageau & Vallerand (2003) western culture continues to promote a controlling style in regard to teaching and coaching. Four potential reasons for this have been put forward by Mageau & Vallerand (2003). Firstly, many believe that acting in a controlling manner is efficient in regard to sporting progress. Secondly, controlling behaviors can be comfortable for the person exerting them. Next, coaches may not realize that they are acting in a controlling way. Lastly, the athletes who may be most sensitive to controlling behaviors are often the ones who elicit this behavior from their coach. For example, in order to get the best out of an extrinsically motivated player it would be easy for a coach to resort to the use of external rewards. Furthermore, when writing about his experience of adapting an autonomy-supportive interpersonal style in his role as 400 m relay coach for Australia, Mallett (2005) stressed that it takes time to create an autonomy-supportive environment. Based on this, it may require persistence and patients for a coach to experience the benefits of acting in an autonomy-supportive manner. It may also take time for the athletes to acclimate to this type coaching style, especially if they are more familiar with the "traditional" authoritarian sporting environment.

The controlling interpersonal style is a way of coaching that has been given some empirical attention. This style is defined as a more authoritarian coaching style, where set agendas and pre-determined outcomes are decisive (Pelletier, Fortier, Vallerand and Briere, 2001). According to Bartholomew, Ntoumanis & Thøgersen-Ntoumani (2010), a controlling coaching style means behaving in a pressuring and overbearing way.

Moreover, a coach who provides support for the athletes yet coerces them to do certain tasks and drills will most likely be perceived as controlling (Mageau & Vallerand, 2003). Mageau & Vallerand (2003) argued that an authority figure that is perceived as controlling might cause changes in the PLC, making it more external, and therefore not facilitating intrinsic and self-determined motivation.

According to Bartholomew, Ntoumanis & Thøgersen-Ntoumani (2010) a controlling interpersonal style, as with autonomy-support, can be identified by different strategies, which all involve judging and devaluing the athletes by way of treating them as objects that can be controlled to ensure certain outcomes. One such strategy is the controlling use of rewards, which the authors referred to as among the most prominent strategies of the controlling interpersonal style. This involves using external rewards as well as praise to induce engagement or persistence in behaviors, and ensure athlete compliance. For example, a coach may reduce playing time for athletes who question the drills performed during practice, or try to exert their opinion.

Another strategy which Bartholomew, Ntoumanis & Thøgersen-Ntoumani (2009) categorized as controlling, is negative conditional regard. This refers to withholding love, affection and attention to "punish" athletes when desired behaviors and/or outcomes are not displayed. This type of behavior is likely to result in high levels of contingent self-worth, as it effectively communicates that they are less worthy if they do not perform as the coach desires (Bartholomew, Ntoumanis, Thøgersen-Ntoumani, 2009).

Excessive personal control is also a strategy presented by Bartholomew et al. This strategy can be defined as over-intrusive behaviors, which cross over to parts of the athletes' lives that are not directly related to their sport (Bartholomew, Ntoumanis & Thøgersen-Ntoumani, 2010). According to Bartholomew, Ntoumanis & Thøgersen-Ntoumani (2009) a coach's commitment could turn into excessive personal control, equating the performance of their athletes with their own self-worth and sense of competence. Crossing the healthy boundaries of a normal coach-athlete relationship was reported to be a negative experience of competitive youth swimming (Fraser-Thomas & Côté, 2009).

The next strategy is controlling feedback, which is feedback where the expectations and desires regarding the athletes' effort and behavior are conveyed clearly (Bartholomew, Ntoumanis & Thøgersen-Ntoumani, 2009). Mageau & Vallerand (2003) commented on the importance that competence-related feedback does not have a controlling factor. The statement "Well done, do this more and you will get more playing time" is an example of giving feedback in a controlling manner. Although the statement offers information regarding performance, it also conveys the control a coach has over the athlete, and that playing time is contingent.

A coach can use intimidation as a strategy, by displaying power-assertive behaviors (Bartholomew, Ntoumanis & Thøgersen-Ntoumani, 2010). These are aimed at humiliating and belittling the athletes. This could be verbal abuse, yelling and threat of physical punishment. The use of this type of strategy to elicit desired behaviors results in a lack of internalization regarding the underlying values of the activity itself (Bartholomew, Ntoumanis & Thøgersen-Ntoumani, 2009). Moreover, Bartholomew, Ntoumanis & Thøgersen-Ntoumani (2009) warned that this type of strategy might have a direct impact on the well-being of the athletes. According to Fraser-Thomas & Côté (2009), competitive adolescent swimmers mentioned coach intimidation as a negative experience they had with sports, and one athlete even commented on being "too scared" to communicate with the coach (p.15).

Promoting ego-involvement is the last of the strategies presented by Bartholomew, Ntoumanis & Thøgersen-Ntoumani (2009). This concept has received vast attention in Achievement Goal Theory research (see Nicholls, 1989). According to Ames & Archer (1988) a coach that promotes ego-involvement focuses on competition, normative ability, and public evaluation based on externally referenced criteria for success. This strategy can be perceived as controlling, as the basis of success and failure can lie within evaluations by the coach (Bartholomew, Ntoumanis, Thøgersen-Ntoumani, 2009).

Bartholomew, Ntoumanis & Thøgersen-Ntoumani (2009) stated that all the strategies mentioned so far are correlated to some extent, but have unique characteristics. Moreover, the strategies mentioned, and any other which fall in the scope a controlling interpersonal style, have the capacity to undermine the athletes' feelings of autonomy,

relatedness and competence (Bartholomew, Ntoumanis, Thøgersen-Ntoumani, 2009). Therefore, a controlling interpersonal style is expected to be a negative factor in the motivational process.

A classic study by Deci, Driver, Hotchkiss, Robbins & Wilson (1993) showed that controlling vocalizations from a mother when performing playful tasks, compared to autonomy-supportive ones, were negatively associated with the intrinsic motivation of their 7-year-old children. Although the setting for this study is not directly applicable to the sporting domain it is nevertheless interesting. The findings point to a fundamentally detrimental effect of controlling behavior in regard to motivation. Furthermore, the experimenters involved in the study coded the vocalizations, thereby ensuring a more objective evaluation of autonomy-support versus control. As stated previously, feedback becomes an important avenue for coaches to influence athletes, and it is important that it does not have a controlling aspect to it. Mageau & Vallerand (2003) stated that for positive feedback to be motivationally beneficial it should (a) promote a sense of autonomy and competence, (b) concern behaviors that are controllable for the athletes and (c) communicate high but realistic expectations.

A study showing the difference between perceived controlling and perceived autonomy-supportive environments is one by Oliver, Markland, Hardy, Petherick (2008). Oliver and colleagues investigated the effects of the two environments on self-talk in adults performing computer-based mazes. In the controlling environment the participants were solely instructed on the task at hand. The autonomy-supportive condition, however, was created by providing a rationale for the task prior to it, as well as acknowledging feelings and conveying a sense of choice. The participants were asked to talk aloud while performing the task. The results showed that participants in the controlling condition performed more negative self-talk, and included more swear words compared to those in an autonomy-supportive environment. Furthermore, positive emotions were only expressed in the autonomy-supportive environment. These findings lead the authors to concluded that the environment in which tasks are being performed can impact behavioral outcomes such as self-talk (Oliver, Markland, Hardy, Petherick, 2008).

The research mentioned so far has mostly focused on one interpersonal style at a time. However, autonomy-supportive and controlling behaviors on the coaches' part may not be two sides of the same coin, and it could be that coaches use elements from both interpersonal styles (Bartholomew Ntoumanis & Thøgersen-Ntoumani, 2009). Therefore, the interpersonal styles may not be mutually exclusive. This has been supported by empirical research, showing that coaches may exhibit both autonomy-supportive and controlling behaviors (Pelletier, Fortier, Vallerand and Briere, 2001). To illustrate this, Bartholomew, Ntoumanis & Thøgersen-Ntoumani (2010) suggested that a coach might use tangible rewards for the completion of a task, whilst also giving a sound rationale for the same task. Hence, a lack of autonomy-support is not necessarily indicative of a controlling interpersonal style (Bartholomew, Ntoumanis and Thøgersen-Ntoumani, 2010). Based on this, to fully understand the nature of coach behavior and athletes motivation, the two dimensions should be investigated simultaneously.

The social environment is thought to be imperative in regard to need satisfaction, or need thwarting (Bartholomew, Ntoumanis, Ryan, Bosch & Thøgersen-Ntoumani, 2011). A controlling interpersonal style is an example of a coaching dimension that has been found to positively predict need thwarting in youth soccer (Bartholomew, Ntoumanis, Ryan, Bosch & Thøgersen-Ntoumani, 2011; Balaguer, González, Fabra, Castillo, Mercé & Duda, 2012). Moreover, Balaguer, González, Fabra, Castillo, Mercé & Duda (2012) reported that perceived autonomy-support was negatively linked to need thwarting. This suggest that a coach behaving in a controlling manner, or being limited in their autonomy-support, is associated with feelings of impeded needs.

Equifinality is a central part of the BNT, meaning that individuals are continuously persistent in attempting to satisfy basic needs, and will devise new ways of doing so if the old ways are no longer effective (Deci & Ryan, 2000). So what happens when the social environment does not allow for satisfaction of needs, or rather thwart the need satisfaction? According to Deci & Ryan (2000) a distinct difference between physiological and psychological needs can be seen when a need is thwarted. When there is a deficit in a physiological need, the longer the deprivation last the more salient and consuming the need becomes. Moreover, an individual will engage in behaviors to satisfy this need until it is. An example of this could be hunger; the more hungry a

person gets, the more likely they will become consumed with trying to satisfy the hunger. A psychological need deficit, however, will more likely bring out substitute behavior, which actually lessen their direct attempts to satisfy the need (Ryan & Deci, 2000). This will negatively impact the individual, as it will interfere with the satisfaction of the needs they are deficient in (Deci & Ryan, 2000).

According to Deci & Ryan (2000) there are three outcomes of need thwarting; (1) the creation of compensatory goals, (2) less self-determined motivational regulations and (3) rigid behavioral patterns that are adapt in satisfying a need but most likely hurtful in other ways. As an example, a child who does not feel a sense of relatedness through soccer could join social groups outside of soccer that has a strong sense of connectedness but has criminal activity as their main focus. In the long-term this type of behavior will likely be detrimental to the child.

2.3 Outcomes

According to Vallerand (2001) motivation leads to important outcomes. These outcomes can be defined as cognitive (e.g. concentration), affective (e.g. enjoyment) or behavioral (e.g. performance). This trichotomous distinction of outcomes makes it easier to determine motivation-consequence relationships more precisely, and facilitate the transition from theory and empirical evidence to guidelines and strategies for practitioners. Previous research in SDT has focused greatly on outcomes related to vitality (Deci & Ryan, 2000; Reinboth, Duda & Ntoumanis, 2004; Balaguer, González, Fabra, Castillo, Mercé & Duda, 2012).

Emotion can be a highly visible and prominent feature of the sporting domain. However, it is not as simple as the joy experienced during a win, or the negative feelings ensuing a loss. According to Brustad (1988) a more enduring emotional experience can be conceptualized, as a result of a season or perhaps several years of participating in sports. Examples of more sustained emotions in sport can be enjoyment and performance anxiety (Brustad, 1988). The current research will focus on these two affective outcomes. The following sections will discuss the two variables in light of relevant research.

2.3.1 Enjoyment

As mentioned earlier, youth soccer involves many players, and the participation numbers are increasing. It appears that soccer is a popular sport worldwide. Popularity can be measured in participation numbers, however enjoyment cannot. As stated by Wankel & Kreisel (1985), when assessing the basis of sporting enjoyment it is crucial to obtain direct evidence from the participants. Simply put, just because youths are playing soccer it does not indicate that they are enjoying it, or to which degree they are enjoying it.

Enjoyment is often seen as a global affective state, which can be defined as a subjective feeling, varying in pleasantness/unpleasantness and intensity (Crocker, Hoar, McDonough, Kowalski & Niefer, 2004). According to Crocker, Hoar, McDonough, Kowalski & Niefer (2004), positive emotional experiences, such as enjoyment, is of increasing interest for sport researchers. However, the same authors commented that the research involving these aspects is not as comprehensive as for example anxiety.

Based on the current authors personal experience, both as an athlete and a coach, it is postulated that one of the most crucial aspects of youth sport is enjoyment. Whether the main goal is performance, talent development or continued participation, enjoying the sport could be essential. Enjoyment has often been researched in regard to involvement in sport, and Scanlan & Lewthwaite (1986) reported a strong correlation between the enjoyment experienced by male youth wrestlers and their desire for future participation in sport. Furthermore, Robinson & Carron (1982) investigated what differentiated groups of football players (1) with starting positions, (2) participating but not competing, and (3) who had dropped out. Among other things, the authors found that dropouts enjoyed their sporting experience less than the players who were still active. These results indicate the importance of enjoyment for continued sport activity.

The results regarding participation and enjoyment were further corroborated by Jacobsson (2012), who carried out a qualitative study investigating why adolescent athletes without elite sport ambitions continued participation in sport. According to the study, participants felt that their sporting participation was fun and enjoyable, and was something they did not want to be without. The results presented by Jacobsson (2012)

are encouraging, as they suggest that it is possible to influence continued sport participation during the teenage years, and not only for those who wish to perform at a high level, by ensuring an enjoyable experience. However, enjoying sports later in adolescences was dependent on being raised in a club sport environment, being able to handle elite-oriented practice, as well as being willing to compete frequently (Jakobsson, 2012).

