A SOCIAL-COGNITIVE INVESTIGATION OF THE COACH-CREATED MOTIVATIONAL CLIMATE AND COACHING BEHAVIOR IN NORWEGIAN YOUTH SWIMMING

A Thesis Submitted in Partial Fulfillment of the Requirements for the Degree

Master of Art Sport and Exercise Psychology

Department of Coaching and Sport Psychology

Bård Erlend Rustad

The Norwegian University of Sport Sciences

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Therefore I do not run like a man running aimlessly;

I do not fight like a man beating the air.

1. Corinthians 9, 26.

DEDICATED TO…

To the best mom & dad – who raised me, guided me, and believed in me no matter what.

I could not have asked for better coaches.

Bård Erlend, 22.11.2009

ABSTRACT

Previous research findings have indicated that coaches play an important role in the construction of the motivational climate (Ames, 1992b; Roberts, 1993; Brustad, Babkes & Smith, 2001; Treasure, 2001; Smith, Fry, Ethington & Li, 2005; Smith & Smoll, 2007; Smith, Smoll & Cumming, 2007). Therefore, the main purpose of this study was to examine how athletes perceived their coaches' behavior and the corresponding motivational climate, and how these influenced a range of well-being parameters (e.g., athlete burnout, subjective vitality, as well as positive and negative affect). A total of 202 male and female Norwegian swimmers (ages 14-24) completed a battery of questionnaires (e.g., Motivational Climate Scale for Youth Sports, CBAS-PBS, Athlete Burnout Questionnaire, Subjective Vitality Scale, and the PANAS). Bivariate correlational analyses and a canonical correlation analysis were used to examine relationships between the variables. Consistent with earlier findings, athletes who perceived coaching behaviors that emphasized positive reinforcement, mistake-contingent encouragement, corrective instruction given in a positive and encouraging fashion, and proper technical instruction perceived a mastery climate (Smith *et al.*, 2005; Smoll & Smith, 2006; Smith & Smoll, 2007; Duda & Balaguer, 2007). In contrast, coaching behaviors that emphasized punitive technical instruction were positively correlated with an ego climate. However, perception of a mastery climate was also positively correlated with coaching behaviors that emphasized non-reinforcement, punishment, and ignoring mistakes. Further, our findings indicated that there was a positive correlation between an ego climate and the three dimensions of burnout, as well as total burnout. We also found a positive correlation between a mastery climate, subjective vitality, and positive affect.

Keywords: Norwegian swimmers, achievement goal theory, CBAS-PBS, motivational climate, burnout, subjective vitality, positive and negative affect.

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INTRODUCTION

A number of motivational theories have been proposed the last decades to examine the determinants and mechanisms considered to be most relevant to human behavior (Bandura, 1986). Mechanistic theories believe that human behavior is caused by various psychological needs, drives and instincts. On the other hand, cognitive theories believe that humans are active and that behavior is initiated through subjective perception of the achievement context (Roberts, 2001). Thus, different assumptions about humans separate mechanistic theories from cognitive theories. Contemporary motivational theories, however, are often labeled cognitive theories, and are part of the social cognitive approach to motivation (Ford, 1992). Bandura (1986) has argued that; *"in the social cognitive view people are neither driven by inner forces nor automatically shaped and controlled by external stimuli. Rather, human functioning is explained in terms of a model of triadic reciprocality in which behavior, cognitive and other personal factors, and environmental events all operate as interacting determinants of each other"* (p. 18).

The athletic environment offers several advantages as a naturalistic setting for research in sport psychology. It is possible for researchers to examine a range of psychological processes in this setting, such as learning, perception, attention, developmental processes, problem solving, motivation and emotion, social interaction between the coach and his/her athletes, and individual differences factors (Smoll & Smith, 1984, 1989; Smith & Smoll, 2007). Further, youth sport is a social institution which involves a significant segment of children and adolescents. In Norway, approximately 2 100 000 children and adolescents are members of the Norwegian Confederation of Sports, and of these are 46 000 registered as members of the Norwegian Swimming Association. Clearly, these numbers indicate that organized sports play an important role in the lives of children and adolescents in Norway (Sisjord & Skirstad, 1996).

The majority of young athletes participate in different types of sports mostly because they think it is fun. However, this does not make their participation and engagement in sport insignificant. Youth sport is an achievement arena where boys and girls are given the opportunity to enjoy the benefits of sport participation, to develop their physical skills and to promote the adoption of an active lifestyle (McArdle & Duda, 2002). Previous research has revealed that the coach-athlete interaction is decisive for young athletes' future involvement in sports (Barnett, Smoll & Smith, 1992). Therefore, responsible coaches have an obligation to give all athletes, both talented and untalented, an optimal encounter with the athletic environment. Thus, it becomes important for coaches who are involved with young athletes to understand and enhance their achievement motivation (Ames, 1992b; Duda, 1996; Roberts, 2001).

The study of coaching behavior and its influence on athletes are one of the most systematically studied areas in sport psychology (Chelladurai, 2007; Horn, 2008). However, Brustad *et al*. (2001) argue that; *"it should be recognized that, currently, research on coach influence does not receive attention proportionate to its importance to our field (…) particularly in relation to motivational and affective outcomes for young athletes"* (pp. 623-624). Previous research has revealed that coaches' feedback is related to athletes' perceived competence and satisfaction (Allen & Howe, 1998) and to athletes' self-perceptions and motivation (Black & Weiss, 1992). Other research studies have revealed that perception of coaching behavior is related to athletes' intrinsic motivation (Amorose & Horn, 2000) and to children's self-esteem (Smith & Smoll, 1990). Smith *et al*. (2005) has also suggested that coaching behavior contributes significantly to the athletes' perceptions of the motivational climate.

Smith, Smoll and colleagues examined the relationship between overt coaching behavior, athletes perception and recall of coaching behavior, and athletes attitudes toward

their coach by conducting field studies in the late nineteen seventies (Smith, Smoll & Curtis, 1978; Curtis, Smith & Smoll, 1979; Smith, Smoll & Curtis, 1979; Smith, Zane, Smoll & Coppel, 1983). Overall, the results revealed that coaches had either a positive or a negative impact on the lives of their athletes. Therefore, it is perhaps not surprising that previous research has suggested that a positive coach-athlete relationship can enhance the athletes` perceived improvement in different facets of the game, satisfaction with their competitive results, and ratings of their coach. In contrast, a negative coach-athlete relationship can increase athletes sport anxiety, and contribute to burnout and sport attrition (Barnett *et al*., 1992; Smoll, Smith, Barnett & Everett, 1993; Balaguer, Duda & Crespo, 1999; Lemyre, Treasure & Roberts, 2006; Smith, Smoll & Cumming, 2007).

The motivational climate is a multi-faceted construct. Two terms that are typically used in the achievement goal framework are "mastery climate" and "ego climate" (Smith, Cumming & Smoll, 2008). Research has revealed that athletes' perceptions of a strong mastery climate is positively correlated to adaptive learning strategies, intrinsic motivation, self-esteem, and low levels of anxiety (Roberts & Kavussanu, 1996; Ommundsen, Roberts & Kavussanu, 1998; Smith *et al*., 2008). Previous research has also shown that the perceived motivational climate is related to the variables that are of interest to the present study, such as athletes' psychological well-being, athlete burnout, specific types of coaching behavior, and positive and negative affect (Balaguer, Crespo & Duda, 1996; Balaguer, Duda, Atienza & Mayo, 2002; Pensgaard & Duda, 2003; Reinboth, Duda & Ntoumanis, 2004; Reinboth & Duda, 2004, 2006; Smith *et al*., 2005; Lemyre, Hall & Roberts, 2008).

The present study tries, therefore, to link athletes' perceptions of coaching behavior to the achievement goal theory (Nicholls, 1984b, 1989). To be aware of how overt coaching behavior influences the motivational climate, and how athletes perceive the motivational climate created by the coach is important in order to understand the motivational process in

youth sports (McArdle & Duda, 2002; Duda & Balaguer, 2007; Smith & Smoll, 2007). Thus, the main focus of the present study lies in identifying different types of coaching behavior in Norwegian swimming clubs, and to understand how these behaviors create either a mastery climate or an ego climate (Smith *et al.*, 2008). We also want to examine how the motivational climate created by the coach influences important well-being parameters, such as athlete burnout, subjective vitality, and positive and negative affect.

CHAPTER I

REVIEW OF LITERATURE

This chapter presents important theoretical concepts supporting the premises of the present study. First, the concept of motivation is presented from a social cognitive point of view (Roberts, 2001). Second, the content of achievement goal theory is presented (Nicholls, 1984a, 1984b, 1989). Its key constructs, conception of ability, states of involvement, achievement goals, and the motivational climate are believed to influence athletes' participation in youth sports. Third, research on coaching behavior is presented, followed by the mediational model of leadership and the Coaching Behavior Assessment System (Smith, Smoll & Hunt, 1977; Smoll, Smith, Curtis & Hunt, 1978). Fourth, contemporary research findings regarding athlete burnout, subjective vitality, and positive and negative affect is offered. Finally, the aim of the study and its hypotheses are stated.

THE CONCEPT OF MOTIVATION

Over the years a large number of research studies in sport psychology have focused on the study of motivation. In sport psychology, researchers have directed the investigation to the antecedents and consequences of achievement motivation (Duda, 1993). This of course, is not surprising as sport is an achievement-oriented context (Ntoumanis & Biddle, 1999; Smith &

Smoll, 2007). Maehr (1984) suggests that the goal of motivational research is to understand, predict and explain variation and existence of people's achievement behavior. Consequently, behavior is often used to assess athletes' motivation in sport (Roberts, 1993). Nicholls (1984b) argues that; *"...achievement behavior is that in which the competence of one's behavior is at issue – where the goal is to be, or to appear to be, competent rather than incompetent"* (p. 40). In sport, motivated behaviors is witnessed when athletes try harder, concentrate more, persist longer, pay more attention, perform better, chooses to practice longer, and join or drop out of sport (Roberts, 1993).