Crocker, Hoar, McDonough, Kowalski & Niefer (2004) posited that the emotional meaning of the youth sport experience will be shaped by the interplay between the social, contextual and personal factors. Moreover, the emotional experience of youth sports is complex, involving motivational processes among others aspects (Crocker, Hoar, McDonough, Kowalski & Niefer, 2004). Brustad (1988) reported that intrinsic motivation had the strongest relationship with season-long enjoyment in youth basketball players, compared to perceived competence, parental influence, performance anxiety and general self-esteem. Wankel & Kreisel (1985) reported that factors intrinsic to sport activity were consistently rated as most important, compared to social and extrinsic factors, in regard to enjoyment in youth sports. Such intrinsic factors were improving skills, excitement of the sport and performing the sport (Wankel & Kreisel, 1985). Cumming, Smoll, Smith and Crossbard (2006) found that winning was not a prerequisite for enjoyment. Corroborating this, objective measures of sporting success did not appear to influence enjoyment in youth basketball players over the course of a season (Brustad, 1988).

MacPhail, Gorely, Kirk & Kinchin (2008) investigated enjoyment in PE when implementing a sport education program instead of more traditional physical education. Although the quantitative data showed no increases in enjoyment after 16 weeks, according to authors the qualitative results indicated that the sport-centered program was more enjoyable. The antecedents of enjoyment appeared to be participating in a team, autonomy, improving skills and competing (MacPhail, Gorely, Kirk & Kinchin, 2008). Furthermore, MacPhail, Gorely, Kirk & Kinchin (2008) commented that fun is often trivialized, and the findings show that enjoyment involves many important factors.

The studies mentioned above point to the relationship between intrinsic factors and the experience of enjoyment in sport. According to Scanlan & Lewthwaite (1986) although

enjoyment and intrinsic motivation share some common basis, enjoyment can be seen as a broader, more inclusive construct, compared to intrinsic motivation, which includes several aspects of the multifaceted competitive sport experience. One such aspect is competence, which sports often offer ample opportunity to measure. Studies have showed perceived ability to be correlated to greater enjoyment in youth sport (Scanlan & Lewthwaite, 1986). However, contrary to this a study investigating youth basketball showed no significant relationship between levels of perceived basketball competence and season-long enjoyment (Brustad, 1988).

It appears that several factors influence enjoyment in sport, also those pertaining to the social context (Crocker, Hoar, McDonough, Kowalski & Niefer, 2004). According to Scanlan & Lewthwaite (1986) coaches and parents have a significant role in the enjoyment experienced by youth athletes. In a study with male youth wrestlers, Scanlan & Lewthwaite reported that athletes who perceived their coaches and parents to be more satisfied with their performance and put less pressure on them experienced more enjoyment. Furthering this, the authors found that more positive perceptions of adult involvement and interactions tended to be related to increased enjoyment. Moreover, low levels of perceived parental pressure has been shown to be related to high levels of season-long enjoyment in youth basketball (Brustad, 1988).

The research community appears to be in agreement regarding the importance on enjoyment in youth sports. Moreover, the body research mentioned so far suggests that many factors, both social and personal, are acting upon the experience of enjoyment in youth sports. However, the specific process linked to the level of enjoyment experienced seems somewhat unclear and scattered. Crocker, Hoar, McDonough, Kowalski & Niefer (2004) warranted theory-driven research involving emotion variables, in order to provide more than a fragmented and over-simplistic understanding of this process in sport. Àlvarez, Balaguer, Castillo & Duda (2009) investigated enjoyment from a SDT perspective. They found that basic need satisfaction was directly associated with the enjoyment experienced in youth soccer. Moreover, satisfaction of basic needs was also indirectly linked to enjoyment, through motivational regulations. This is in line with theory, as need satisfaction should lead to well-being and positive outcomes (Deci & Ryan, 2000). However, Àlvarez and colleagues employed a

composite need score, and it would be interesting to investigate how the separate needs relate to enjoyment.

2.3.2 Anxiety

Smith, Smoll & Cumming (2007) defined performance anxiety in sports as a predisposition to respond with state anxiety to athletic situations where performance may be evaluated. According to Martens, Vealey & Burton (1990) individuals high in performance anxiety perceive situations more threatening, and often respond to threatening situations with more state anxiety. Symptoms associated with performance anxiety include worry, apprehension, muscle tension, sweating, increased heart rate and gastrointestinal dysfunction (Crocker, Hoar, McDonough, Kowalski, Niefer, 2004). Performance anxiety can be divided into three factors; somatic, worry and concentration disruption (Smith, Smoll, Cumming & Grossbard, 2006). The former refers to the physical symptoms of performance anxiety, e.g. sweating. Worry involves negative thoughts and doubt regarding the performance. The latter factor refers to aspects of focus and concentration. According to Smith, Smoll, Cumming & Grossbard (2006) even children as young as 9 years can differentiate between the three factors.

Mahoney & Meyers (1989) described the relationship between anxiety and performance as complex and highly individualized. According to Jones & Swain (1995), some athletes may interpret performance anxiety as facilitative. Somatic anxiety, for example, could be experienced as physiological arousal and therefore may not be always be interpreted negatively. However, whether performance anxiety is experienced as facilitative or debilitative is dependent on the athlete as well as the sport (Parfitt & Pates, 1999). For example, it is likely that sports requiring more precision in the execution of skills will be more sensitive to somatic anxiety. However, despite some differentiating factors, a major belief underlying the research in youth sport is that high levels of performance anxiety is the cause of several negative consequences, for participation, health and performance (Crocker, Hoar, McDonough, Kowalski, Niefer, 2004). Research has reported performance anxiety in sport to have debilitative effects on enjoyment (Scanlan & Lewthwaite, 1986), drop-out (Robinson & Carron, 1982) and performance (Pain & Harwood, 2007).

If performance anxiety is assumed to be a negative factor, as was indicated above, hindering or limiting this experience becomes important. Interestingly, when investigating youth basketball players, Brustad (1988) reported that objective experiences of success, such as winning or losing, were not predictive of levels of performance anxiety. Brustad did, however, report a negative link between general self-esteem and anxiety. Interestingly, the same study showed no association between levels of perceived basketball competence and performance anxiety. The author attributed this to the increased power of more stable self-perceptions, such as self-esteem, compared to domain specific perceptions of ability.

Some research has reported findings indicating that intrinsic motivation is not indicative of lower levels of performance anxiety (Brustad, 1988). However, in a study with full-time dance students, Quested, Bosch, Burns, Cumming, Ntoumanis & Duda (2011) reported that the level of need satisfaction impacted the level of state anxiety experienced in relation to a solo performance. Furthermore, threat appraisal appeared to mediate the relationship. These results lead the authors to posit that in psychologically demanding situations, high levels of perceived need satisfaction may in fact enhance resilience to maladaptive appraisals. What more, the same study reported that need satisfaction was related to lower cortisol levels post solo performance. Cortisol is a known stress hormone, with widespread regulatory influences, which increases in secretion during situations that threaten physical integrity and/or involve trauma, and is experienced as uncontrollable (Miller, Chen & Zhou, 2007).

According to Smith, Smoll & Cumming (2007) coaches can play a crucial role in the processes underlying the experience and maintenance of performance anxiety. This is due to the coaches providing comprehensive evaluative feedback, as well as "response-contingent approval and disapproval" (Smith, Smoll & Cumming, 2007, p. 40). Although based on Achievement Goal Theory (For more information see Nicholls, 1989), a study by Smith, Smoll & Cumming (2007) indicated the potential influence coaches have on athletes' levels of performance anxiety. Following an intervention aiming to create a more mastery climate, effectively reducing the importance placed on normative abilities, the athletes in the experimental group showed significant reductions in anxiety, more specifically in the somatic and worry aspects. No significance was

found in the levels of concentration disruption, however the control group reported increases in anxiety from the start to the end of the season. The study by Smith, Smoll & Cumming (2007) was based on a different theoretical perspective than the current rapport, however reducing the focus on performance criteria is one of the autonomy-supportive strategies put forward by Mageau & Vallerand (2003). Moreover, the findings point to the potential influence coach behavior can have on performance anxiety levels over the course of a season (12 weeks).

Apart from the study by Quested and colleagues (2011), it appears that performance anxiety has not been extensively researched from a SDT perspective. However, SDT clearly states that low levels of perceived need satisfaction, or even need thwarting, should result in negative outcomes (Deci & Ryan, 2000). It seems sagacious that an athlete high in need satisfaction may experience lower levels of performance anxiety. The athlete will feel a sense of autonomy in what he or she is doing, feel competent in acting and likely also feel connected to others in the given context. All these aspect could make an athlete perceive competitive situations as less threatening.

3. The Current Study

The current project will combine two SDT sub-theories, BNT and CET, to generate a sequential model of the motivational process (see figure 3. for the hypothesized model). The primary goal is to test the model in youth soccer, in which the relationships between coach behavior, basic needs and two separate affective outcomes; enjoyment and performance anxiety, are explored. Based on the research presented so far, it is expected that coaches influence basic need satisfaction by the environment created as a function of their behavior. Furthermore, the assumption is that need satisfaction will facilitate positive domain specific outcomes, and oppose negative domain specific consequences.

The current research will further the knowledge base by studying two coaching dimensions simultaneously, based on the belief that a more comprehensive picture of coach behavior is needed. Based on previous CET research, autonomy-supportive and controlling interpersonal styles will be assessed. Furthermore, BNT will be employed due to its mediatory role between social-environmental factors and outcomes, as shown in previous research (Balaguer, González, Fabra, Castillo, Mercé & Duda, 2012), and the satisfaction of autonomy, relatedness and competence will be measured. The OIT will be omitted in the current rapport. Conceptually, high levels of basic need satisfaction are indicative of more self-determined motivation (Deci & Ryan, 2000), therefore measuring both concepts is not imperative for gaining an understanding of the motivational process.

Two outcome variables will be assessed, in separate models, to examine the predictive abilities of SDT concepts in youth soccer. Due to their limited empirical attention from a SDT perspective, enjoyment and performance anxiety will be investigated. Enjoyment is included as a mark of well-being, whilst performance anxiety will be measured to account for ill-being.

3.1 Research Question

What are the relationships between autonomy-supportive and controlling coaching styles, need satisfaction, and enjoyment/performance anxiety in youth soccer?

3.2 Hypotheses

Hypothesis 1: *An autonomy-supportive interpersonal style is positively related to autonomy, relatedness, and competence, whilst a controlling interpersonal style is negatively associated with need satisfaction.*

Hypothesis 2: *The need for competence, relatedness and autonomy is positively related to the experience of enjoyment for soccer, and negatively associated with soccer specific performance anxiety.*

Hypothesis 4: *The satisfaction of basic needs mediate the relationship between coach behavior and enjoyment/performance anxiety.*

Hypothesis 5: *The controlling interpersonal style is directly, negatively, associated with enjoyment, and positively associated with performance anxiety.*

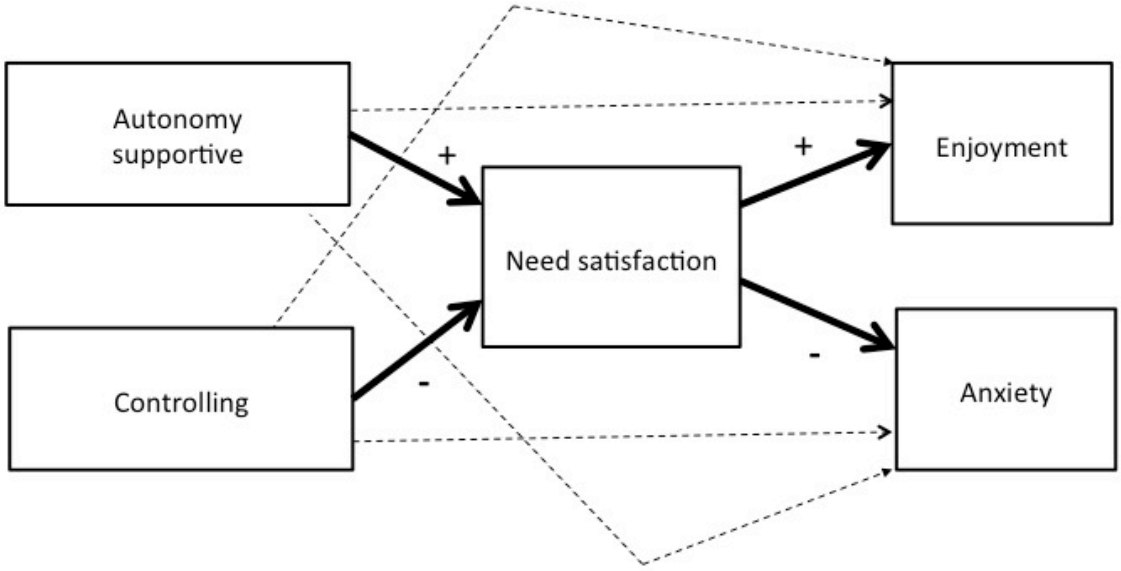

Figure 3: Hypothesized model of the motivational process, based on SDT.

4. Method

4.1 Participants

The participant sample (N = 1397) comprised male (n = 814) and female (n = 576) (7 unspecified) youth athletes, selected through their respective soccer clubs. All the athletes were actively playing soccer at the time of the study. The participants ranged in age from 11 to 14 years (M = 13.96, SD = 1.35). No specific inclusion/exclusion criteria were used.

4.2 Procedure

The data for this study was based on time 1 data within the ongoing cross-national PAPA intervention study. Due to this, the current author did not participate in the data collection, however the procedure will be explained to some extent. Only data from Norway will be used in the current investigation.