One of the contemporary ways of understanding motivation in sport is the social cognitive approach. Roberts (2001) argues that the social cognitive approach understands motivation as *"a social cognitive process in which the individual becomes motivated, or demotivated, through assessments of his or her competencies within the achievement context and of the meaning of the context to the person"* (p. 6). Roberts (2001) further defines achievement as *"the attainment of a personally or socially valued goal in a physical activity context"* (p. 7). Maehr (1983) suggests that personal goals and beliefs will influence an individual's course of action, and Maehr (1989) claims that we should focus on the role of purposes, intentions, and goals if we want to enhance our understanding of achievement motivation. Finally, Roberts (2001) describes an individual's motivation in physical activities as *"a dynamic and complex cognitive process, based on subjective assessment of the outcome by the participant depending on the goal of action and the meaning of the context to the participant"* (p. 7).

Ford (1992) defines motivation as *"the organized patterning of an individual's personal goals, emotions, and personal agency beliefs"* (p. 78). Personal goals may be derived from context cues, constructed from context information or defined through contextual demands and constraints. Typically, individuals will most likely adopt goals that

are shared by other participants or significant others in their achievement context (Ames, 1992b; Ford, 1992). As Nicholls (1989) suggests, the achievement goals adopted by individuals in achievement contexts are considered to be the critical determinants of achievement behavior. Personal goals are also expected to be culturally defined (Maehr & Nicholls, 1980). Ford (1992) argues that; *"culturally defined goals and goals assigned by teachers and employers can only have a motivational impact if they are adopted, in some form, as personal goals"* (p. 73). It has also been argued (e.g., Ntoumanis & Biddle, 1999) that emotion plays an important part in the motivational equation. Ford (1992) claims that emotions are an important source of energy in an individual's motivational pattern. Ford (1992) describes emotions as motivational processes because they give the individual evaluative information about his/her problems and opportunities of potential personal relevance and help the individual to prepare how he/she should deal with these problems and opportunities. Further, personal agency beliefs direct and regulate an individual's achievement behavior. Individuals' beliefs about their personal capabilities and the support from the environment will provide them with the information they need to decide whether to initiate, maintain, increase, or inhibit a goal-directed achievement striving (Roberts, 2001).

The Nature of the Meaning of Achievement

A fundamental tenet of achievement goal theory is that achievements in sports are subjectively defined (Spink & Roberts, 1980; Nicholls, 1989; Ames, 1992b; Roberts, 2001). It has been argued (e.g., Nicholls, 1989; Ames, 1992b; Roberts, 2001; Duda & Hall, 2001) that significant others (coaches/parents) have to take into account the function and meaning of individuals' achievement behavior and understand their goal of action, in order to understand their motivation in sport. Roberts (2001) suggests that coaches have to recognize the subjective meaning of behavior, and when they do, they discover the existence of more than

one goal of action in the achievement context. According to the achievement goal theory, a variety of achievement behaviors may not be an indication of high or low motivation per se, but rather that individuals try to accomplish different goals while they participate in an achievement activity (Roberts, 2001). It is also expected that an individual's achievement goals will determine his/her investment of personal resources, such as effort, talent, and time in the activity (Roberts, 2001). Maehr (1984) has suggested that; *"any information that is perceived as indicating that we are becoming what we want to become, is readily defined as success"* (p. 123).

Previous studies give support to a cross-cultural variation in achievement patterns (e.g., Maehr, 1974, 1978, 1984; Maehr & Nicholls, 1980). Cross-cultural research has to understand that conceptions of success and failure are psychological states, based upon an individual's perception of reaching or not reaching his/her goals (Maehr & Nicholls, 1980). More specifically, Maehr & Nicholls (1980) argue that; *"people do not seek to achieve goals because goals are there, but because goal attainment implies something desirable about themselves"* (p. 228). Therefore, it appears safe to assume that individuals' perceptions of success and failure are likely to be different if there are cultural differences in the personal qualities that are viewed as desirable (Maehr & Nicholls, 1980). Perhaps the problem may be that an individual's motivated behavior is directed to a number of goals in one culture, and to a number of other goals in another culture (Maehr, 1974).

ACHIEVEMENT GOAL THEORY

The framework adopted in this master thesis is derived from the achievement goal approach of John G. Nicholls (1984a, 1984b, 1989). Achievement goal theory (AGT) is a major theoretical paradigm in sport psychology research, and has become one of the most important and popular conceptual framework addressing motivation in sport and physical

education (Duda & Hall, 2001; Roberts, 2001). AGT is a social cognitive theory of motivation, and it evolved from the collaborative and independent work of Dweck (e.g., Dweck, 1986; Dweck & Leggett, 1988), Ames (e.g., Ames, 1992b), Maehr (e.g., Maehr & Nicholls, 1980), and Nicholls (e.g., Nicholls, 1984a, 1984b, 1989). Roberts (2001) argues that AGT only applies to those individuals who are trying to achieve a desired personal or socially valued goal while they are involved in an achievement task. However, individuals can be involved in an achievement task without having an achievement goal, but then the predictions of AGT do not apply to them. A final point, the energizing construct in AGT is an individual's desire to demonstrate competence or ability (Roberts, 2001).

Nicholls (1989) argues that individuals use the intentional approach when their thoughts and actions are seen as rationale or efficient in their attempts to accomplish certain goals in the achievement context. Moreover, individuals' achievement goals govern thoughts concerning achievement and guide decisions and behaviors in achievement contexts (Roberts, 2001). If we want to successfully use the intentional approach to predict an individual's achievement behavior, then we have to predict and describe his/her goals (Nicholls, 1984b). The AGT needs an individual to specify his/her goals, because without them, the theory can not determine the behavior that is useful to increase an individual's probability of achieving his/her goals (Nicholls, 1984b). Finally, AGT will not predict certain behaviors if they reduce an individual's probability of achieving his/her goals (Nicholls, 1984b).

Conception of Ability

Nicholls (1984a) argues that the goal of achievement behavior is to develop competence or perception of competence, and that this distinguishes it from other forms of behavior. Nicholls (1984a, 1984b) further argues that it exist two conceptions of ability in achievement contexts, to be more exact the less and more differentiated conception of ability.

When individuals use the less differentiated conception of ability, then their levels of ability and task difficulty are judged in relation to their personal improvement. On the other hand, when individuals use the more differentiated conception of ability, then their levels of ability and task difficulty are judged in relation to the performance of others (Nicholls, 1984a).

Adolescents' maturity makes them capable of adopting a more differentiated conception of ability, which make them capable of distinguishing ability from effort, luck, and task difficulty (Fry, 2001; Roberts, 2001), and this mature understanding of ability occurs at 12 or 13 years of age (Nicholls, 1984b). Although adolescents are capable of differentiate ability and effort when they have reached a certain developmental stage, this does not necessarily mean that adolescents will choose to use the capacity to evaluate themselves in relation to the performance of others (Nicholls, 1989).

The more differentiated conception of ability is embodied in achievement contexts where an individual's ability is compared with the performance of his/her teammates. Nicholls (1984b) argues that an individual's ability have to be compared with the performance of an appropriate reference group, if we are to make a correct assumption about his/her ability. However, a comparison between the individual's ability and his/her reference group will not reveal the individual's limitations if he/she exerts low effort. Nicholls (1984a, 1984b) further argues that effort will increase an individual's performance, however, effort will only increase an individual's performance up to the limit of his/her current capacity and reveal his/her limitations in relation to other individuals' abilities. Consequently, an individual who chooses to employ a differentiated conception of ability conceives his/her ability as capacity (Nicholls, 1984b). An adoption of the more differentiated conception will, therefore, affect individuals' performances in a negative manner, because they believe that their current capacity limits the effect of effort on their future performances (Nicholls, 1984a). Nicholls (1984a) highlights that; *"only the differentiated conception permits a conceptually adequate*

evaluation of the extent to which mastery reflects ability as opposed to effort or task difficulty" (p. 330).

This, however, do not apply when individuals employ the less differentiated conception of ability. To use the less differentiated conception of ability means that individuals are concerned about achieving mastery, problem solving, learning, or performing a specific task (Nicholls, 1989). Nicholls (1984a) argues that more effort indicates an increased perception of ability for young children, because they consider high effort to lead to a greater gain in mastery. Perception of low ability, however, implies mere failure to master a task instead of being an indication of inadequacy. Competence is, therefore, achieved when individuals increase their level of performance, or the certainty that they are able to understand something or perform a certain skill (Nicholls, 1984a, 1989). Thus, the individual evaluates personal performance in a self-referenced manner to determine whether more effort is required to achieve mastery, and success is achieved when the individual demonstrates mastery on a certain task (Roberts *et al*., 1997; Nicholls, 1984a). Nicholls (1984a) highlights that; *"the two conceptions of ability have in common the notions that task mastery is improved by effort or learning and that mastery is not normally lost"* (p. 329).

State of Involvement

Achievement goal theory assumes that there are two states of goal involvement operating in the achievement context (Nicholls, 1989). Although other motivational theorists have employed these motivational states in earlier discussions (i.e., Nicholls, 1989), they are, however, distinguished from them because the two states of involvement are related to the less and more differentiated conception of ability and to the intentional perspective. Whether an individual acts in a task- or ego-involved manner in a given situation depends on his/her dispositional orientation and situational factors (Roberts, 2001). Nicholls (1989) argues that

individual differences in proneness to be in either a state of task or ego involvement exist, and Nicholls (1989) made a distinction between the two dispositional orientations, by naming them task orientation and ego orientation.

Roberts (2001) claims that important relationships exist among an individual's state of goal involvement, his/her perception of ability, and his/her achievement strivings. It is assumed that task-oriented individuals will employ the less differentiated conception of ability and become task-involved, which involve that ability is judged to be high or low compared to an individual's past performance level (Roberts, 2001). Nicholls (1989) argues that task-involved individuals can feel competent and successful, even though they perceive themselves to possess lower ability than others. This is because task-involved individuals judge their level of ability and task difficulty in relation to whether they have achieved improved mastery or not (Nicholls, 1984a; Roberts, 2001). Roberts (2001) claims that task-involved individuals are more likely to have adaptive achievement behaviors. These individuals are likely to persist in the face of failure, exert effort, select challenging tasks, and be interested in the task. On the other hand, Nicholls (1989) argues that a state of ego involvement is activated when tasks that involve valued skills are presented to individuals as tests of those skills, in a context of interpersonal competition or in situations that increase public self-awareness. Ego-oriented individuals will employ the more differentiated conception of ability and become ego-involved when they judge their ability to be high or low compared to the performance of others. It has been argued (Nicholls, 1984a; Roberts, 2001) that ego-involved individuals with high perceived ability are likely to engage in adaptive achievement behaviors. These individuals consider their possibility to demonstrate high normative ability on normatively moderate to difficult tasks as moderate, and are, therefore, expected to be motivated to demonstrate competence on future tasks (Roberts, 2001). Ego-involved individuals also believe that they will demonstrate even higher ability if they use the same effort while

outperforming others or achieve an identical performance using less effort than others (Roberts, 2001; Nicholls, 1984a, 1989). On the other hand, Roberts (2001) argues that ego-involved individuals with low perceived ability are likely to engage in maladaptive achievement behaviors, such as avoidance of challenge, reduced persistence in the face of difficulty, and not exerting effort. These individuals would not choose tasks with a moderate normative level of difficulty, because they consider the possibility of demonstrating low normative ability as high. However, Nicholls (1984a) argues that whether individuals with low perceived ability choose easy or difficult tasks depend on how convinced they are that they lack the necessary abilities required to demonstrate high normative ability and how committed they are to either demonstrate high ability or avoid the demonstration of low ability.

If task involvement is compared to ego involvement, then it appears that ego involvement produces performance impairment for all individuals with low perceived ability (Nicholls, 1984a). Treasure, Duda, Hall *et al*. (2001) argue that; *"…the interpretive lens through which performance information is understood are qualitatively different when one is task or ego involved"* (p. 321). Clearly, Nicholls (1989) suggests that task involvement and ego involvement does not exist in isolation, however, individuals are able to fluctuate between the two states of involvement and experience combinations of different levels of them, while they process task and competitive information in the achievement activity. In support of this contention, Treasure, Duda, Hall *et al*. (2001) argue that; *"…we would contend that abrupt changes in states of involvement occur"* (p. 320). Nicholls (1989) further argues that task and ego involvement can not be based on a single continuum, where an individual's level of involvement is running from high to low, because this would eliminate the distinction between the two states of involvement and their importance as separated constructs. Nicholls (1989) highlights that; *"task involvement is a polar opposite of ego involvement"* (p.87).

Thus, individuals' use of the two conceptions of ability will change according to their purposes in the achievement activity (Nicholls, 1989).

Dispositional Achievement Goals in Achievement Contexts

Achievement goals are considered to be the critical determinants of achievement behavior because they reflect the purposes, which underlie an individual's actions in achievement situations (Roberts, 2001; Duda & Hall, 2001). Nicholls (1989) highlights that; *"individual differences in achievement goals are associated with individual differences in interpretations of the role of effort, luck, and other factors in academic success"* (p. 93). Individuals who are task-oriented employ the less differentiated conception of ability, and focus their attention on challenges, working hard, doing their best, improving their physical skills, and completing their work. In contrast, individuals who are ego-oriented employ the more differentiated conception of ability, and focus their attention on demonstrating superior ability with reference to that of others (Nicholls, 1989). For example, task orientation has been associated with hard work and effort (Hom, Duda & Miller, 1993; Duda, Fox, Biddle & Armstrong, 1992), cooperation (Treasure & Roberts, 1994), the experience of satisfaction (Roberts, Treasure & Kavussanu, 1996), and skill development (Lochbaum & Roberts, 1993), whereas ego orientation has been associated with an emphasis on ability (Hom *et al.*, 1993; Treasure & Roberts, 1994) and boredom (Duda *et al.*, 1992).

Further, achievement goal theory assumes that the two achievement goals are orthogonal, which means that task and ego orientation are independent (Roberts *et al.*, 1996; Hom *et al.*, 1993). It has been argued (Roberts *et al.*, 1996; Roberts, 2001) that individuals can be high or low in one orientation, or both orientations at the same time (e.g., high task, high ego; high task, low ego; low task, low ego; low task, high ego). Finally, Roberts (2001) argues that achievement goal orientations should be considered as cognitive schemas instead

of "traits", because they can change while individuals process information concerning their performance on a particular task.

The Motivational Climate

Earlier pioneering work of Ames and colleagues (Ames, 1984, 1992c; Ames & Archer, 1988) examined the relationship between students' perceptions of the classroom learning environment and their motivational responses. The results indicated that (a) children focused more on ability attributions in competitive conditions compared to individual conditions, (b) researchers needed to understand how children gave meaning to their achievement experiences in the classroom, and (c) children's perception of a mastery climate was related to more effective learning strategies, more challenging tasks, more positive attitude toward the class, and a stronger belief that more effort leads to more learning.

Smith, Smoll and colleagues are involved with the Youth Enrichment Through Sport (YES) project, which is focused on athletes in the 9- to 14-year-old age group. The project's aim is to develop, evaluate, and implement intervention programs for youth sport coaches and parents. Based on this project, Smith *et al*. (2008) developed the Motivational Climate Scale for Youth Sports (MCSYS), which is an age-appropriate measure of coach-initiated motivational climate. Thus, the two motivational climates are termed mastery and ego in the present study (Smith *et al*., 2008). If the coach emphasizes the learning process, skill development, and personal improvement, then athletes are likely to be task-involved (e.g., a mastery climate). If, on the other hand, the coach emphasizes normative feedback, interpersonal competition, and public evaluation, then athletes are more likely to be ego-involved (e.g., an ego climate). Ames (1992b) argues that the coach's decisions create the motivational climate in the achievement context. His/her goal preference becomes obvious by how he/she designs tasks, drills, and learning activities, athletes are involved in decision

making, responds to a good performance, divides athletes into different groups, and gives feedback to athletes (Treasure, 2001; Ames, 1992b). The coach establishes the motivational climate in achievement contexts when he/she encourages one goal orientation rather than another. This is done by making certain cues, rewards, and expectations salient (Ames, 1992b). In this way, he/she makes either the more or less differentiated conception of ability the criteria by which athletes' performances are evaluated (Roberts, 1993). Athletes' goal orientation may change while they participate in the achievement context, because they perceive the motivational climate and act according to his/her coach's expectations (Roberts & Treasure, 1995). In fact, Roberts (2001) has suggested that perception of an ego or a mastery climate is expected to moderate the effect of individuals' dispositional goal orientations, and as a result affect individuals to become either task- or ego-involved in achievement activities. This argument is supported by research evidence (e.g., Treasure & Roberts, 1998, 2001; Newton & Duda, 1999; Swain & Harwood, 1996). The results have mainly indicated that the motivational climate has the ability to be a significant predictor when individuals perceive strong situational cues. However, Treasure & Roberts (2001) argue that the predictive utility of the perceived motivational climate is less important in naturally occurring achievement activities, because it is difficult for inexperienced coaches to establish a motivational climate that emphasizes either strong mastery or ego cues.

Recently, Cumming, Smoll, Smith, & Grossbard (2007) results revealed a positive and significant relationship between evaluations of the coach and athletes' perceptions of a mastery climate. In contrast, a negative relationship was revealed between all outcome measures and athletes' perceptions of an ego climate. Perceptions of the coaching climate as mastery-involving was positive related to (a) players' enjoyment of playing for their coach, (b) players' perceptions of their coach as more knowledgeable about basketball, (c) players' perceptions of their coach's teaching abilities, (d) players' wish for playing for their coach

again the upcoming season, and (e) players in a mastery climate liked their team experience more.

ATHLETES' PERCEPTIONS OF COACHING BEHAVIOR

Children have always engaged themselves on the playground, however, the transition from play to more formalized sport programs have led children to participate in programs that are highly structured and adult-supervised (Smith *et al*., 1978, 1979). The majority of children have little or non past experiences from the athletic environment when they first start to participate in different sport programs, and are, therefore, dependent on feedback from coaches to determine their own personal ability. Scanlan (2002) argues that feedback from parents, coaches, and peers make a greater impression on children than feedback from persons who are less important to them. This type of feedback is considered to be more valuable to children, because it offers information about their strengths, progress, and areas requiring improvement in relation to their past performance level, an idealized performance level, or the performance level of other children. Therefore, it should be a requirement to learn more about the cognitive changes that occur throughout the childhood years when one decides to become a coach in youth sport (Fry, 2001; Scanlan, 2002).