The data was collected at one time point, and the participants were asked to complete a questionnaire during a normal training session. As the participants were below the age of 18, legal consent was provided by a parent/guardian before the child could participate in the study. Participation was voluntary, the choice and opportunity to not partake was provided to the children themselves. Furthermore, no financial incentives were given. Participants had as much time as they needed to complete the questionnaires, and it was made clear that their answers would remain confidential. The participants were instructed to answer the questions without conferring with their peers, and the importance of answering honestly was communicated.

4.3 Measures

A total number of 7 scales were included in this study, combined in one self-report questionnaire (see Appendix A). The items were soccer-contextualized to obtain domain specific information. In order to avoid confusion, all variables were measured using a 5-point likert scale, ranging from completely disagree to completely agree. All the

questionnaires were translated to Norwegian, using a translation-back translation procedure.

Demographic Information. Each participant was asked to complete a demographic questionnaire, assessing factors such as age and gender. This was located on the first three pages of the self-report questionnaire.

Coaching behavior. To assess the participants' perceptions of their coaches' behavior, the athletes were asked to rate the extent to which each statement concurred with how their head coach usually behaves towards them. To measure the athletes' perception of coach *Autonomy-support,* five items were drawn and adapted to sport from the Health Care Climate Questionnaire (HCCQ) by Williams, Grow, Freedman, Ryan & Deci (1996). The items chosen were focused on offering choice and rationale (e.g., "The coach allows the players choice and alternatives"). All factor loadings were significant, ranging from .45 to .68, with a median factor loading of .52. A Cronbach's alpha of .71 was obtained for the scale.

Questions based on the Controlling Coach Behaviors Scale (CCBS) (Bartholomew, Ntoumanis & Thøgersen-Ntoumani, 2010) were used to measure *Controlling coach behavior*. The scale comprised 8 items (e.g., "Sometimes the coach threatens to punish players to maintain control"), based on the negative conditional regard, external rewards, intimidation and excessive control strategies. Factorial loadings for the items ranged from .42 to .74, with a median loading of .66. The analysis of internal consistency showed a Cronbach's alpha of .82.

Satisfaction of basic psychological needs. For measuring the satisfaction of basic needs, the athletes were asked about their general feelings and experiences in the last month, in regard to soccer. The items measuring each need were combined in one scale, and were preceded by the statement "In the past month, on my team".

Five items based on work by Standage, Duda, Ntoumanis (2005) were used to assess the satisfaction of need for *autonomy* (e.g., "In the past month, I have decided what drills to do in practice"). The factorial loadings ranged from .36 to .69, with a median loading of .49. The Cronbach's alpha for the scale was .66. Cronbach's alpha (Cronbach, 1951) is

a coefficient of internal consistency, inferring whether the items measure the underlying concept. Gliem & Gliem (2003) referred to a rule of thumb presented by George & Mallery (2003), stating that Cronbach's values below .70 are questionable. However, Gliem & Gliem (2003) stressed that the value of the alpha is sensitive to the number of items in the scale. Moreover, according to Klein (cited by Field, 2009), values below .70 can be expected when measuring psychological constructs due to the complexity of the concepts being investigated. Therefore, the low Cronbach's alpha for autonomy was noted, but no action was taken to increase the value.

To assess the satisfaction of the need for *competence*, six items based on the Intrinsic Motivation Inventory (IMI) (McAuley, Duncan, Tammen, 1989) were used (e.g., "I was pretty good"). The factor loadings were significant, and ranged from .62 to .85, with a median loading equaling .79. A Cronbach's alpha of .89 was obtained for the scale.

Measuring the need for *relatedness*, four items based on l'Échelle du Sentiment d'appartenance Sociale (Richer & Vallerand, 1998) were adapted (e.g., "In the past month, I felt like others understood me"). The factorial loadings ranged from .66 to .77, the median loading being .76. The scale showed a Cronbach's alpha of .82.

Enjoyment. To assess the level of enjoyment in soccer, the athletes were asked to think about their general experience of the soccer environment in the past month. Four items based on the IMI (McAuley, Duncan, Tammen, 1989) were employed (e.g., "It was fun playing soccer"). The items were preceded by the statement "In the past month…". Factorial loadings were significant, and ranged from .67 to .83, with a median loading of .72. A Cronbach's alpha of .81 was obtained.

Performance anxiety. The measurement of soccer specific performance anxiety was based on the worry factor of the revised Sport Anxiety Scale (SAS) (Smith, Cumming & Smoll, 2006). Five items were used to measure the degree to which the statements confer with how the athletes usually feel about their performance in soccer, before or during a match (e.g., "I worry that I will let the other players on my team down"). The items were preceded by the phrase "Before or when I am playing a soccer match…". The analysis of the internal consistency showed a Cronbach's alpha of .90. Factorial

loadings were significant, and ranged from .71 to .87, with a median factor loading of .80.

4.4 Data Analysis

Prior to answering the primary research questions, preliminarily analyses were conducted. Firstly, descriptive statistics and correlations were calculated for the variables. Next, to examine the fit of the obtained data to the hypothesized model posteriorly presented (figure 3), structural equation modeling (SEM) analysis was conducted using MPLUS (version 7). This method of analysis has been used in similar studies (Pelletier, Fortier, Vallerand, & Briere, 2001). SEM has an advantage over other techniques, e.g. multiple regressions, as it allows for more flexibility in the interplay between theory and data (Chin, 1998).

The SEM analysis was done in two steps. Firstly, measurement models were carried out for each latent variable, allowing for construct validity of the scales, corresponding to a confirmatory factors analysis (CFA). This ensured that the indicators were related to the latent variables in a satisfactory manner. Thereafter, the fit of the structural model was assessed to see how the latent variables were linked to each other. To verify the validity of the measurement models for each variable and the fit of the structural model, a set of fit indices were considered. According to Hu & Bentler (1999) a good fit is indicated by values close to or greater than Comparative Fit index (CFI) = .95, Tucker-Lewis Index (TLI) = .95, and values less than .08 and .06 for Root Mean Square Error of Approximation (RMSEA) and Standardized Root Mean Square Residual (SRMR), respectively.

5. Results

5.1 Descriptive Statistics

Means and standard deviations, along with the bivariate correlations, are presented in table 1. Means indicate that the youth athletes in the current study experienced the coach as high in autonomy-supportive behavior, and low in controlling behavior. The participants scored higher on competence than on relatedness and autonomy. The mean value for enjoyment was high, indicating that the athletes in the current study enjoyed soccer. Moreover, the scores for performance anxiety were low.

Table 2: Descriptive statistics and correlations for the observed variables.

Variable	M	SD	Range	1	2	3	4	5	6
(1) Autosupp	3.96	.62	1-5	-					
(2) ControlB	2.10	.73	1-5	-.37**	-				
(3) Autonomy	3.03	.66	1-5	.33**	-.05	-			
(4) Related	3.62	.81	1-5	.45**	-.20**	.53**	-		
(5) Comp	3.79	.72	1-5	.37**	-.14**	.42**	.55**	-	
(6) Enjoy	4.36	.63	1-5	.48**	-.31**	.32**	.48**	.52**	-
(7) Anxiety	2.83	1.02	1-5	-.13**	.22**	-.03	-.19**	-.22**	-.22**

Note: Autosupp = Autonomy-Support, ControlB = Controlling behavior, Related = Relatedness, Comp = Competence, Enjoy = Enjoyment. ** $p < .001$

Bivariate correlations reveal that an autonomy-supportive coaching style presented strong, positive correlations with the need for competence, relatedness and autonomy. Autonomy-support showed a positive association with enjoyment, and a negative link to performance anxiety. The opposite was shown for controlling. Moreover, controlling coach behavior correlated negatively with relatedness and competence, albeit moderately. No significant correlation emerged between autonomy and coach control. All three basic needs were positively correlated with enjoyment, and negatively correlated with performance anxiety. Furthermore, a negative link was reported between autonomy-support and control.

5.2 Structural Equation Modeling

The initial fit indices for the measurement model for autonomy-support were deemed not acceptable. Based on this, covariance was accounted for between item 2 (i.e., "The coach thinks it is important that we play soccer because we want to") and item 5 (i.e., "It is the coach's opinion that athletes are involved because they want to"). Following this adjustment the CFA demonstrated good fit indices for the 5-item scale for autonomy-support: x^2 (4) = 3.797, p = .43; CFI = 1.00, TLI = 1.00, RMSEA = .01 (90 % CI = .00 – .04) and SRMR < .01. Furthermore, results of the CFA in Mplus confirmed the 8-item scale for controlling coach behavior, yielding acceptable fit indices: x^2 (20) = 96.56 p < .001, CFI = .96, TLI = .95, RMSEA = .06 (90% CI = .05 - .07) and SRMR = .03.

After investigating the fit for a measurement model combining the three basic needs as one construct referred to as *total need satisfaction*, the fit indices were deemed poor. Following this, the needs were separated. A covariance link was added between item 1 (i.e., "I decided what drills to do during practice") and item 2 (i.e., "I partook in the decision about what I was going to do during practice") for autonomy. The factorial analysis showed reasonable fit indices; x^2 (86) = 360.77, p < .001, CFI = .95, TLI = .94, RMSEA = .05 (90 % CI = .05 - .06) and SRMR = .05.

The measurement model for enjoyment showed good fit indices; enjoyment: x^2 (2) = 12.89, p < .001, CFI = .99, TLI = .97, RMSEA = .06 (90 % CI = .03 - .09) and SRMR = .01. This was also true for performance anxiety, acceptable good fit indices: x^2 (5) =

38.87, $p < .001$, CFI = .99, TLI = .98, RMSEA = .07 (90 % CI = .05 - .09) and SRMR = .02.

Secondly, with the intent to analyze the relationships between the variables pertaining to the hypothesized models, SEM was used to measure the variables simultaneously. The latent variables were measured with their respective observed factors, and one indicator per latent variable was fixed to 1.0, in order to scale the latent variables to a common metric. The exogenous variables were free to co-vary amongst themselves. The set fit indices used for the CFA were also used to evaluate the fit of the hypothesized models.

5.2.1 Enjoyment

For the proposed model of enjoyment, fit indices revealed an acceptable fit to the data: x^2 (450) = 1089.53, $p < .001$, CFI = .93, TLI = .92, RMSEA = .04 (90 % CI = .04 - .05) and SRMR = .06. Autonomy-support was positively linked to the need for autonomy, competence and relatedness ($\beta = 1.12$, $\beta = .82$, and $\beta = 1.08$ $p < .001$). A significant main effect was shown between controlling behavior and autonomy, competence and relatedness, all significant at $p < .001$ ($\beta = .61$, $\beta = .35$, and $\beta = .50$). A significant, positive main effect was revealed between competence and enjoyment ($\beta = .24$, $p < .001$). Relatedness and autonomy did not emerge as significant predictors of enjoyment ($\beta = -.20$ and $\beta = -.26$, p = n.s.). The significant standardized parameter estimates are shown in fig. 4.

The total effect of autonomy-support to enjoyment was significant ($\beta = .84$, $p < .001$). The total direct effect was significant ($\beta = 1.15$ ($p < .01$), whilst the total indirect effect between autonomy-support and enjoyment was non-significant ($\beta = -.31$). Standardized indirect effects revealed that autonomy-support had a positive effect on enjoyment through the need for competence ($\beta = .20$, $p < .001$). The total effect of controlling behavior to enjoyment was significant ($\beta = .14$, $p < .05$). The total indirect effect and the total direct effect were non-significant ($\beta = -.17$ and $\beta = .31$). Enjoyment was indirectly predicted by perceptions of controlling coach behavior ($\beta = .08$, $p < .01$) via the need for competence.

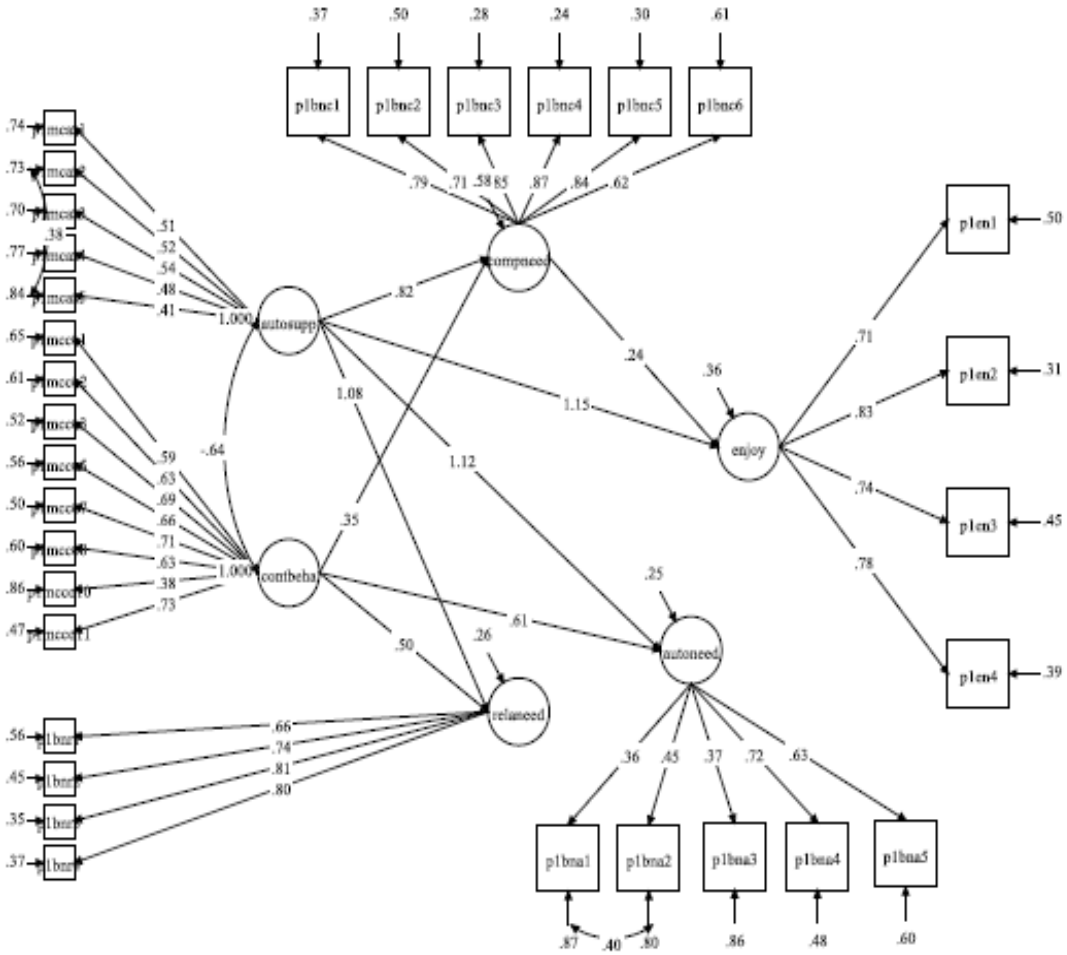

Figure 4: Structural model for enjoyment, significant paths shown.