Much of the controversy surrounding youth sport concerns adults. Youth sport has experienced a constant growth the past decades, which has increased the degree of adult involvement (Smoll & Smith, 1989, 2002). The fact of the matter is that adults occupy influential leadership roles influencing children's participation in sport either positively or negatively. For example, Smith, Smoll and colleagues (Smith *et al*., 1978; Smoll & Smith, 2002, 2006) argue that most of the adults in charge of sport programs have no formal training in creating healthy psychological environments for young athletes. Consequently, the majority of children in sport programs receive coaching from amateur coaches. In terms of the overall

impact on children, the interaction between adult and child, and adults' ability to create a healthy psychological environment are likely to have an impact on children's attitudes towards coaches and youth sport in general (Smith *et al.*, 1983; Smoll & Smith, 1984). Thus, adults have to increase their awareness of how their interpersonal behaviors affect children's participation in sports (Curtis *et al.*, 1979; Smoll & Smith, 1984, 1989, 2002). Smoll *et al.* (1978) have argued that; *"…everything you do (coach/adult) communicates something. Strive to develop an awareness of your actions and how they are perceived by others"* (p. 46).

Athletes' "free time" is robed when adults turn youth sports into a competition where athletes have to live up to coaches' performance expectations. Consequently, athletes' lack of relaxation, re-energizing, and fun leads to avoidance and dropout of sport (i.e., Barnett *et al.*, 1992). To help young athletes to fully benefit from their sport participation, coaches should provide a valuable experience by emphasizing young athletes need to play, to pursue their own goals, to have fun, and to have a natural progression of skill development (Smith & Smoll, 1991; Brustad *et al.*, 2001; Orlick, 2002). Smith *et al.* (1978) conducted a research study that examined coaching behaviors and its effect on athletes' psychological and affective outcomes in little league baseball. The results indicated that almost two-thirds of the coded behaviors of the 51 coaches fell into the categories of Reinforcement, General Technical Instruction, and General Encouragement. More specifically, the results revealed differences in the perceived behaviors for each of the three age-ability levels in baseball. Minors were more sensitive to variation in negative behaviors (e.g., punishment, punitive technical instruction, nonreinforcement), majors to variations in positive and supportive behaviors (e.g., reinforcement, general encouragement, mistake-contingent encouragement), and seniors to variation in technically instructional-organizational behaviors (i.e., organization, mistake-contingent technical instruction, general technical instruction). In regard to attitudinal measures, a majority of the athletes had positive attitudes toward their coaches and would like

to play for them the following season. However, athletes' perceptions of coaching behaviors became more and more differentiated at each ability level. The correlation analysis also revealed a significant positive relationship between perceived behavior (e.g., technical instruction, mistake-contingent encouragement, and general encouragement) and athletes' attraction toward their coaches. Coaches who exhibited coaching behaviors, such as reinforcement, mistake-contingent encouragement, and technical instruction were evaluated more positively by athletes who were low in self-esteem. These coaches had athletes who evaluated the sport and their teammates in a more positive manner. In another study, conducted some years later by Smith *et al*. (1983), the relationship between athletes' perceptions of coaching behaviors and athletes' self-perceptions and enjoyment in basketball was examined. The researchers were particularly interested in the relationship between coaching behavior and players' evaluative responses toward basketball, the coach, and themselves at the end of the season. They were also interested in players' perceptions of intrateam attraction among players on the different teams. The results showed that coaches were most frequently engaged in general technical instruction, general encouragement and reinforcement. More specifically, the results indicated that (a) coaches' response to mistakes with corrective technical instruction was positively related to players' positive attitudes toward basketball at the end of the season, (b) coaching behaviors such as keeping control and general encouragement were negatively related to players' attitudes toward basketball, (c) players' attitudes toward the coach were positively related to mistake-contingent technical instruction and negatively related to punishment and general communication. Finally, coaching behaviors accounted for almost half of the variance in players' attitudes toward the coach and the sport at the end of the season. However, relatively little variance in intrateam attraction and player self-esteem was explained by coaching behaviors.

Smith, Smoll and colleagues have identified three independent behavioral dimensions (e.g., supportiveness, instructiveness, punitiveness). Previous research (i.e., Smoll *et al.*, in press) has indicated that a coach's score on these behavioral dimensions are related to athletes' attitudes toward the coach. A positive coach-athlete interaction is likely to occur when athletes are playing for a coach who uses high levels of reinforcement to reward his/her athletes when they achieve a desirable performance level or when they exert much effort, and who responds to their mistakes with encouragement and technical instructions (Cumming *et al.*, 2007; Smoll *et al.*, in press). Coaches have also been urged to avoid nonreinforcement of positive behaviors and effort and mistake-contingent punishment, because previous research has indicated that this type of behavior inhibits a positive atmosphere in youth sports (Smith *et al.*, 2007). More specifically, a cognitive-behavioral intervention (i.e., Smith *et al.*, 2007) has advised coaches to increase the amount of four specific coaching behaviors (e.g., positive reinforcement for both desirable performance and effort, mistake-contingent encouragement, corrective instruction given in a positive and encouraging fashion, and proper technical instruction) when their goal is to establish a mastery climate.

The Mediational Model of Coaching Behavior

The social cognitive framework forms the basis of the basic three-part mediational model (Smith & Smoll, 2007). As mentioned earlier, this framework emphasizes that human behavior is a product of the interaction between behavior, cognitive and other personal factors, and environmental influences (Bandura, 1986). Moreover, Bandura (1986) has argued that; *"the relative influence exerted by the three sets of interacting factors will vary for different activities, different individuals, and different circumstances"* (p. 24).

Smith and Smoll developed a mediational model of coach-athlete interactions in the early nineteen seventies, because coaching behavior was recognized to have a potential

impact on athletes' psychological welfare (Smoll & Smith, 1984, 1989; Smoll *et al*., in press). The original mediational model consisted of; coaching behaviors → athletes' perceptions and recall → athletes' evaluative reactions (Smoll *et al*., 1978). A major tenet of the mediational model is that actual coaching behavior is mediated by athletes' cognitive-affective processes. In other words, the effects of overt coaching behavior on athletes' attitudes toward their coaches and other aspects of their sport experiences are mediated by athletes' perceptions of coaching behaviors, what they can remember about the way their coach behaved, and the type of meaning they ascribe to the different behaviors (Smoll & Smith, 1984, 1989, 2002; Smith & Smoll, 2007). The three-part mediational model allowed Smith, Smoll and colleagues to examine the relationship between overt coaching behaviors, athletes' perceptions of coaching behavior, and the effects on athletes and their sport experience. A 2-phase research project was carried into effect to investigate the behavioral pattern of youth sport coaches and how coaches structured and supervised their sport programs (Smith *et al*., 1978; Curtis *et al*., 1979; Smith *et al*., 1983).

Previous research indicated that instrumentalities (perceived likelihood of a consequence * the value of the consequence) were able to predict specific behavior under a wide assortment of conditions (Smith *et al*., 1978; Smoll & Smith, 1989). Smoll & Smith (1989) argued that the expanded mediational model suggests that the predictive utility of instrumentalities for behavioral intentions is greatest when a certain coaching behavior is correlated with behavioral consequences, which have either a high positive or negative value for the coach. A behavioral intention is when an athlete chooses to behave in one way instead of others, and it is supposed to be influenced by cognitive, motivational, and social variables (Smoll & Smith, 1989). However, a study by Smith *et al*. (1978) that examined coaching instrumentalities and behavior in youth sport, showed that this aspect of the model required more examination. The results indicated that coaching instrumentalities were highly related to

coaches' self-perceptions of their own behavior, but were unrelated to observed coaching behavior and athletes' perceptions of coaching behavior.

Although the original mediational model was a comprehensive model of leadership, it was quite limited in scope. It was considered necessary to expand the model to offer a better description and explanation of all the characteristics and processes, which form the basis of leadership behaviors in youth sport (Smoll & Smith, 1989). Because coach-athlete interaction takes place in the sport context, the model specifies that situational factors, such as nature of the sport, level of competition, practice vs. game, previous success/failure, present game/practice outcomes, and intrateam attraction are expected to influence coaching behavior and athletes' perceptions of coaching behavior and their reactions to these behaviors. Athletes' cognitive-affective processes and coaches' behavior are also assumed to be affected by individual difference variables. The expansion of the mediational model was carried through, because these variables were expected to influence the core components of the mediational model (Smoll & Smith, 1989). A final point, Smoll & Smith (1989) highlight that; *"it should be noted that in addition to one-way causal or moderator relationships, our expanded leadership model allows for reciprocal interactions among relevant variables"* (p. 1541). The expanded mediational model is shown in Figure 1.
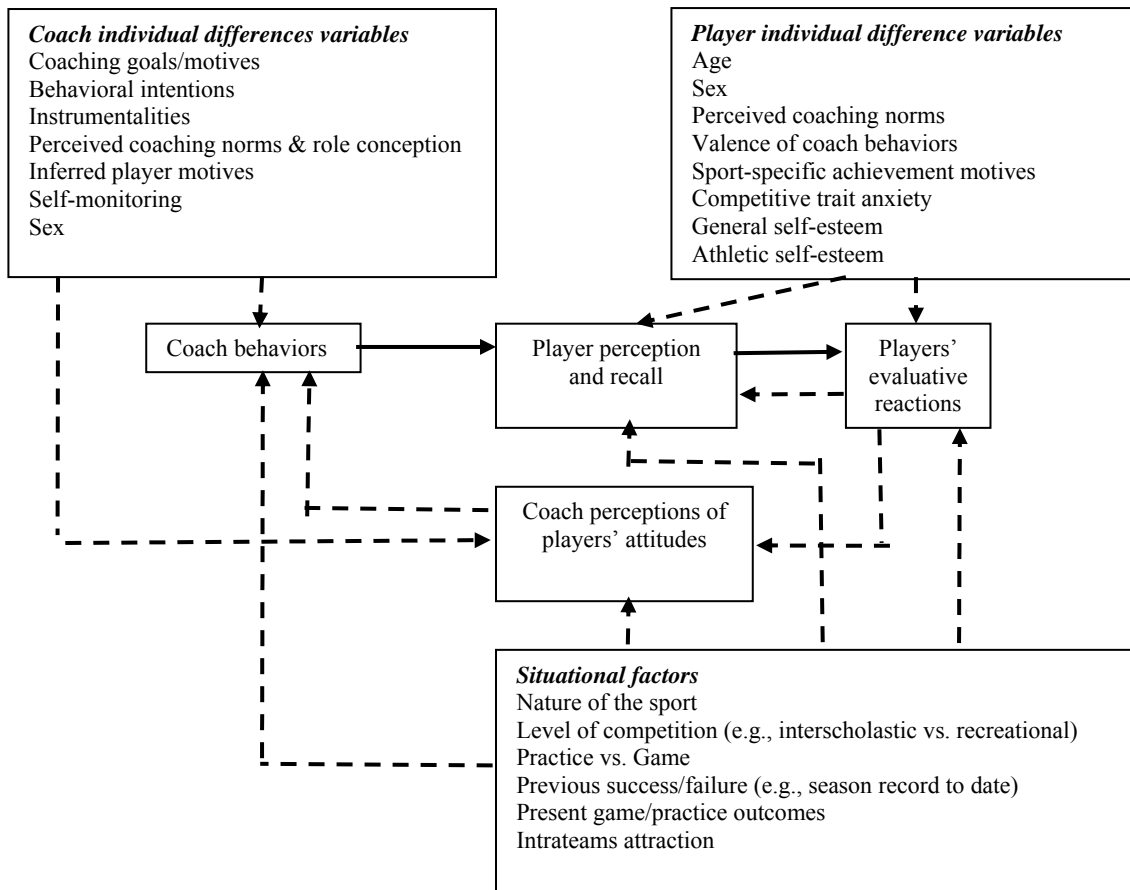
Figure 1 The mediational model of leadership. *Source:* "Leadership Behaviors in sport: A Theoretical Model and Research Paradigm," by F.L. Smoll and R.E. Smith, 1989, *Journal of Applied Social Psychology, 19,* pp. 1522-1551. Reprinted with permission.