5.2.2 Performance Anxiety

The indices of fit showed that the proposed structural model for anxiety fit the data well: x^2 (481) = 995.59, $p < .001$, CFI = .95, TLI = .94, RMSEA = .04 (90 % CI = .03 - .04), SRMR = .05. Autonomy-support was positively related to autonomy, competence and relatedness ($\beta = 1.15$, $\beta = .84$ and $\beta = 1.12$, $p < .001$). Positive paths emerged between controlling behavior and autonomy, competence, and relatedness ($\beta = .64$, $\beta = .38$ and $\beta = .53$, $p < .001$). A significant, negative path was shown between competence and anxiety ($\beta = -.24$, $p < .001$). Relatedness did not emerge as a significant predictor of anxiety ($\beta = -.31$, p = n.s.). Interestingly, a positive path was found between autonomy and anxiety, yet this was non-significant ($\beta = .21$, p = n.s.). The significant standardized parameter estimates are shown in fig. 5.

The total effect of autonomy-support to performance anxiety was non-significant ($\beta = -.13$, $p = .11$). Total indirect effect and the total direct effect were both non-significant ($\beta = -.30$ and $\beta = .17$). Autonomy-support had a negative indirect effect through the need for competence, on performance anxiety ($\beta = -.20$, $p < .01$). The total effect of controlling behavior to performance anxiety was significant ($\beta = .18$, $p < .01$). The total indirect effect and the total direct effect of controlling behavior to performance anxiety were non-significant ($\beta = -.12$ and $\beta = .30$). A negative indirect effect was observed between controlling behavior and performance anxiety, via competence ($\beta = -.09$, $p < .01$).

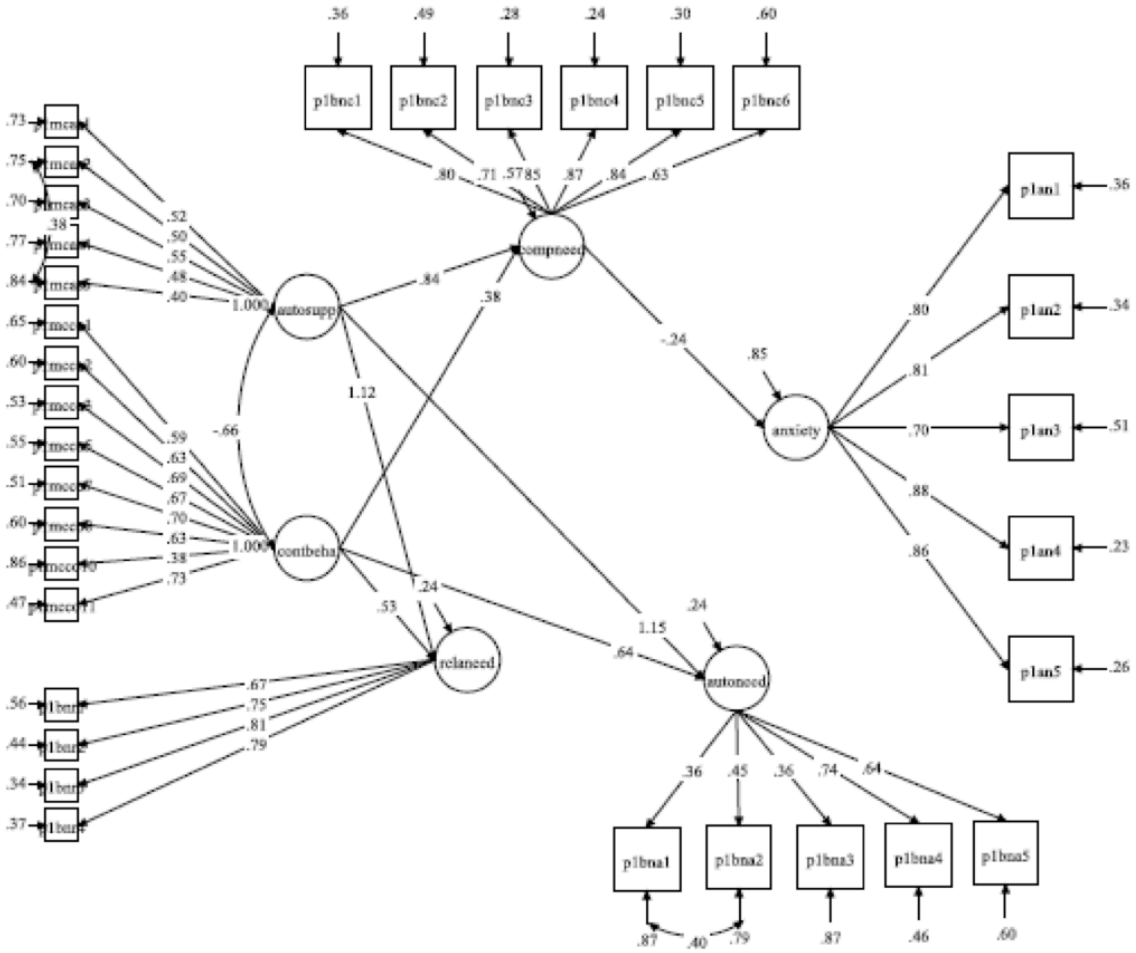

Figure 5: Structural model for performance anxiety, significant paths shown.

6. Discussion

Based on SDT (Deci & Ryan, 2000), the purpose of the current study was to examine a model that considered how two dimensions of the social environment in youth soccer would predict need satisfaction, and how need satisfaction would relate to (1) enjoyment and (2) performance anxiety. Partly, the results of the study supported the hypothesized paths of the proposed model. The findings provide further knowledge regarding coach behavior in the youth soccer environment.

6.1 Autonomy-Support – Basic Needs

The hypothesis that autonomy-support is positively related to the three basic needs was supported. Strong paths emerged between coach autonomy-support and the three needs; autonomy, competence and relatedness, respectively. The relationships are in line with theory, as an autonomy-supportive interpersonal style will facilitate internalization by satisfying basic needs, which leads to integration of regulatory processes, allowing for more self-determined motivation (Williams, Grow, Freedman, Ryan & Deci, 1996). Moreover, the findings are consistent with previous research on youth sports (Àlvarez, Balaguer, Castillo, & Duda, 2009; Ntoumanis & Standage, 2009). The study by Àlvarez, Balaguer, Castillo, & Duda (2009) investigated autonomy-support in relation to a latent construct of total psychological need satisfaction. A total need construct was also used in the study by Ntoumanis & Standage (2009). In the current study, combining the three needs to one construct gave poor fit indices. Furthermore, Ntoumanis & Standage (2009) also employed a latent need support variable. This included autonomy-support, competence support and relatedness support. Despite the methodological differences, the results of these studies concur with the current, indicating that autonomy-support leads to increased psychological need satisfaction. Furthering previous research, the present findings show that an autonomy-supportive interpersonal style in youth soccer is positively related to each of the needs separately.

The strongest relationship was reported between autonomy-support and the need for autonomy. This association appears intuitive. Acting in a way that allows for choice and provides rationale should increase an individual's sense of autonomy as this allows the

athletes to be the origin of their own behavior to a greater extent (Mageau & Vallerand, 2003). The results regarding autonomy-support are encouraging, as the degree to which athletes are allowed to experience support for autonomy will increase the likelihood of them actively integrating the values put forward by the social environment. According to Ryan & Deci (2000) autonomy is a particularly crucial element for regulations to be integrated. Support for this need should therefore help athletes authentically perform actions pertaining to soccer, by way of internalization (Deci & Ryan, 2000).

Although the strongest relationship was reported between autonomy-support and autonomy, the links with competence and relatedness were strong as well. The findings indicate that by acting in an autonomy-supportive manner, coaches allow athletes to feel competent, and better related to significant others in the soccer environment. As mentioned in the introduction, being autonomy-supportive involves far more than just providing choice. According to Mageau & Vallerand (2003), by definition an autonomy-supportive coach will provide support for competence by conveying a sense of trust in the abilities of the athletes, and through non-controlling competence feedback. Moreover, the same researchers stated that autonomy-supportive coaches' consider their athletes' perspective and feelings, and offer rationale for requested tasks and rules, effectively offering support for relatedness. The current rapport presents evidence for the notion forwarded by Mageau & Vallerand (2003).

Unlike the findings of the current study, Coatsworth & Conroy (2009) showed autonomy-support to be related to the satisfaction of competence and relatedness only, the strongest relationship being with competence. The authors attributed this to the relative salience of competence in a sports setting. The study by Coatsworth & Conroy (2009) was based on a 7-week swim league, which required daily training sessions and competitive swim meets twice per week. Firstly, this type of sporting program might not foster a sense of autonomy, even if the coaches act in an autonomy-supportive manner. Moreover, it is likely that such a demanding, and competition-focused setting, will increase the importance of competence. Situations as the one in Coatsworth and Conroy's study offer ample opportunity for assessing sporting abilities. It is supposable that this type of situation could increase the relative need for competence, or cause an awareness of a deficit. On the other hand, Adie, Duda & Ntoumanis (2008) reported that

competence had the weakest relationship with perceived autonomy-support, and the strongest link with relatedness. This study differed from the current one, as it was carried out with adult athletes. The authors suggested that adult athletes are less dependent on their coaches regarding the satisfaction of competence. According to Deci & Ryan (2000) needs can vary in salience and mode of satisfaction as a function of age, culture and social structures. Therefore, it is plausible that the nature of the relationships between autonomy-support and the three basic needs is in part influenced by between-person differences and situational demands.

The equivocal findings regarding the strength of the relationships between autonomy-support and the separate needs could also be a matter of definition. As mentioned in the introduction, different definitions, and several strategies, have been used to formulate an autonomy-support construct. This interpersonal style includes a number of aspects pertaining to the social environment. The autonomy-support dimension in the current rapport was based on work by Williams, Grow, Freedman, Ryan &, Deci (1996). According to Williams and colleagues, autonomy-support is defined as offering choice, providing meaningful rationale, minimizing pressure and acknowledging others' feelings and perspective. The five items employed to measure this interpersonal style in the current rapport referred to choice and rationale. Previous research, however, has often used different aspects of autonomy support, such as respect for athletes' desire and choice (Pelletier, Fortier, Vallerand & Briere, 2001), sincere interest for athlete input and praise for autonomous behavior (Coatsworth & Conroy, 2009). Therefore, although the research domain appears to be in agreement regarding the importance and potential impact of autonomy-support on need satisfaction and motivation, it may be warranted to dissect the concept and investigate specific strategies more carefully.

Mageau & Vallerand (2003) provided an overview of different autonomy-supportive strategies, and the empirical evidence for their relationship with motivation, yet there appears to be little research investigating the influence of several strategies simultaneously. However, Conroy & Coatsworth (2007) reported that youth athletes were able to differentiate between autonomy-supportive strategies. Furthermore, Coatsworth & Conroy (2009) investigated two different strategies simultaneously, sincere interest for athlete input and praise for autonomous behavior, respectively. The

results showed that it was praise for autonomous behavior, and not sincere interest, that was linked to athlete need satisfaction. These findings indicate that different strategies pertaining to the autonomy-supportive interpersonal style may not be equal in their relationship with need satisfaction. If the different strategies and definitions could be perceived differently in regard to need satisfaction, the results could be skewed if grouped together. Delineating specific strategies might help operationally define the coaching strategies and qualities characterizing the autonomy-supportive interpersonal style (Conroy & Coatsworth, 2007).

Despite what appears to be some uncertainty regarding the nature and strength of the relationships between autonomy-support and the separate needs, the current rapport is in agreement with majority of the research community. Autonomy-supportive behaviors presented by a coach appear to facilitate the satisfaction of autonomy, competence and relatedness. Furthermore, the findings emphasize the contribution of the autonomy-supportive interpersonal style in the motivational process of youth soccer.