Behavioral Assessment of Coaches

Smith, Smoll and colleagues developed the Coaching Behavior Assessment System (CBAS) which is based on basic interactions arising on practices and in games between coaches and athletes. The CBAS allows researchers to observe and code coaching behaviors in naturalistic sport settings, and consists of 13 behavioral categories, which are divided into two major classes of behaviors (Smith *et al*., 1977; Smoll & Smith, 1984; Smith & Smoll, 1991; Smoll *et al*., in press). Smith *et al*. (1977) have argued that reactive behaviors are responses, which are given immediately after an athlete's or a team's behaviors, whereas spontaneous behaviors are responses initiated by the coach. Though, coaches are not

compelled to initiate these behaviors immediately after an athlete's or a team's behaviors. Each of these behavioral categories is a result of extensive observation of coaches in team sports and content analyses of their behaviors during practices and games (Smith *et al.*, 1977; Smoll & Smith, 1984). The first class of coaching behaviors, reactive or elicited behaviors, is a coach's reactions to either desirable behaviors or effort (reinforcement, nonreinforcement), mistakes (mistake-contingent encouragement, mistake-contingent technical instruction, punishment, punitive technical instruction, ignoring mistakes), or misbehavior (keeping control), whereas the second class of coaching behaviors, spontaneous or emitted behaviors, is a coach's reactions to either game-related (general technical instruction, general encouragement, organization) or game-irrelevant (general communication) behaviors (Smith *et al.*, 1977; Smoll *et al.*, in press). These response categories of the CBAS are also presented in table 1. Moreover, Smoll & Smith (1984) have suggested that; *"the system is sufficiently comprehensive to incorporate the vast majority of behaviors, individual differences in behavioral patterns can be discerned, and interrater reliabilities in the mid ,90s can be obtained"* (p. 376).

Various researchers have employed the CBAS. For example, Horn (1985) used the observational form of the CBAS to examine the association between coaches` behaviors and feedback and changes in the self- perceptions (e.g., perceived competence, perceived performance control, and expectancy for success) of female athletes during their sport season. The analyses revealed that coaching feedback that were exhibit to the individual athlete in the practice setting explained significantly changes in athletes` self- perceptions. More specifically, there was a positive association between higher frequencies of critical feedback (e.g., contingency and appropriateness of the feedback) and the increases in athletes` perceptions of competence.

Response Categories of the Coaching Behavior Assessment System

Class I. Reactive Behaviors	
Responses to desirable performance	
Reinforcement	A positive, rewarding reaction, verbal or nonverbal, to a good play or good effort
Nonreinforcement	Failure to respond to a good performance
Responses to mistakes	
Mistake-contingent encouragement	Encouragement given to a player following a mistake
Mistake-contingent technical instruction	Instructing or demonstrating to a player how to correct a mistake
Punishment	A negative reaction, verbal or nonverbal, following a mistake
Punitive technical instruction	Technical instruction which is given in a punitive or hostile manner following a mistake
Ignoring mistakes	Failure to respond to a player mistake
Response to misbehavior	
Keeping control	Reactions intended to restore or maintain order among team members

Class II. Spontaneous Behaviors	
Game-related	
General technical instruction	Spontaneous instruction in the techniques and strategies of the sport (not following a mistake)
General encouragement	Spontaneous encouragement which does not follow a mistake
Organization	Administrative behavior which sets the stage for play by assigning duties, responsibilities, positions, etc..
Game-irrelevant	
General communication	Interactions with players unrelated to the game

Table 1 Response Categories of the Coaching Behavior Assessment System. *Source:* "A System for the Behavioral Assessment of Athletic Coaches," by R.E. Smith, F.L. Smoll, and E.B. Hunt, 1977, *Research Quarterly , 48,* pp. 401-407. Reprinted with permission.

ATHLETE BURNOUT

Burnout is an important problem in the world of sport. The physical and psychological demands and the pressure to win have increased the last decades (Weinberg & Gould, 2007). Unfortunately, some athletes may experience a significant amount of physical and psychological stress if they are not able to meet the physical training demands that are placed upon them by their training environment. Therefore, an unrelenting focus on winning, too much training, and inadequate recovery can have a negative impact on athletes (Eklund & Cresswell, 2007). Athletes' negative adaption may lead to negative training responses, which

may progress them from overtraining to staleness and eventually to burnout (Gould, 1996; Gould & Dieffenbach, 2002). In swimming, Juba (1986) reported that an unusually high proportion of British youth swimmers appeared to be unhappy. Juba argued that these swimmers were exhausted, because of the repetitive nature of the sport, the anti-social training hours which isolated them from their friends and the commitments demanded of them. Juba suggested that burnout in British youth swimming was related to the extreme training workloads and to the pressure placed upon the swimmers from their parents and coaches. In another study, Silva (1990) argued that burnout occurs when athletes experience severe practice conditions followed by extreme physical and psychological exhaustion and without having a significant amount of time to recover from excessive competitive demands.

The term burnout was established in the late nineteen seventies. To begin with, researchers were more interested in the phenomenon, because of its relevance as a social problem, rather than to develop a comprehensive theoretical framework for integrating and interpreting research findings (Maslach & Jackson, 1984). Herbert Freudenberger (1974) was one of the first researchers who introduced the term in a paper. Freudenberger suggested that a person's cognitions, judgment as well as his/her emotions all have an effect on the burnout process. At the same time, Christina Maslach and her co-workers began to examine burnout among employees in helping professions. Their aim was to develop a more accurate definition of burnout and to develop a standardized measure of it (Maslach & Jackson, 1984). Results from Maslach's first research study on burnout (Maslach, 1976) indicated that burnout may occur when people work too intensely with others and lose their objectivity and concern for the people they work with. Instead of coping with the emotional stress caused by their clients' psychological, social and/or physical problems, they lose their emotional feelings and begin to treat their clients in detached and dehumanized ways. Moreover, Freudenberger (1974) has argued that people who feel pressure from within and from their surroundings to respond to

the requests from other people have to be careful when their need to give becomes excessive and in time unrealistic.

Although burnout has been defined in various ways (e.g., Freudenberger, 1974, 1980; Maslach, 1976; Smith, 1986), Maslach and Jackson's (1984) definition of burnout is within the general burnout literature the most accepted definition. They defined burnout as *"a psychological syndrome of emotional exhaustion, depersonalization, and reduced personal accomplishment that can occur among individuals who work with people in some capacity"* (p. 134). However, in sport, Raedeke (1997) applied Maslach and Jackson's definition of burnout to define athlete burnout as *"a syndrome of physical/emotional exhaustion, sport devaluation, and reduced athletic accomplishment"* (p. 398). Raedeke argues that *"the provider-recipient relationship consequently does not define the most central aspect of sport for athletes. For athletes, the core element of sport is their performance"* (p. 397). Further, previous research has indicated that athletes who exhibit characteristics reflecting burnout are expected to experience lack of motivation, inability to concentrate, loss of desire to play, lack of caring, lack of energy, sleep disturbance, physical and mental exhaustion, lack of enjoyment, lowered self-esteem, negative feelings, mood changes, increased vulnerability to illness, feelings of frustration and irritation, feelings of isolation, and increased anxiety (Cohn, 1990; Gould *et al.*, 1996; Silva, 1990; Smith, 1986; Weinberg & Gould, 2007).