6.2 Autonomy-Support – Enjoyment

A significant, positive, direct link emerged between the autonomy-supportive interpersonal style and enjoyment for soccer. This relationship was also reflected in the bivariate correlation between the two variables. The results indicate that autonomy-supportive behaviors from a coach are part of the mechanisms related to enjoyment in youth sport. Previous research has shown an association between coach involvement and enjoyment, as low levels of pressure from the coach, coupled with perceived contentment from a coach regarding the athletes' performance, was associated with increased enjoyment for sport (Scanlan & Lewthwaite, 1986).

What specifically causes the direct link between autonomy-support and enjoyment cannot be drawn from the current results. Intuitively, though, having an autonomy-supportive coach is likely to be an enjoyable experience. Moreover, an aspect that has not been investigated in the current study is the objective effectiveness of the interpersonal styles. If the autonomy-supportive interpersonal style results in sporting progress, this could perhaps increase the levels of enjoyment. However, more research

is needed to determine why and how autonomy-supportive behaviors relate to enjoyment, when its not through basic need satisfaction.

6.3 Autonomy Support – Performance Anxiety

A non-significant, positive, link was reported between autonomy-support and performance anxiety. What is interesting is the positive nature of this association. In a qualitative study investigating decisions regarding sport participation, Coakley & White (1992) reported that adolescents above 15 years of age associated autonomy and independence with becoming an adult. As the participants in the current rapport were younger than 15, it could be that an autonomy-supportive coach facilitated a sense of responsibility that the athletes were not ready for. It is comprehensible that offering choice, and considering athletes view point, could communicate that the athletes are at least partly in charge of their own sporting progress, as well as performance. If this is the case, performance could consequently appear more threatening, increasing performance anxiety. It is important to note that this is strictly speculative, and the bivariate correlations showed a weak, yet negative relationship between the two variables. However, as the link did not approach significance in structural model it will not be discussed further.

6.4 Controlling Behaviors – Basic Needs

Bartholomew, Ntoumanis & Thøgersen-Ntoumani (2010) defined a controlling interpersonal coaching style as acting in a pressuring and authoritarian way to impose opinions on the athletes, and control outcomes. Over time, continuous exposure to controlling coach behavior is thought to debilitate need satisfaction, and in turn promote the development less self-determined motivation (Bartholomew, Ntoumanis & Thøgersen-Ntoumani, 2009). If there is a presence of coerciveness and external contingencies, the athletes will present controlled behaviors, but will reflect a lack of personal endorsement (Bartholomew, Ntoumanis & Thøgersen-Ntoumani, 2009). However, the current rapport did not support that controlling behavior negatively influences basic need satisfaction. The controlling interpersonal style appeared to have the strongest positive link with the need for autonomy, followed by relatedness and thereafter competence. This is surprising as theoretically, and intuitively, a coach that is

perceived as controlling will limit the athletes' sense of volition and autonomy, making the locus of causality more external (Mageau & Vallerand, 2003). This will either not allow for or even undermine the satisfaction of autonomy.

Contradicting to theory, the results of the SEM indicate that controlling coach behavior can facilitate need satisfaction. However, this could be due to a methodological issue referred to as suppression effects, which is indicated when a predictor variable (i.e. coach control) show low correlations with the dependent variables, yet strong beta weights with the same variables (Courville & Thompson, 2001). According to Lancaster (1999), suppression reveals links that would never emerge if only investigating bivariate relationships. The correlations for the current data show negative, weak, relationships between controlling coach behavior and the satisfaction of the need for competence and relatedness. Furthermore, the correlation with autonomy was also negative, yet did not approach significance. The potential suppression effect in the current rapport could be due to covariance between the two interpersonal styles and the basic need measures. Effectively, the suppression effect could cause a statistical relationship that is not true. Nevertheless, Lancaster (1999, p.9) refers to Thompson & Borrello (1985):

> *It must be noted that interpretation of only the bivariate correlations seems counterintuitive. It appears inconsistent to first declare interest in an omnibus system of variables and then to consult values that consider the variables taken only two at a time.*

Hence, the results of the SEM will be further discussed, although conclusions will be drawn with caution.

The theory clearly states that controlling, punishing, neglecting and chaotic learning environments make need satisfaction less likely, resulting in inner conflict and motivational accommodations, often in the form of less self-determined motivation (Deci & Ryan, 2000). However, empirically, the influence of coach behavior is dependent on what lies within the concept of the specific interpersonal style. The items used to measure a controlling interpersonal style in the current rapport were based on four of the controlling strategies mentioned in the introduction; use of external rewards, negative conditional regard, intimation as well as excessive personal control. Although

all of the eight items loaded significantly to the concept of a controlling interpersonal style, there were some differences. Specifically, the three items referring to use of external rewards had a mean loading of .58, and it was the strategy with the weakest loading onto the latent construct. Intimidation (two items) and negative conditional regard (two items) showed loadings of .66 and .61, respectively. With one item measuring excessive personal control this strategy had the strongest loading of .73 to the latent variable of controlling coach behavior.

The results of the current study contradict the majority of research done on the topic. Pelletier, Fortier, Vallerand & Briere (2001) showed that perceptions of controlling coach behavior were positively related to less self-determined motivational regulations; introjected, external and amotivation, respectively. Moreover, the same study showed that the controlling interpersonal style was negatively linked to intrinsic motivation and identified regulation. The current study did not measure PLC, however theoretically self-determined motivation is indicative of need satisfaction (Deci & Ryan, 2000). Furthermore, Kipp & Weiss (2013) reported that controlling behavior was negatively related to the need for autonomy in youth gymnasts. Whilst Pelletier and colleagues assessed controlling coach behavior employing the coercion and intimidation strategy, Kipp & Weiss (2013) measured controlling coach behavior as the controlling use of rewards. It is possible that using only one aspect pertaining to the controlling interpersonal style will offer a rather simplistic picture of coach influence. This is comparative to measuring autonomy-support as only providing choice. By simplifying a complex concept such as an interpersonal style, valuable information could be lost. Therefore, the discrepant results could be due to the studies measuring different, and perhaps fewer, aspects of a controlling interpersonal style.

The argument presented for dissecting the autonomy-supportive interpersonal style appears to be applicable to the controlling interpersonal style as well. The current rapport shows different loadings for specific controlling strategies. Moreover, previous research seem to differ in which strategies have been used to assess the level of a controlling interpersonal style by the coach. As an example, the study by Kipp & Weiss (2013) employed the controlling use of rewards strategy to measure a controlling behavior by the coach. This aspect had the weakest loading onto the latent construct in

the current rapport. And as previously mentioned, the findings by Kipp & Weiss differed from the current. Bartholomew, Ntoumanis & Thøgersen-Ntoumani (2009) remarked the lack of empirical research on the relative impact of the specific controlling strategies in sport. Furthermore, the authors suggested that some strategies could be more damaging to well-being compared to others. Therefore, and based on the current results, the specific strategies warrant attention.

Bartholomew, Ntoumanis, Ryan, Bosch & Thøgersen-Ntoumani (2011) employed the same four strategies as the current research, showing no link between controlling coach behavior and need satisfaction. Similar findings were found in a longitudinal study involving youth soccer players (Balaguer, González, Fabra, Castillo, Mercé & Duda, 2012). However, these studies used composite need satisfaction scores, and also included need thwarting. Both studies showed that the perception of having ones needs thwarted was positively associated with controlling coach behavior. Therefore, it appears that need thwarting contributes to the motivational process of youth sports. According to Balaguer et al. (2012) a controlling environment may cause athletes to feel that their needs are being actively obstructed rather than not being met. Moreover, when investigating the two interpersonal styles, Pelletier, Fortier, Vallerand & Briere (2001) showed weak, negative relationships between controlling coach behavior and intrinsic motivation and identified regulation. The relationships between control and the more extrinsic regulations were strong. This body of research suggests that controlling coach behavior might be more powerful in relation to negative motivational aspects. Therefore, omitting need thwarting or non-self-determined motivation in the current rapport could explain the positive nature of the relationships between controlling coach behavior and the basic needs. Investigating both the positive and negative sides of motivation will give a more complete picture of the motivational process (Bartholomew, Ntoumanis & Thøgersen-Ntoumani, 2011).

An aspect of coach behavior that has been discussed in the literature, yet not researched greatly, is the structure offered by a coach. Mageau & Vallerand (2003) postulated that offering structure is important for experiencing competence and relatedness. Structure can be defined as the information given in regard to how one effectively achieves the desired outcomes in a specific context (Skinner & Belmont, 1993). To explain further, if

the athletes lack instruction and structure from the coach, they are missing out on valuable information needed for progress. According to Skinner & Belmont (1993), a teacher provides structure in the classroom by clearly communicating expectations, responding consistently, giving instrumental help and adjusting themselves to the level of the pupils. Furthermore, another aspect of coach behavior put forward by Mageau & Vallerand (2003) is support and involvement. This can be defined as expressing affection, as well as dedicating time and resources (Skinner & Belmont, 1993). According to Mageau & Vallerand (2003) in the absence of involvement, connectedness to the coach might not be experienced, which could consequently impact the satisfaction of the need for relatedness. Mageau & Vallerand (2003) even stated that if considering all three basic needs simultaneously, an autonomy-supportive behavior can only be beneficial if it is accompanied by these type of behaviors. Skinner & Belmont (1993) have provided evidence for a link between structure and involvement with student engagement and motivation. Moreover, Fraser-Thomas & Côté (2009) reported that competitive youth swimmers mentioned structure as part of their positive experiences with sport, as it challenged them resulting in greater work ethic.

Conceptually, structure and involvement should not be a part of a controlling interpersonal style unless it has a controlling aspect to it. Unfortunately, to the current authors knowledge, no empirical research has been carried out on structure and involvement in sport coupled with a controlling interpersonal style. However, autonomy-support has been found to correlate to structure in the education domain (Jang, Reeve & Deci, 2010). Perhaps the unexpected finding regarding controlling coach behavior is due to the structure offered by a coach somehow being reflected in the items measuring this interpersonal style. However, more research is needed to ascertain whether parts of the structure concept lies within the controlling strategies.

The discussion so far has focused on the possibility that the current results are somehow a product of differences regarding the controlling strategies, or the strategies reflecting other aspects of the sporting environment. The exclusion of need thwarting has also been offered as a possible explanation. However, it could be that it is not the impact of singular strategies, or the autonomy-support/controlling distinction, which is influential. It could be the interplay between the interpersonal styles that is decisive in regard to

need satisfaction. Regarding AGT, Ames & Archer (1988) stated that performance cues can be present in the motivational climate without necessarily causing negative outcomes, as long as the mastery cues are dominant. Perhaps this logic is applicable to SDT as well; controlling strategies can be present, as long as the main focus is perceived as autonomy-supportive. The participants in the current study reported low levels of perceived controlling behavior from the coach, whilst the ratings of perceived autonomy-support were high. Therefore, the coaching environment could have been perceived as mainly autonomy-supportive, despite the coaches presenting some controlling behaviors.

When carrying out a qualitative study investigating the youth sporting environment, Fraser-Thomas & Côté (2009) noted that all 22 participants discussed both negative and positive experiences related to their coach. It appears reasonable that a coach can display different types of actions. Furthermore, researchers have argued that a controlling coaching style and an autonomy-supportive style may not be exact opposites of each other (Pelletier, Fortier, Vallerand & Briere, 2001). In the current study, a moderate, negative correlation between the two interpersonal styles was shown. Furthermore, the SEM analysis revealed a β-value of -.66 between control and autonomy-support, suggesting that the interpersonal styles are separate concepts. However, they may not be mutually exclusive. Bartholomew, Ntoumanis & Thøgersen-Ntoumani (2010) described how coaches might engage in both autonomy-supportive and controlling behaviors simultaneously, and to different extents. To illustrate this the authors mentioned a coach who used conditional regard as a strategy to elicit discipline but provided a clear rational for requested behaviors. The notion that a coach can present behaviors from both interpersonal styles has been empirically supported (Balaguer, González, Fabra, Castillo, Mercé & Duda, 2012).

If it is the dominant coaching strategies that are influential in regard to athlete motivation, it could explain the current results. Future research regarding this potential balance between positive and negative aspects of coaching is warranted (Fraser-Thomas & Côté, 2009). Furthermore, employing multiple behavior profiles to advance our understanding of coach behavior on athlete motivation could further this area of interest.

Pelletier, Fortier, Vallerand & Briere (2001) reported negative implications of controlling coach behavior on athlete motivation. However, the study by Pelletier and colleagues differed from the current as it included somewhat older athletes (mean age = 15.9). It could be that the participant sample in the current study was less susceptible to the negative consequences of controlling coach behavior. Coakley & White (1992) reported that "concerns about becoming adults" influenced the decisions youths made regarding their own sporting participation. The participants saw highly structured sporting activity as associated with being a child. Furthermore, the participants above 15 years of age chose activities based on the opportunity to feel independent and autonomous. The athletes in the current study may have been too young to feel restricted when not being allowed choice, as this could be accompanied by a sense of responsibility that they are not necessarily ready for. This could effectively make them less likely to perceived controlling behaviors negatively. Contrary to this, Deci, Driver, Hotchkiss, Robbins & Wilson (1993) reported that the intrinsic motivation of children as young as six and seven was negatively linked to objectively measured maternal control. This led the authors to conclude that negative associations with controlling behavior should be expected at all ages.