A line of research has demonstrated that burnout is related to the motivational climate created by coaches (e.g., Chi & Chen, 2003; Chen, Lung, Ying Mei & Ying Hwa, 2007; Lemyre *et al.*, 2008). For example, a study from the National College in Taiwan found that male basketball players who perceived a mastery climate were negatively related to the three dimensions of burnout. However, athletes who perceived an ego climate were positively related to devaluation by coach and composite score of burnout. The results also revealed that female basketball players who perceived an ego climate were positively related to devaluation

by coach (Chi & Chen, 2003). In another study, Chen *et al*. (2007) results revealed that an ego climate predicted athlete burnout. Recently, Lemyre *et al*. (2008) investigated athlete burnout from a social-cognitive perspective. The study examined the relationship between social cognitive motivational variables at the start of a season and signs of burnout in elite athletes at the end of the season. The results indicated that motivational variables and dimensions of perfectionism were related to burnout in a conceptually consistent manner. First, emotional exhaustion was significant and positive related to an ego climate, parental expectations and parental criticism, and it was significant and negative related to a task orientation, a mastery climate, and the pursuit of high personal standards. Second, reduced accomplishment was positive related to concern about mistakes, doubts about action and parental criticism. On the other hand, it was negative related to a task orientation, perceived ability, a mastery climate, and the pursuit of high standards. Third, sport devaluation was significant and positive related to an ego orientation, an ego climate, doubts about action, and negative related to perceived ability.

Only a small number of research studies have linked perception of coaching behavior to athlete burnout. Four studies (Udry *et al*., 1997; Vealey *et al*., 1998; Price & Weiss, 2000; Chee *et al*., 2007) have reported that athletes' perceptions of coaching behavior are related to burnout experienced by athletes. Udry *et al*. (1997) obtained 10 in-depth interviews from former elite tennis players who had experienced burnout. The results indicated that 70 % of the participants identified the coach as a negative influence. This general dimension, negative coach influence, included higher order themes like pressure, unrealistic expectations, ideas conflicted with the coach, and did not express belief in me. 30 % of the athletes felt that their coach pressured them to perform, 30 % of the athletes reported that their coach held unrealistic expectations for them, and 30 % of the athletes felt that they had conflicting ideas with the coach. Based on these findings, athletes experiencing burnout were more likely to

view the influence of their coaches as more negative than positive. Vealey *et al*. (1998) examined how athletes' perceptions of coaching behavior and communication style were related to levels of burnout experienced by athletes. The results revealed that athletes who perceived that their coaches were less empathetic, emphasized dispraise as opposed to praise as a motivational technique, implemented an autocratic coaching style, and emphasized winning as more important than the development of athletes were significantly related to athletes who scored higher on the burnout dimensions of negative self-concept, emotional/physical exhaustion, psychological withdrawal, and feelings of devaluation. Price & Weiss (2000) examined how perception of coaching behavior was related to athletes' psychological outcomes. The results revealed that athletes who perceived lower competence and enjoyment and higher anxiety and burnout were related to coaches who exhibited less frequent training and instruction, social support, and positive feedback. Moreover, athletes who perceived that their coaches used an autocratic leadership style reported more negative psychological outcomes. Recently, Chee *et al*. (2007) examined the relationship between coaches' leadership and athlete burnout in a Taiwanese population. Findings showed that authoritarian leadership was positive related to devaluation of sport and emotional/physical exhaustion. In contrast, a moral leadership was negative related to devaluation of sport.

SUBJECTIVE VITALITY

Subjective well-being (SWB) contains terms, such as satisfaction, pleasant affect, and low negative affect (Diener, Scollon & Lucas, 2003). More specifically, Diener, Lucas & Oishi (2005) defines SWB as *"a person's cognitive and affective evaluations of his or her life"* (p. 63), and it is, therefore, not the objective judgment of others (Diener *et al*., 2003). Subjective vitality is an important indicator of an individual's SWB, because the term refers to the extent to which people experience to be really alive or refreshed (Ryan & Frederick,

1997), and people who perceive themselves to be high in subjective vitality are reporting that they are alert, energized, and vital (Bostic, Rubio & Hood, 2000). The subjective feeling of vitality has a phenomenological centrality. Phenomenology refers to the subjective experience, which implies that researchers have to investigate whether individuals consciously experience to possess energy or not (Nix, Ryan, Manly & Deci, 1999). From an eastern perspective, Cleary (1991) suggests that the three treasures of the human body are vitality, energy, and spirit. Clearly claims that vitality is the source of life, and that an individual's vitality is expected to leak out until he/she stabilizes its level of energy.

Physical states and psychological factors will have an effect on an individual's subjective vitality due to its dynamic state (Nix *et al*., 1999). Thus, individuals are expected to feel invigorated in certain situations and followed by certain events, and feel exhausted in other situations (Ryan & Frederick, 1997). For example, in swimming, Raglin, Morgan & O'Connor (1991) examined the changes in specific and global mood states, which occurred in response to increased physical training. The results indicated that measures of depression, anger, vigor, fatigue, and confusion were related to alterations in the training stimulus in college swimming.

A growing body of research studies (e.g., Gagnè, Ryan & Bargmann, 2003; Pensgaard & Duda, 2003; Reinboth *et al*., 2004; Reinboth & Duda, 2006) has examined subjective vitality from a self-determination theory (SDT) perspective. For example, Nix *et al*. (1999) found that individuals can enhance their level of subjective vitality if their engagement in an activity is autonomous and self-regulated rather than controlled by others. In their second experiment, the results revealed that an ego-involved condition, where individuals were told that their intelligence was being tested, contributed to reduce individuals' subjective vitality. Pensgaard & Duda (2003) have also suggested that it is appropriate to let athletes perceive a mastery climate if we want to increase their level of positive emotions and subjective vitality.

In a Norwegian study, Solberg (2006) examined the relations between perceived support of autonomy from coaches, characteristics of personal goals, and emotional well-being among elite athletes. The results suggested that it was a positive association between perceived autonomy support, intrinsic goal content, and SWB. Recently, Sargènius (2008) extended the work of Solberg (2006) by examining a group of Scandinavian disabled elite athletes. Results from the canonical correlation analysis revealed a significant and positive relationship between autonomous reasons, intrinsic motivation, and SWB.

POSITIVE AND NEGATIVE AFFECT

Positive and negative affect are believed to be short-lived reactions that are associated with specific events (Diener *et al.*, 2003). It is also important to emphasize that researchers are required to measure positive affect (PA) and negative affect (NA) separately, because they are not polar ends of a single continuum (Diener *et al.*, 2003). Further, Watson, Clark & Tellegen (1988) developed the Positive and Negative Affect Schedule (PANAS) to measure these two independent mood dimensions. The PA dimension contains feelings, such as enthusiastic, inspired, alert, and active. In contrast, the NA dimension contains feelings, such as ashamed, guilty, irritable, and hostile. Individuals have high levels of PA when they experience a situation that involves much energy, concentration, and determination, while individuals have high levels of NA when they experience a situation that involves nervousness and irritation (Crocker, 1997). It should be noted, however, that it is easy to distinguish between positive and negative emotional experiences, because of its valenced nature (Diener & Lucas, 2000).

Previous research has revealed that perception of the motivational climate as either mastery-involving or ego-involving is associated with a number of cognitive, affective, and behavioral patterns (Duda & Hall, 2001; Ames, 1992b; Ntoumanis & Biddle, 1999). Roberts

(2001) has argued that affect has been measured by researchers within the achievement goal framework by using variables, such as satisfaction, enjoyment, interest and anxiety. However, Biddle (1996) highlights that research on emotions is incomplete, and that it has relied on too few emotions.

Ommundsen, Roberts & Kavussanu (1998) found that perception of an ego climate was a negative and unique predictor of satisfaction or interest in physical activities. In contrast, individuals who perceived a mastery climate considered mastery to be a source of satisfaction. Recently, Quested & Duda (2009) examined the relationship between perception of the motivational climate and indicators of well-being among hip hop dancers. They found perception of a mastery climate to be a significant and positive predictor of positive affect. It was also a significant and negative predictor of negative affect. Moreover, several research studies have indicated that perception of a mastery climate is positively associated with enjoyment (e.g., Newton & Duda, 1999; Vazou, Ntoumanis & Duda, 2006) and positive emotions (Biddle, 1996).

PURPOSE OF THE STUDY

Several important issues are addressed in the present study. The athlete-perception version of the CBAS and the Motivational Climate Scale for Youth Sports (MCSYS) have been used by several researchers to measure how athletes perceive coaching behavior and the coach-created motivational climate in youth sport, yet little is known about how these questionnaires will work when they are translated into Norwegian and completed by Norwegian athletes. Previous research (Smith *et al*., 2005; Smith *et al*., 2007) has indicated that specific coaching behaviors are significantly correlated to athletes' perceptions of the motivational climate. Therefore, the purpose of this study was to extend this line of research in Norwegian swimming by looking at the motivational cues in the environment and their

influence on the sport participation outcomes. The present study was undertaken to better understand how Norwegian swimmers perceived their coaches' behavior and the corresponding motivational climate, and how these variables influenced a range of well-being parameters, such as burnout, subjective vitality, as well as positive and negative affect.

HYPOTHESES

Based on review of literature, we hypothesized that;

1. Athletes will experience a mastery climate when they perceive coaching behaviors that emphasize positive reinforcement, mistake-contingent encouragement, corrective instruction given in a positive and encouraging fashion, and proper technical instruction. In contrast, athletes will experience an ego climate when they perceive coaching behaviors that emphasize nonreinforcement, punishment, punitive technical instruction, and ignoring mistakes.

2. There is a positive association between an ego climate, negative affect and the three dimensions of burnout. There is also a negative association between a mastery climate, positive affect, and the three dimensions of burnout.

3. Athletes who perceive a mastery climate will have higher levels of vitality and positive affect, compared to athletes who perceive an ego climate.