6.5 Controlling Behaviors – Enjoyment

A positive link between controlling behavior and enjoyment emerged, although it did not approach significance. The positive nature of this association is contradicting to the hypothesis, as Bartholomew, Ntoumanis & Thøgersen-Ntoumani (2009) warned the some controlling strategies could have a direct, negative, impact on athletes' well-being. Moreover, Scanlan & Lewthwaite (1986) reported that low levels of pressure from the coach were associated with enjoyment in youth sports. Although the link in the current study was not significant, it adds to the aforementioned findings regarding this interpersonal style, indicating that a controlling coaching style might not be decisively negative. According to Mageau & Vallerand (2003), a highly competitive sporting context, which puts pressure on people to perform, is more likely to reveal a controlling interpersonal style from the coach. A controlling coach is often referred to as "normal", and might be "expected" in the sporting domain. If the athletes accept this interpersonal style, viewing it as the "right" way for coaches to behave, their perceptions may reflect positively on this type of behavior. Moreover, coaches who take control and asserts

their opinions may be seen as knowledgeable and able, increasing their stature with the athletes.

Empirically, there appears to be no evidence linking controlling coach behavior to positive outcomes via a sense of expectedness or acceptance. Furthermore, contrary to this argument, Deci, Driver, Hotchkiss, Robbins & Wilson (1993) reported that controlling feedback from mothers was negatively linked to intrinsic motivation in children playing. Mothers would be a prime example of a significant other that one could expect controlling behaviors from. Therefore, if the perception of controlling feedback from a mother was associated with negative consequences, one could presume this to be true for coaches as well, regardless of whether it is perceived "normal" in the sporting domain.

It is important to note that the current study cannot ascertain anything regarding causality. It is possible that the participants in the current rapport were high in need satisfaction, influencing their perception of coach behaviors in a positive manner. Moreover, the clear majority of the research in this area, including the current rapport, has focused on the perceptions of coach behavior, rather than the actual behavior of the coach (Amorose, 2007). However, in an experimental study of adult athletes, Oliver, Markland, Hardy & Petherick (2008) showed that participants in controlling conditions engaged in less free-choice behavior and reported less interest and enjoyment for the tasks compared to those in an autonomy-supportive condition. The research by Oliver et al. does indicate that the interpersonal styles can be objectively defined, and have a causal relationship with outcome variables.

6.6 Controlling Behaviors – Performance anxiety

Insofar, the results regarding the controlling interpersonal style have been surprising. However, a positive direct link emerged between controlling coach behavior and performance anxiety, though it was not significant. This finding is more in line with the expectations regarding the controlling interpersonal style. Specifically, Bartholomew, Ntoumanis & Thøgersen-Ntoumani (2009) stated that some controlling strategies could have direct, negative, implications for the well-being of athletes. According to Bartholomew, Ntoumanis, Ryan, Bosch & Thøgersen-Ntoumani (2011), it could be that

controlling coach behavior is relevant in regard to indicators of compromised health and functioning. This was supported by Balaguer, González, Fabra, Castillo, Mercé & Duda (2012), who reported that whilst controlling behavior and need thwarting were related to burnout, no significant link to feelings of vitality emerged. Although the link did not approach significance in the current rapport, previous research has reported evidence for a relationship between coach behavior and performance anxiety (Smith, Smoll & Cumming, 2007). More importantly, the association points to the potential debilitative sides of a controlling interpersonal style, adding to the notion that these types of coach behaviors must be researched further.

6.7 Basic Needs – Enjoyment & Performance Anxiety

Quested, Bosch, Burns, Cumming, Ntoumanis & Duda (2011) reported that need satisfaction was a negative predictor of performance anxiety in fulltime dance students. In the current study, however, only competence emerged as having a significant, negative relationship with performance anxiety. This suggests that facilitating the need for competence may help hinder the experience of performance anxiety for sport. In the study by Quested et al. (2011) the relationship between need satisfaction and anxiety was mediated by threat appraisal. The authors suggested that an athlete high in competence is protected against performance anxiety, as they are less likely to perceive a performance as threatening.

Àlvarez, Balaguer, Castillo & Duda (2009) reported that total need satisfaction was directly and indirectly, via motivational regulation, related to enjoyment in youth soccer. In the current study, competence also appeared as the only significant positive predictor of enjoyment. This indicates that specifically satisfying the need for competence in soccer is an avenue for enjoying the sport. Scanlan & Lewthwaite (1986) reported that increased perceived ability lead to greater enjoyment in youth wrestling. Although perceived ability is not the same concept as the basic need for competence, the findings point to the importance of competence. The positive relationship between aspects of need satisfaction and the experience of enjoyment is not surprising. Theoretically, higher need satisfaction should lead to increased intrinsic, or self-determined, motivation and according to Reeve (1989) enjoyment contributes to intrinsic motivation by sustaining willingness to continue in an activity.

6.8 Indirect Effects

The results of the current rapport also showed an indirect negative link between autonomy-support and performance anxiety, via the satisfaction of competence. The same was also found for controlling coach behavior. Moreover, both autonomy-support and controlling behavior had a significant, positive effect on enjoyment, also via the need for competence. Although the relationships cannot be described as strong, they underline the importance for coaches to attempt to satisfy the need for competence. As previously mentioned, studies have shown that autonomy-support facilitates feelings of competence (Adie, Duda & Ntoumanis, 2008). Furthering this, the current results suggest that a controlling interpersonal style can also facilitate the satisfaction of competence. According to Fraser-Thomas & Côté (2009), being "pushed" by the coach, as well as being held to high standards, were parts of the positive experience of youth sports. The same authors stated that the coaches' belief in them was important to the athletes. Controlling behaviors from the coach could perhaps communicate high expectations, effectively telling the athletes that they are able to reach these standards. Further, if control from a coach increases the athletes' sense of competence, it could influence enjoyment, as perceived ability has been linked to enjoyment in sport (Scanlan & Lewthwaite, 1986). Therefore, it appears many different behavioral coaching strategies could be influential in satisfying the need for competence. The findings also underline the importance of doing so in order to facilitate a positive sporting experience.

6.9 Competence

The aforementioned finding suggests that competence might be more crucial in relation to enjoyment and performance anxiety, compared to the other two basic needs. From a developmental perspective, the importance of competence is clear. Individuals learn throughout their lifespan, and if people did not experience satisfaction from learning and mastering, they would be less likely to engage in domain specific tasks, develop new abilities and continue to improve innate skills (Deci & Ryan, 2000). If people never strived to develop themselves, it is likely that the human race would not be where it is today. Moreover, it is thought that around the age of 12, children move from an undifferentiated to an increasingly differentiated view of ability (Nicholls, 1989). A

differentiated view of ability means knowing the difference between effort and ability. The participants in current rapport could have been going through this transition at the time of the study. This shift could make the need for competence greater, as the realization that effort does not equal ability is likely to make competence appear more difficult to attain.

The significance of competence in youth soccer has been emphasized by the current results. Although all basic needs are thought to be important for well-being, Ryan & Deci (2000) stated that the salience of each need is relative. They further argued that the relative influence of each need is dependent on the functional significance in any given situation or environment. Reinboth, Duda, Ntoumanis (2004) stressed the contextual importance of competence in sport, suggesting that it plays a more essential role in relation to well-being here compared to other domains. Previously, a desire to display and extend competence has been found to be a part of youth's decisions to partake in sports (Coakley & White, 1992). Moreover, Coakley & White (1992) reported that the need to feel competent was relevant for youths who considered themselves poorly skilled as well as athletes high in perceived ability. The highly competent athletes, the authors found, often struggled with a notion that their skills had "reached their peak". Satisfying the need for competence appears to be important for athletes of all levels, and not only for those low in actual competence. This is conceptually coherent, as a need deficit is not the basis for need satisfaction (Deci & Ryan, 2000). Functionally, this means that an athlete does not have to feel low in competence to seek out actions that will satisfy this need.

Based on the findings reported so far a coach should aim to satisfy all athletes' need for competence. Competition is probably the most obvious source of competence-related information, and should not be discredited (Deci, Betley, Kahle, Abrams & Porac, 1981). However, outcomes such as winning may be difficult for coaches to control. Interestingly, Vansteenkiste & Deci (2003) stated that positive feedback can serve to counteract the negative implications of losing, as well as the control by contingent rewards. Reid and Vallerand (1984) conducted a study investigating the relationship between feedback, perceived competence, and intrinsic motivation in physical education students performing a stabilometer task. The result showed that negative feedback

decreased both intrinsic motivation and perceived competence. Although winning, or performing well, offers positive information regarding competencies, it is likely that coaches can offer some information regarding athletes' abilities, regardless of results and performances. This is supported by the positive links between the interpersonal coaching styles and the need for competence in the current study, suggesting that coaches are involved in the satisfaction of this need. Furthermore, Amorose & Horn (2000) reported that coach behavior had a greater relative impact on the intrinsic motivation of elite college athletes, compared to that of scholarship status. In the college system, level of scholarship is an external reward given as a function of ability. Therefore, this body of research suggests that coaches may be able to influence need satisfaction, and motivation, and potentially more so than external rewards or performance outcomes.

Miller, Chen and Zhou (2007) stated that situations where individuals experience performance anxiety elicit increased cortisol secretion because they often appear uncontrollable. Based on this, the authors postulated that athletes high in perceived autonomy may be somewhat protected against this physiological response as they are performing at their own volition. Moreover, Quested, Bosch, Burns, Cumming, Ntoumanis & Duda (2011) reported that high need satisfaction was associated with lower cortisol responses during a dance performance. However, Quested et al. used a composite score for need satisfaction. Therefore the results do not reveal anything regarding the separate needs. Although no physiological markers of performance anxiety were included in the current rapport, autonomy did not appear to protect against the worry aspect of performance anxiety. A situation could be perceived as uncontrollable to an athlete if he or she perceives their competence to be insufficient for the task at hand. Or, when having the need for competence met situations may be less likely to appear uncontrollable, regardless of the level of autonomy experienced. Therefore the definition of an "uncontrollable situation" may not reflect the extent to which a person feels that they are the origin of their behavior, but rather to which degree they can control the performance outcome, depending on their competencies.

Although the results regarding the need for competence was expected, not all research is in agreement with the current findings. Brustad (1988) reported results contrary to the

current study, as no significant relationship was reported between levels of perceived basketball competence and performance anxiety in youth athletes. The same study did report a negative link between general self-esteem and the same concept of anxiety. Brustad, (1988) explained the findings as a result of the increased power of self-esteem in relation to a child's self-perceptions, compared to that of domain specific factors, because it is an enduring, over-all perception of self-worth. As the need for competence in the current rapport was measured as it pertains to soccer, satisfaction of a more global need for competence cannot be discussed in the current rapport.

According to theory the satisfaction of the need for competence should result in adaptive consequences, as was reflected in the current rapport. However, Ntoumanis & Standage (2009) reported results contrary to this. In a study with athletes between 18 and 25 years of age, the need for competence was a positive predictor of less self-determined motivation (Ntoumanis & Standage, 2009). Furthermore, competence emerged as having a positive indirect link with antisocial attitudes. The authors suggested that these findings could be due to the measure of extrinsic motivation focusing on the preoccupation with one's own physical competence, referring to an external view of competencies. Although SDT views competence as a unitary construct, Ntoumanis & Standage (2009) stated that it would be interesting to investigate different aspects of the need for competence; comparative and self-referenced, respectively. This information could be valuable for coaches, aiding them in satisfying their athletes' basic need for competence in an adaptive manner. Reinboth, Duda & Ntoumanis (2004) investigated the perceived focus on improvement and mastery by a coach, and found a link between this and the satisfaction of the need for competence. In a longitudinal study of adolescent female handball players, Sarrazin, Guillet & Cury (2001) concluded that a mastery-focused environment over a seven-month season influenced need satisfaction. Moreover, the opposite was found regarding an environment that emphasized normative ability and competition. Jakobsson (2012) reported that adolescents who continued participating in sport despite not training to be an elite, saw competition as motivational and enjoyable, and focused more on challenges rather than becoming a winner.

The items used to measure the satisfaction of competence in the current rapport were self-referenced, with no normative comparisons included in the statements. However, five of the six items concerned performance and doing well. The sixth item referred to which degree the athletes felt that they had mastered the skills they had attempted. This was also the item with the weakest loading onto the latent construct (.63). Although the current rapport offers no definitive evidence pointing towards a differentiated competence concept, it would be interesting to empirically investigate this further. Effort and improvement are likely to be more controllable sources of ability evaluation, making this focus a fruitful avenue for the satisfaction of the athletes need for competence (Reinboth, Duda & Ntoumanis, 2004).

6.10 Autonomy

Contrary to the hypothesis, autonomy did not appear to have a significant link to neither enjoyment nor anxiety. Based on SDT, need satisfaction should result in well-being, and oppose ill-being (Deci & Ryan, 2000). Enjoyment has not been extensively researched using a SDT perspective. However, Àlvarez, Balaguer, Castillo & Duda (2009) reported that total need satisfaction was directly associated with the enjoyment in youth soccer. Moreover, previous research has mentioned autonomy as an antecedent of enjoyment in the physical education domain (MacPhail, Gorely, Kirk & Kinchin, 2008). Moreover, Reinboth et al. (2004) revealed a positive, albeit weak, relationship between the need for autonomy and self-reported vitality and intrinsic interest in sport. Although a stronger positive link between the need for competence and the same outcomes were shown, the results indicated that autonomy is important for positive outcomes in sport.

According to Ryan & Deci (2000), the type and degree of an individual's need satisfaction is influenced by their own competencies, but also ambient demands, obstacles and allowances in different social contexts. A youth soccer environment may place increased importance on the need for competence. Even more so, autonomy may actually be somewhat antagonistic to the sporting culture. Kipp & Weiss (2013) reported no link between the need for autonomy and indices for well-being, and argued that autonomy may not be as prevalent in a sport such as gymnastics. However, the participants in the current study did not report low levels of autonomy, suggesting that

this need was accommodated for. Therefore, likely it is not the prevalence of autonomy, but the relative importance of competence in the youth soccer environment that could explain the lack of significant relationships between autonomy and the two outcome variables.

Although the relative salience of needs may explain why competence was the only basic need to show a significant relationship with enjoyment and performance anxiety, it does not explain the nature of the non-significant links between autonomy and the outcomes. Autonomy had a negative link with enjoyment, and positive link with performance anxiety. The psychological need for autonomy is defined as the degree to which an individual perceives the activity to be endorsed by oneself, and is thought to be crucial for their motivational regulation to be integrated (Ryan & Deci, 2000). However, being the origin of ones engagement in soccer may also bring about a sense of responsibility for ones own behavior and performance. It is possible that this could be interpreted as debilitating, especially for young athletes who may not be ready for this type of responsibility. However, this line of thought is contradicting to theory, as the basic needs are thought to be essential and facilitative throughout the lifespan (Deci & Ryan, 2000). Moreover, Deci & Ryan (2011) stated that everyone, regardless of who they are, must satisfy each of the needs for optimal functioning and well-being. This is thought to be true even if the person themselves do not value a specific need.

It could be that the current results are due to a matter of definition. If, as stated by Deci, Driver, Hotchkiss, Robbins & Wilson (1993), the manner by which basic needs are satisfied differ throughout the lifespan it is likely that a universal measure of autonomy is not accurate enough to discovered age related differences. Autonomy should perhaps have different operational definitions for specific developmental stages. Furthermore, in the introduction, it was stressed that autonomy is not the same as independence (Deci & Ryan, 2000), although, according to Ryan (1995), independence is dynamically related to autonomy. If the autonomy measured in the current rapport actually reflected perceived independence it could explain the nature of the non-significant links.

6.11 Relatedness

Surprisingly, relatedness did not emerge as a significant predictor of either enjoyment or anxiety. The participants did score high on relatedness, suggesting that they felt connected to others in the soccer domain. The lack of a significant association is inconsistent with theory, as according to SDT (Ryan & Deci, 2000) a basic need is an energizing state; if satisfied it conduces health and well-being, and when not satisfied it contributes to ill-being. In a study of adolescent gymnasts, Kipp & Weiss (2013) reported that coach relatedness (i.e. the relatedness experienced with the coach, not peers) was positively related to positive affect. The same study also showed that relatedness with teammates was positively related to self-esteem and negatively related to disordered eating. This led the authors to conclude that a sense of connectedness to the coach appeared to be important for short-term well-being. In the current study, the items used to assess relatedness were phrased with the words "others", therefore lacking the coach/teammate distinction.

Reinboth, Duda & Ntoumanis (2004) reported similar results to the current rapport, as relatedness did not predict any measures of ill or well-being. Reinboth and colleagues explained this by competence, and to some extent autonomy, being more important in the sporting domain. Therefore, the role of relatedness regarding the well-being of athletes takes a backseat. Deci & Ryan (2000) also discussed that autonomy and competence are more powerful in their influence on the likes of intrinsic motivation, and relatedness might be a more distal factor. According to Deci & Ryan (2000) it is likely that relatedness offer a secure backdrop for self-determination, which facilitates an internal locus of causality more easily, and makes it more robust. It could therefore be that relatedness only becomes influential if the other needs are low, or when the need is not perceptively met.

Insofar, the same argument has been used to explain the lack of significant relationships between both autonomy and relatedness, and the outcome variables. The relative salience of competence in the sporting domain could cause autonomy and relatedness to be less influential. However, it is worth mentioning that relatedness, as autonomy, emerged as having a non-significant negative association with enjoyment. The nature of this relationship point to the potential negative aspects of satisfying the need for

relatedness. Jakobsson (2012) reported that youth athletes regarded sporting peers and coaches as sources of social pressure, and the athletes stated that they sometimes went to practice and competition only to avoid disappointing others. Moreover, according to Jakobsson (2012), saying no to other activities and plans because of training were perceived as stressful. Perhaps relatedness, as autonomy, can add a sense of responsibility, and pressure, which is not necessarily harmonious with outcomes such as enjoyment.

6.12 Limitations and Future Directions

It is important to acknowledge several limitations of the current rapport. Firstly, the empirical research was conducted in a cross-sectional manner. Inherent throughout the discussion is an assumption that coach behavior, athlete motivation and affective outcomes are causally associated. However, the disadvantage of the current study design is that the dependent and independent variables are measured at the same time point. Therefore, one cannot discern anything regarding causality (Thomas, Nelson & Silverman, 2005). The interpretation of findings is therefore limited. Amorose (2007) commented on the vast use of this research design when investigating coach influence on motivation, stating that we are restricted in our knowledge of the process, and changes in patterns. Moreover, according to Mageau & Vallerand (2003), the coach-athlete interaction is a reciprocal one, and a coach reacts to each of their athletes perceived and actual motivation, as well as their behaviors. The present line of inquiry would benefit from researchers using longitudinal studies, investigating the same motivational process. Another limitation of the current study is the focus on the youth soccer environment. Generalizations to other sports should be done with caution, due to differences in contexts, structure and size.

The current data was collected using self-report questionnaires, which is linked to several limitations. For example, social desirability refers to the tendency individuals have to present themselves in a favorable light, regardless of how they actually feel and think about a topic (Podsakoff, MacKenzie, Lee & Podsakoff, 2003). Another method bias is leniency biases, which refers to a tendency to attribute positive attitudes and behaviors to people they know and like, e.g. a coach (Podsakoff, MacKenzie, Lee & Podsakoff, 2003). These types of methodological issues are problematic. In a review,

Podsakoff, MacKenzie, Lee and Podsakoff (2003) stated that potential consequences of such issues include biased answers and masked relationships between variables. Furthermore, Adie, Duda & Ntoumanis (2008) suggested that applying objective measures of coach behavior, as well as the use of physiological markers as outcomes, would advance research in this area.

SEM was used as the method of analysis as it has been used in similar studies. However, this is simply a statistical tool, which requires a strong theoretical basis. As mentioned previously, the unexpected results regarding controlling coach behavior could be due to a suppression effect. The current study should be carried out with a different sample, in order to investigate this further. Moreover, the motivational regulations were not included in the model of the motivational process. The OIT is an integral part of SDT, which is missing in the current rapport. According to Ryan, Williams, Patrick & Deci (2009), the different motivational regulations have unique characteristics, and differ in both antecedents and consequences. Therefore the results do not infer whether need satisfaction gives direct nutriments to the feeling of enjoyment or low performance anxiety, or if it is mediated through the PLC. The decision to leave out the regulations was done mainly on an analytical basis, avoiding overcomplicating the model, which reduces the quality of the results. Future research will be advised to investigate how other variables within SDT pertain to the motivational process. Examples include motivational regulations, but also causality orientations, aspirations and life goals as well as mindfulness (Deci & Ryan, 2008).

The current rapport includes two interpersonal coaching styles, which have both received empirical attention. However, Mageau & Vallerand (2003) stressed that for a more complete understanding of coach behavior, researchers must look beyond the traditional dichotomy of controlling versus autonomy-support. Another example of an interpersonal coaching style is social-supportive, which can be defined as caring, giving emotional support and creating an interpersonal relationship with the athletes (Amorose & Horn, 2001). Previous research has shown that the perception of a caring climate created by the coach was associated with liking one's coach and teammates, extending caring behaviors, enjoyment and intent to continue participation (Fry & Gano-Overway, 2010). Specific strategies pertaining to a social-supportive interpersonal style was not

included in the current rapport. Adding this to the motivational process would produce a more comprehensive model, and future research should include at least some social-supportive strategies. Furthermore, as mentioned previously, structure and involvement are also potential factors that could be added to the motivational process, to further our understanding of the impacts on athlete motivation.

Another aspect of the social environment surrounding sport that deserves attention is peer relationships. According to Brustad, Babkes & Smith (2001) peers become more important influencers in early adolescence. Interestingly, Kipp & Weiss (2013) reported that whilst coach behavior in gymnastics was more salient in the experience of autonomy, a perception of high quality friendships with peers were more influential in regard to the need for competence. Moreover, perceived peer relationships have been associated with physical self-worth and affective responses towards sports (Weiss & Duncan, 1992). Therefore, future studies should aim to include the relationships between athletes when investigating social influences on motivation.

Researchers have suggested that investigating coaching strategies separately will give a more detailed examination of the social environment impacting athletes (Bartholomew, Ntoumanis, Thøgersen-Ntoumani, 2011). Bartholomew, Ntoumanis & Thøgersen-Ntoumani (2010), commented on the limited amount of research investigating coaches' controlling motivational strategies. Defining strategies and behaviors pertaining to control, autonomy-support, social-support and peer relationships, as well as investigating several aspects simultaneously will offer a more detailed understanding. It will help elucidate the social factors influencing athlete motivation at any given time. Moreover, it will help focus the research, and make it easier to communicate the findings to practitioners.

The 2006 FIFA Big Count showed an astounding 54 % increase in the number of female soccer players from 2000 to 2006 (Kunz, 2007). However, Gill (2002) commented on the lack of gender specific research, despite what she refers to as "the pervasiveness and power of gender in sport and the infinite number of psychological questions we could ask…" (p. 355). Coackley & White (1992) reported some gender specific differences when investigating decision-making regarding sports participation. Females were less likely to identify themselves as sportspersons, and were reported to

be more influenced by significant others, such as boyfriends, friends or parents when it came to sport participation. However, more pertinent, Coakley & White (1992) showed that past experiences with sports were more negative for females. They mentioned aspect such as discomfort, embarrassment, lack of privacy, lack of choice and feeling incompetent as part of their previous sporting experience. According to Coakley & White (1992), many of the young females in the study had been "switched off" sports before they finished school.

The more we are able to accommodate for individual athletes, one can sagaciously believe that the better the sporting experience will become. Previous research has found that the motivational process in youth sports was largely invariant across gender (Standage, Duda & Ntoumanis, 2005). However, today's soccer world is largely carried out separating the genders from an early age. Based on the points above, and the somewhat novel findings in the current rapport, it could be worth investigating the same motivational process separating the genders. If there are any differences, small or large, it should be easy for practitioners tnoo account for these differences.

6.13 Implications

Based on the results of the current rapport, some recommendations are offered to practitioners involved in youth sports. Most importantly, coaches need to be aware of the potential influence they have on athletes' perceived satisfactions of psychological needs, and on important outcomes such as enjoyment and the experience of performance anxiety. Adopting an autonomy-supportive interpersonal style appears to be beneficial in regard to need satisfaction and several outcome variables. Moreover, according to Mageau & Vallerand (2003) coaches often employ a controlling interpersonal style because "there are false beliefs about the efficiency of controlling motivational strategies" (p. 899). However, the current results suggest that presenting controlling strategies in youth sport is not necessarily debilitating for athlete motivation. However, based on the strength of the relationships and potential methodological issues, adopting an autonomy-supportive style is advised.

Careful consideration should be given to the athletes' satisfaction of competence in facilitating enjoyment, and reducing performance anxiety. Competence appears to be

the more salient need in the youth soccer environment. Emphasis should therefore be on creating an environment that allow all athletes, both highly skilled and not, an opportunity to feel competent, and experience mastery.

The focus throughout has been on facilitating beneficial motivational responses on behalf of the athletes, and how this relates to two different outcomes. However, it is important to remember that from a developmental perspective, coaches should communicate their sports values and not just induce behaviors (Mageau & Vallerand, 2003). Moreover, ensuring a positive sporting experience goes beyond the coach. Policy makers, sport programmers and parents all have important roles in create favorable experiences for those participating in youth sports (Fraser-Thomas, Côté & Deakin, 2005). Therefore, practitioners should stay abreast of current research, and apply findings to coach education programs, as well as the sport programs themselves. Moreover, practitioners should move away from a "deficit reduction" approach, and focus on creating a facilitative soccer environment throughout, from the first kick to the last soccer match (Fraser-Thomas, Côté & Deakin, 2005).

7. Conclusion

The current rapport set out to investigate the motivational process of the youth soccer environment, contributing to the growing literature on coach behavior and athlete motivation. Variables pertaining to CET and BNP were studied along with two affective outcomes; enjoyment and performance anxiety, respectively. The study was cross-sectional, creating two sequential models based on the relationships between variables, using SEM. The aim was to further the understanding of how coach behavior is related to aspects of athlete motivation, and outcomes that may ensue. The current findings provide support for the use of SDT in the soccer environment, providing evidence for associations between the variables. Limitations have been discussed, together with future directions, and potential implications based on the results have been mentioned.

Despite the aforementioned limitations, some conclusions can be drawn. The central part of the process, as presented here, is that when coaches are perceived as acting in an autonomy-supportive manner, athletes appear to feel more autonomous in their actions, feel competent as well as connected to others. Contrary to the hypothesis, the same was shown for a controlling interpersonal style, albeit to a lesser extent. As Deci & Ryan (2000) so simply put it, need satisfaction specify under which conditions individuals can "most fully realize their human potentials" (p. 283). Therefore the current rapport suggests that whilst an autonomy-supportive coach can help athletes reach their potential, a controlling interpersonal style might do the same.

The hypothesis stated that basic need satisfaction is positively related to enjoyment, and negatively related to performance anxiety. However, in the current rapport, competence emerged as the only basic need to have a significant relationship with enjoyment and performance anxiety in youth soccer. Furthermore, both interpersonal styles related positively to enjoyment, and negatively to performance anxiety, via the satisfaction of the need for competence. The current study underlines the salience of competence in the sporting domain. Moreover, the importance of investigating the needs separately is emphasized.