CHAPTER II

METHOD

Participants

A total of 202 senior age-group swimmers, ages 14 to 24 years ($M = 16.4$, $SD = 2.3$), from 15 Norwegian swimming clubs participated in the study. Clubs from Oslo ($n = 8$), Bergen ($n = 5$), Hamar ($n = 1$), and Kristiansand ($n = 1$) were represented. The sample consisted of 99 (49 %) male and 103 (51 %) female participants. On average, participants had participated in swimming for 6.6 years ($SD = 2.4$ years), received coaching from their head coach for 2.1 years ($SD = 1.5$ years), and spent 8.0 hours ($SD = 3.2$ hours) per week training. Athletes represented competitive swimming levels from novice to world championship, but the majority had competed up to the national level.

Figure 2. Competitive level among Norwegian swimmers.
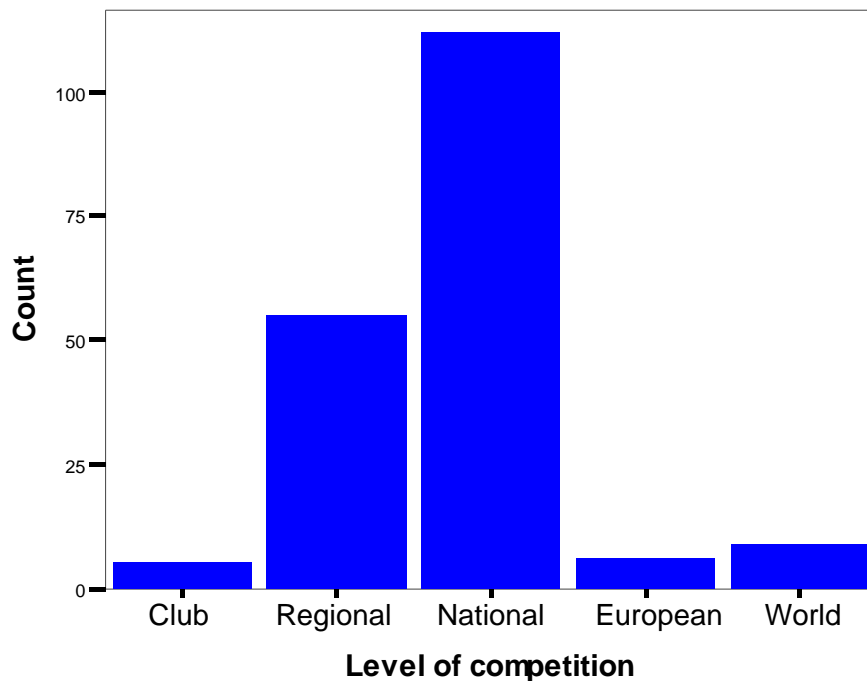
Procedure

The study had the approval of the Norwegian Social Science Data Service. The researchers distributed the questionnaires to the participants before or after practice during week number 49 in 2007. The data collection session was of approximately 30 minutes duration and involved a battery of measures.

The first meeting with the Norwegian Swimming Federation was arranged in the spring of 2007. There project information was presented, and the purpose of the study was explained. We decided that the research group was going to collect data in the winter of 2007. The next meeting was arranged in the autumn of 2007, where we decided to distribute the questionnaires in week 49. This decision was made, because it was desirable that swimmers should compete in the Norwegian championship in swimming before they participated in the study. The next step was to contact the selected swimming clubs and get their approval. Information was sent by e-mail (see appendix B) to the head coaches of each club, telling them that the Norwegian Swimming Federation supported the research project (see appendix A). We asked them to let their athletes participate in the study. Our e-mail encouraged the selected swimming clubs to participate in the study, because the Norwegian Swimming Federation wanted to acquire new and more advanced knowledge about the swimmers' motivation in youth swimming. We contacted each head coach personally one week after the research information was sent, asking them for permission to meet with their athletes about the research project. We asked also the head coaches to distribute consent documents before the research group came to hand out the questionnaires to the athletes. After obtaining permission, we visited the different swimming clubs on their team practice and invited swimmers to complete the questionnaire containing the measures described below. The athletes were told that the general purpose of the study was to help us understand factors related to athletes' motivation in youth swimming. We informed the participants that

participation in the study was voluntary and that their responses would be kept confidential. We encouraged them to answer honestly and ask questions if they were uncertain about the content of the questionnaire. We remained in the swimming center in case the participants had questions/problems in regard to the questionnaire. After completion, athletes returned the questionnaires to the researcher personally, with the exception of the questionnaires from the swimming clubs in Bergen. We met these coaches at Brann stadion in December 2007, where we informed about the research project and handed out an appropriate amount of questionnaires. Coaches were instructed how they should use an attached smartpost box to return the questionnaires to the research group at the Norwegian University of Sport Sciences in Oslo.

The study employed the computer program SPSS (Statistical Padeages for Social Science) version 15.0 for Windows XP to analyze the collected data. The aim of the present study was to examine how Norwegian swimmers perceived their coaches' behavior and the corresponding motivational climate, and how these variables influenced specific participation outcomes, such as subjective vitality, burnout, and positive and negative affect.

Measures

Background Information. The research project obtained standard demographic information from the participants. In addition, the questionnaire asked participants to provide swimming-specific information (e.g., highest level of competition completed, training volume, length of time participating in swimming, length of time receiving coaching from the *head* coach).

The CBAS-PBS. A translated version of the CBAS – Perceived Behavior Scale (CBAS-PBS; Smith *et al.*, 1978) was used in this multisection questionnaire to measure athletes' perceptions of coaching behavior ($\alpha = .77$) in the sport context. Smith *et al.* (1978)

developed a measure of athlete-perceived coaching behavior, because the mediational model required the measurement of athlete-perceived behaviors (Cumming, Smith & Smoll, 2006). Smith *et al*. (1978) employed the description and coding criteria in the CBAS observer training manual (Smith, Smoll & Hunt, 1977b) to develop each CBAS category in the questionnaire. In addition, the original CBAS-PBS consisted of 12 items until Horn (1985) added an additional item (e.g., reinforcement + instruction category). The stem for each question is "Circle the number that indicates how often your *head* coach did." Athletes indicated on a 7-point Likert scale ranging from "never" (1) to "almost always" (7) how often their head coach engaged in each class of behavior.

The Motivational Climate Scale in Youth Sport. A translated version of the Motivational Climate Scale for Youth Sports (MCSYS; Smith *et al*., 2008) measured athletes' perceptions of the coach-created motivational climate. The MCSYS is based on the content of the Perceived Motivational Climate in Sport-2 (PMCSQ-2; Newton, Duda & Yin, 2000), and is composed of a 6-item subscale measuring mastery-initiating behaviors (mastery climate; e.g., "effort/improvement") and a 6-item subscale measuring ego-initiating behaviors (ego climate; e.g., "unequal recognition"). Athletes indicated their level of agreement with statements, such as "The coach encouraged us to learn new skills" and "The coach paid most attention to the best players". Items were scored on a 5-point Likert scale ranging from "not at all true" (1) to "very true" (5). We computed two new variables to measure whether athletes perceived a coach-created mastery climate or ego climate. The reason for doing this was to examine the importance of both the mastery and ego motivational climate separately in relation to the well-being outcomes. Field (2005) argues that; *"if your questionnaire has subscales, α should be applied separately to these subscales"* (p. 668). The Cronbach's α coefficients were for the mastery scale ($\alpha = .64$) and ($\alpha = .66$) for the ego scale. Previous research findings (Smith *et al*., 2008; Cumming *et al*., 2007; Smith *et al*., 2007) have

indicated that the MCSYS subscales have acceptable internal consistency and construct validity, but the present study could not match these results. However, Field (2005) has suggested that a Cronbach's α value below .7 can be expected when researchers examine psychological constructs, because these constructs are characterized by diversity.

Vitality. Vitality was measured using a translated version of the 6-item Subjective Vitality Scale (SVS; Ryan & Frederick, 1997). Athletes were asked to indicate how often they had experienced each item in relation to their participation in swimming during the last week on a 7-point Likert scale ranging from "not at all true" (1) to "very true" (7). Recently, findings have recommended that one negatively worded item had to be removed from the original SVS; however, the 6-item SVS has proved to be an efficient and valid instrument to measure the latent construct of vitality (Bostic *et al*., 2000). After reversing one of the questions (Field, 2005) in the SVS questionnaire, the Cronbach's alpha was found to be .80.

Athlete Burnout. Burnout was measured using a translated version of the 15-item sport-specific Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001). Athletes were asked to indicate on a 5-point Likert scale ranging from "almost never" (1) to "almost always" (5) how often they felt or thought in a special way during the current athletic season. The three 5-item subscales of the ABQ measure three essential dimensions of athlete burnout (Lemyre *et al*., 2008; Lemyre *et al*., 2006). (1) Reduced sense of accomplishment (e.g., I don't feel confident about my swim ability); (2) Emotional and physical exhaustion (e.g., I feel so tired from training that I have trouble finding energy to do other things); (3) Devaluation of sport participation (e.g., I'm not into swimming like I used to be). An athlete's total burnout score is composed by adding the average score of all three subscales. In this study, the Cronbach's alpha was found to be .81 for the ABQ.

Affect. Affect was measured using a translated version of the PANAS (Positive and negative affect; Watson *et al*., 1988). The PANAS consists of a 10-item subscale measuring

positive affect (PA; e.g., proud) and a 10-item subscale measuring negative affect (NA; e.g., guilty). Athletes were asked to indicate how often they had experienced each item in relation to their participation in swimming during the last week on a 5-point Likert scale ranging from "not at all" (1) to "extremely" (5). Further, Crocker (1997) has validated the instrument among adolescents who participated in sport programs. It can, therefore, be employed in studies examining variation in affect in sport settings. The Cronbach's alpha was found to be .83 for PA and .78 for NA.