Lastly, the current rapport presents some novel findings, although more research is needed to investigate if the results can be replicated. Notwithstanding, most importantly, the value of using of the motivational process to measure variability and outcomes in the sporting domain is reinforced.

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Appendix

Appendix A: Measures

UNIVERSITETET I BERGEN
HEMIL - senteret

NORGES IDRETTSHØGSKOLE
NORWEGIAN SCHOOL OF SPORT SCIENCES

TRIVSEL I BARNE- OG UNGDOMSFOTBALL

SPØRRESKJEMA TIL SPILLERE

VÅR 2011

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

INSTRUKSJONER

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

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

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

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

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

På forhånd takk for hjelpen!

Bente Wold
Professor, Universitetet i Bergen

Yngvar Ommundsen
Professor, Norges Idrettshøgskole

1. Skriv fødselsdagen din her: **_____/_____/_____**

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

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

0	1	2	3	4	5	6	Mer enn 6

3. Er du gutt eller jente?

Gutt ☐ Jente ☐

De neste spørsmålene handler om din erfaring med å spille fotball

4. Hva heter laget du spiller på? _____

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

_____

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

6. Hvor mange **sesonger (år)** har du spilt på dette laget?
_____

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

_____ ganger.

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

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

❑	❑	❑	❑	❑	❑	❑	❑
Mindre enn 1 år	1 år	2 år	3 år	4 år	5 år	6 år	Mer enn 6 år

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

❑	❑	❑	❑	❑	❑	❑	❑
Mindre enn 1 år	1 år	2 år	3 år	4 år	5 år	6 år	Mer enn 6 år

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

❑	❑	❑	❑	❑	❑
0	1	2	3	4	Mer enn 4

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

❑	❑	❑	❑	❑
Ingen	1	2	3	Mer enn 3 lag

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

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

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

15. fordi jeg er nødt til å fortsette	1	2	3	4	5

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

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

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

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

13.	jeg gjør mitt aller beste	1	2	3	4	5

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

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

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

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

Før eller mens jeg spiller fotballkamp…	**Svært uenig**	**Uenig**	**Verken enig eller uenig**	**Enig**	**Svært enig**
1. er jeg redd for at jeg skal spille dårlig	1	2	3	4	5
2. er jeg bekymret for at jeg skal svikte de andre på laget	1	2	3	4	5
3. er jeg bekymret for at jeg ikke skal gjøre mitt beste	1	2	3	4	5
4. er jeg redd for at jeg ikke skal spille godt nok	1	2	3	4	5
5. er jeg engstelig for at jeg skal rote det til under kampen	1	2	3	4	5

17. Sett en ring rundt tallet som passer best med hvor enig eller uenig du er med hver av påstandene. Når du svarer, må tenke på **hvordan du som regel hadde det på laget ditt den siste måneden.**

I løpet av den siste måneden…	Svært Uenig	Uenig	Verken enig eller uenig	Enig	Svært Enig
1. likte jeg vanligvis øvelsene vi hadde på trening	1	2	3	4	5
2. syntes jeg at det var interessant å spille fotball	1	2	3	4	5
3. syntes jeg at tiden gikk veldig fort når jeg spilte fotball	1	2	3	4	5
4. var det gøy å spille fotball	1	2	3	4	5

18. Denne lista beskriver ting som trenere kan gjøre eller si til spillere. Når du svarer på disse spørsmålene, er det viktig at du tenker på hva hovedtreneren din vanligvis sier eller gjør. Hvordan er det på laget ditt mesteparten av tiden?

	Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
1. Treneren oppmuntrer spillerne til å prøve nye ting de ikke kan fra før.	1	2	3	4	5
2. Treneren er mindre grei med spillerne om de ikke prøver å se ting slik han/hun gjør	1	2	3	4	5
3. Treneren gir spillerne valg og alternativer	1	2	3	4	5
4. Treneren sørger for at spillerne føler at de lykkes godt når de gjør sitt beste	1	2	3	4	5
5. Treneren bytter ut spillere når de gjør en feil	1	2	3	4	5
6. Treneren synes det er viktig at vi spiller fotball fordi vi vil det selv	1	2	3	4	5
7. Treneren er mindre støttende for spillere når de ikke trener og spiller godt	1	2	3	4	5

		Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
8.	Spillerne kan stole på at treneren bryr seg, uansett hva som skjer	1	2	3	4	5
9.	Treneren er mest oppmerksom på de beste spillerne	1	2	3	4	5
10.	Treneren skjeller ut spillere når de gjør feil	1	2	3	4	5
11.	Treneren roser spillere som forbedrer seg	1	2	3	4	5
12.	Spillere som gjør treneren misfornøyd får mindre oppmerksomhet	1	2	3	4	5
13.	Treneren belønner de spillerne som prøver hardt	1	2	3	4	5
14.	Treneren setter pris på spillerne som personer, ikke bare som fotballspillere	1	2	3	4	5

		Svært uenig	Uenig	verken enig eller uenig	Enig	Svært Enig
15.	Vi får noen ganger lov til å gjøre noe ekstra gøy mot slutten av treningen, men bare dersom vi har vært flinke	1	2	3	4	5
16.	Dersom vi spør treneren om noe, svarer han/hun grundig og skikkelig på spørsmålene våre	1	2	3	4	5
17.	Treneren overser spillere som gjør han/henne misfornøyd	1	2	3	4	5
18.	Treneren sørger for at hver spiller bidrar på en eller annen måte	1	2	3	4	5
19.	Alle på laget vet hvilke spillere treneren liker best	1	2	3	4	5
20.	Vi får noen ganger ros eller belønning av treneren, men bare dersom vi har spilt godt	1	2	3	4	5

21.	Treneren roser bare de som spiller best på kamper	1	2	3	4	5

		Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
22.	Når treneren ber spillerne om å gjøre noe, prøver han/hun å forklare hvorfor det vil være bra å gjøre det slik	1	2	3	4	5
23.	Treneren sørger for at spillerne har en viktig rolle på laget	1	2	3	4	5
24.	Treneren skjeller noen ganger ut spillerne foran andre for å få dem til å gjøre ting	1	2	3	4	5
25.	Treneren lar de beste spillerne spille mest på kamp	1	2	3	4	5
26.	Treneren truer noen ganger med å straffe spillere for å holde orden på dem	1	2	3	4	5
27.	Treneren hører på hva vi har å si dersom vi forteller han/hun hvordan vi har det	1	2	3	4	5
28.	Treneren sier at alle spillerne er viktige for at laget skal lykkes.	1	2	3	4	5

		Svært uenig	Uenig	Verken enig eller uenig	Enig	Svært enig
29.	Treneren bruker belønninger for å få spillerne til å gjennomføre øvelsene på treningen	1	2	3	4	5
30.	Treneren oppmuntrer spillerne til å hjelpe hverandre til å lære mer	1	2	3	4	5
31.	Treneren er alt for opptatt av hva spillerne gjør på fritiden.	1	2	3	4	5
32.	Treneren mener det er viktig at spillerne er med fordi de selv har lyst til det	1	2	3	4	5
33.	Treneren har favoritter blant spillerne	1	2	3	4	5

34.	Treneren oppmuntrer spillerne til å jobbe sammen som et lag	1	2	3	4	5

19. På fotball-laget vårt…

		Svært uenig	Uenig	verken enig eller uenig	Enig	Svært enig
1.	har vi mye til felles	1	2	3	4	5
2.	forstår vi hverandre godt	1	2	3	4	5
3.	er vi åpne med hverandre	1	2	3	4	5
4.	stoler vi på hverandre	1	2	3	4	5
5.	har vi et godt samhold	1	2	3	4	5
6.	stiller vi opp for hverandre	1	2	3	4	5

20. Hva tenker du nå for tiden om hvor lenge du kommer til å fortsette å spille fotball?

		Svært uenig	Uenig	verken enig eller uenig	Enig	Svært enig
1.	Jeg kommer til å slutte å spille fotball etter denne sesongen	1	2	3	4	5
2.	Jeg har tenkt å fortsette å spille fotball neste sesong	1	2	3	4	5
3.	Jeg tenker på å slutte på dette laget	1	2	3	4	5
4.	Jeg kan tenke meg å fortsette å spille for hovedtreneren min etter denne sesongen	1	2	3	4	5

21. Utenom trening og kamper med laget ditt, hvor mange GANGER i uka spiller du fotball på fritiden?

- ☐ hver dag
- ☐ 4-6 ganger i uka
- ☐ 2-3 ganger i uka
- ☐ en gang i uka
- ☐ en gang i måneden
- ☐ mindre enn en gang i måneden
- ☐ aldri

Med fysisk aktivitet mener vi aktiviteter som gjør at du en del av tiden får økt puls og blir andpusten. Fysisk aktivitet er for eksempel idrettsaktiviteter etter skolen, aktiviteter på skolen, det å leke med venner eller å gå til skolen. Andre eksempler er å løpe, stå på skateboard, sykle, svømme, spille fotball, stå på ski/snowboard eller danse.

22. Utenom skoletid: Hvor mange GANGER i uka driver du idrett, eller mosjonerer du så mye at du blir andpusten og/eller svett?

- ☐ hver dag
- ☐ 4-6 ganger i uka
- ☐ 2-3 ganger i uka
- ☐ en gang i uka
- ☐ en gang i måneden
- ☐ mindre enn en gang i måneden
- ☐ aldri

23. Utenom skoletid: Hvor mange TIMER i uka driver du idrett, eller mosjonerer du så mye at du blir andpusten og/eller svett?

- ☐ ingen
- ☐ omtrent 1/2 time
- ☐ omtrent 1 time
- ☐ omtrent 2-3 timer
- ☐ omtrent 4-6 timer
- ☐ 7 timer eller mer

*****De neste spørsmålene handler IKKE om fotball, men om hvordan du har det generelt i livet ditt.*****

24. I hvilken grad føler du deg vanligvis…?

	Veldig lite	Lite	Middels	Mye	Veldig mye
1. interessert	1	2	3	4	5
2. skamfull	1	2	3	4	5
3. fortvilet	1	2	3	4	5
4. lykkelig	1	2	3	4	5
5. inspirert	1	2	3	4	5
6. nervøs	1	2	3	4	5
7. skremt	1	2	3	4	5
8. skjelven	1	2	3	4	5
9. glad	1	2	3	4	5
10. engasjert	1	2	3	4	5

Under finner du en rekke **påstander som handler om hva du tenker om deg selv.**

25. Når du svarer på spørsmålene, tenk på **hvordan du SOM REGEL tenkte den siste måneden.** Sett en ring rundt tallet som passer best for hvor enig du er i hver av påstandene.

I løpet av den siste måneden, har jeg følt at...	Svært uenig	Uenig	Verken Enig eller uenig	Enig	Svært enig
1. jeg har mye å være stolt av	1	2	3	4	5
2. jeg ikke var verdt noe	1	2	3	4	5
3. mye av det jeg har gjort har vært fint	1	2	3	4	5
4. lite av det jeg gjorde ble bra	1	2	3	4	5
5. mesteparten av det jeg gjorde gikk greit	1	2	3	4	5

26. Vil du si at din helse er...?

☐ svært god

☐ god

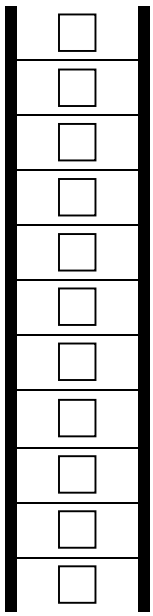
☐ ganske god

☐ dårlig

27. Her er et bilde av en stige. Øverst på stigen (10) står for det best mulige livet for deg og nederst på stigen (0) er det verst mulige livet for deg.

Generelt sett hvor synes du at du står på stigen nå for tiden?

Sett kryss i den boksen som står ved siden av nummeret som best forteller hvor du står.



10 **Best mulig liv**
9
8
7
6
5
4
3
2
1
0 **Dårligst mulig liv**

28. I løpet av den siste måneden…	**Svært Uenig**	**Uenig**	**Verken enig eller uenig**	**Enig**	**Svært Enig**
1. følte jeg meg opplagt	1	2	3	4	5
2. var jeg i godt humør	1	2	3	4	5
3. gledet jeg meg til hver dag	1	2	3	4	5
4. følte jeg meg kvikk og våken	1	2	3	4	5
5. hadde jeg masse energi	1	2	3	4	5

29. Hvor mange ukedager (ikke helg) spiser du vanligvis frokost (mer enn et glass melk eller juice)?

- ☐ Jeg spiser aldri frokost
- ☐ En dag
- ☐ To dager
- ☐ Tre dager
- ☐ Fire dager
- ☐ Fem dager

30. Hvilket land kommer din mor fra?

Norge	☐	USA	☐
Sverige	☐	Canada	☐
Andre Europeiske land	☐	Sør Amerika	☐
Afrika	☐	Vet ikke	☐
Asia	☐		

31. Hvilket land kommer din far fra?

Norge	☐	USA	☐
Sverige	☐	Canada	☐
Andre Europeiske land	☐	Sør Amerika	☐
Afrika	☐	Vet ikke	☐
Asia	☐		

32. Hvor god råd har din familie?

- ☐ svært god råd
- ☐ god råd
- ☐ middels god råd
- ☐ ikke særlig god råd
- ☐ dårlig råd

TUSEN TAKK FOR HJELPEN!