Statistical Analyses

Throughout the whole project period, the significance value was set to $p < .05$ (Tabachnick & Fidell, 2007; Field, 2005). Although Tabachnick & Fidell (2007) argue that a very large *N* will reduce the extremeness of a standardized score, we used z-scores to identify outliers in the data (Field, 2005). The outliers were deleted and missing data were replaced with mean, because the proportion of missing values was small (Tabachnick & Fidell, 2007). Further, all scales and new variables were tested for normality using the Shapiro Wilks' test of normality, before we conducted any further analyses. We decided not to normalize the distribution using transformation (logarithmic transformation), because most of the variables were moderately skewed. Consequently, the improvements would only have been marginal (Tabachnick & Fidell, 2007). Statistical textbooks (e.g., Hair, Black, Babin *et al*., 2006; Tabachnick & Fidell, 2007) have argued that the impact of skewness is diminished when a sample size reaches 200 cases or more. In fact, Tabachnick & Fidell (2007) argue that the actual size of skewness and the visual appearance of the distribution are more important than the significance level of skewness when researchers are dealing with large samples.

CHAPTER III

RESULTS

The purpose of this study was to examine how Norwegian swimmers perceived their coaches' behavior and the corresponding motivational climate, and how these variables influenced their participation outcomes (e.g., athlete burnout, subjective vitality, and positive and negative affect). The most important results will be presented in this chapter.

Descriptive Statistics

An examination of the descriptive statistics showed that this sample of Norwegian swimmers expressed high levels of a perceived mastery climate, moderate levels of a perceived ego climate and moderate to high levels of perceived coaching behaviors. Further, swimmers reported moderate levels on the three subscales of burnout, as well as for total burnout. Their mean score indicated that they expressed high levels of positive affect and low to moderate levels of negative affect. They reported high levels of vitality. A more detailed description of all measures is presented in Table 2.

Table 2

Descriptive statistics ($N = 202$).

Variable	M	SD	SK	KU	α	Total items
CBAS-PBS	4.8	0.7	-0.10	-0.11	0.77	13/13
MCSYS (Mastery Motivational Climate)	4.3	0.5	-0.88	0.26	0.64	6/6
MCSYS (Ego Motivational Climate)	2.2	0.7	0.52	-0.37	0.66	6/6
SVS (Subjective Vitality Scale)	4.6	1.1	-0.23	-0.19	0.80	6/6
ABQ (Athlete Burnout Questionnaire)	2.4	0.6	0.66	0.29	0.89	15/15
ABQ-subscale (Reduced Sense of Accomplishment)	2.3	0.83	0.80	0.64	0.80	5/5
ABQ-subscale (Exhaustion)	2.3	0.83	0.54	0.06	0.85	5/5
ABQ-subscale (Devaluation)	2.1	0.78	0.50	-0.42	0.73	5/5
PA (Positive Affect)	3.7	0.7	-0.52	-0.05	0.89	10/10
NA (Negative Affect)	1.9	0.6	1.04	1.22	0.78	10/10

Notes. *M* = Mean, *SD* = Standard Deviation, *SK* = Skewness, *KU* = Kurtosis, *α* = Cronbach's alpha.

Scale Reliabilities

Statistical textbooks (i.e., Tabachnick & Fidell, 2007; Field, 2005) argue that a value of .7-.8 is an acceptable value for Cronbach's alpha. The two subscales of the MCSYS did not reach an acceptable Cronbach alpha level (α = .64-.66). However, we decided to use the two subscales in further analyses, because Field (2005) has argued that *"when dealing with psychological constructs, values below even .7 can, realistically, be expected because of the diversity of the constructs being measured"* (p. 668). The Cronbach's α- level for all the questionnaires are presented in Table 2.

Bivariate Correlation Analyses

We examined the hypothesized relationships between the variables by conducting bivariate correlation analyses. The results were weak but conceptually consistent, and there were significant relationships between the variables. In line with previous research (e.g., Ommundsen & Roberts, 1999), our results indicated that a mastery climate was only slightly correlated with an ego climate (r = -.235, p<.01, two-tailed).

Our first hypothesis (1) stated that athletes will experience a mastery climate when they perceive coaching behaviors that emphasize positive reinforcement, mistake-contingent encouragement, corrective instruction given in a positive and encouraging fashion, and proper technical instruction. In contrast, athletes will experience an ego climate when they perceive coaching behaviors that emphasize non-reinforcement, punishment, punitive technical instruction, and ignoring mistakes. The results indicated that athletes' perceptions of a mastery climate was significantly and positively correlated to reward for good performance (r = .292, p<.01, two-tailed), reward for effort (r = .326, p<.01, two-tailed), mistake-contingent encouragement (r = .305, p<.01, two-tailed), mistake-contingent technical instruction (r = .346, p<.01, two-tailed), instructions (r = .409, p<.01, two-tailed), and encouragement (r =

.405, $p<.01$, two-tailed). Further, the results indicated that athletes' perceptions of an ego climate was significantly and positively correlated to punitive technical instruction ($r = .246$, $p<.01$, two-tailed). However, the study found significant positive relationships between non-reinforcement ($r = .308$, $p<.01$, two-tailed), punishment ($r = .242$, $p<.01$, two-tailed), ignoring mistakes ($r = .211$, $p<.01$, two-tailed), and athletes' perceptions of a mastery climate. The correlation coefficients are presented in Table 4.

Our second hypothesis (2) stated that there is a positive association between an ego climate, negative affect and the three dimensions of burnout. There is also a negative association between a mastery climate, positive affect, and the three dimensions of burnout. The results demonstrated significant positive relationships between an ego climate, negative affect and the three dimensions of burnout. Perception of an ego climate was significantly associated with total burnout ($r = .206$, $p<.01$, two-tailed), reduced sense of accomplishment ($r = .262$, $p<.01$, two-tailed), exhaustion ($r = .262$, $p<.01$, two-tailed), and devaluation of sport ($r = .163$, $p<.05$, two-tailed). However, negative affect was not associated with an ego climate, but it was significantly associated with reduced sense of accomplishment ($r = .173$, $p<.05$, two-tailed), exhaustion ($r = .429$, $p<.01$, two-tailed) and sport devaluation ($r = .297$, $p<.01$, two-tailed), as well as total burnout ($r = .376$, $p<.01$, two-tailed). The results demonstrated also significant negative relationships between a mastery climate, positive affect, and the three dimensions of burnout. However, the relationships between a mastery climate and sport devaluation ($r = -.127$, $p<.072$, two-tailed) did not reach a significant correlation coefficient. The correlation coefficients are presented in Table 3.

Finally, our third hypothesis (3) stated that athletes who perceive a mastery climate will have higher levels of vitality and positive affect, compared to athletes who perceive an ego climate. The results indicated that athletes' perceptions of a mastery climate was significantly correlated to positive affect ($r = .323$, $p<.01$, two-tailed) and to vitality ($r = .316$,

p<.01, two-tailed). The association between an ego climate and vitality (*r* = -.135, *p*>.05, two-tailed) and between an ego climate and positive affect (*r* = -.159, *p*<.05, two-tailed) was very weak, but conceptually consistent. The correlation coefficients are presented in Table 3.

Canonical Correlation Analysis

A canonical correlation analysis is used by researchers to find out if and how two sets of variables relate to each other (Tabachnick & Fidell, 2007), and it is the most appropriate and powerful multivariate technique when research studies have several dependent and independent variables (Hair, Black, Babin *et al*., 2006). Moreover, Hair, Black, Babin *et al*. (2006) argue that this type of analysis limits a researcher's probability of committing Type I errors and it reflects the reality of the research study in a better way.

Statistical literature (e.g., Tabachnick & Fidell, 2007; http://www.mvstats.com/) emphasize that researchers in social sciences are required to obtain 10 observations or more per variable to avoid "overfitting" the data when they use canonical correlation in their investigations. In this study, the sample size (202 participants) was considered appropriate, because we lacked only a small number of cases to meet the statistical demands, and the internal consistency of the questionnaires was above or close to .70. Further, *"Stevens (1986) recommends at least 20 times as many cases as variables in the analysis in order to interpret the first canonical correlation only. For two canonical correlations, Barcikowski and Stevens (1975) recommend 40 to 60 times as many cases as variables"* (http://faculty.chass.ncsu.edu/garson/PA765/canonic.htm). We decided not to include the second canonical correlation in further analyses, because the study lacked too many cases in regard to the recommendations given in the statistical literature.

We conducted a canonical correlation analysis using the SPSS CANCORR, to determine the multivariate association between the two sets of variables. In this study, the

perceived motivational climate was the predictor variable. Athletes' perceptions of coaching behavior and a range of well-being parameters (e.g., the three dimensions of burnout, vitality, as well as positive and negative affect) were the criterion variables. The multivariate relationship was significant, Wilk's $\lambda = .43$ $F_{(40, 360)} = 4.7$ $p < .001$. The canonical function emerged with a canonical correlation, r_{ci}, of .702 (49.3 % overlapping variance) and a redundancy index of 30.3. The redundancy index is used to measure the strength between the predictor and criterion variables. Tabachnick & Fidell (2007) argue that the index has to explain more than 10 % of the variance in the criterion variables, and the canonical correlation has to be above .30 to be considered significant. Consequently, athletes' perceptions of the motivational climate (mastery and ego climate) accounted for 30 % of the variance in the criterion variables. Tabachnick & Fidell (2007) argue also that canonical loadings have practical significance and should only be interpreted when they are above .30.

The canonical correlation indicated that Norwegian swimmers who perceive a mastery climate in their clubs, report that they perceive high levels of coaching behaviors that focus on positive reinforcement, mistake-contingent encouragement, mistake-contingent technical instruction given in a positive and encouraging fashion, and proper technical instruction. They also perceive low levels of coaching behaviors that focus on punitive technical instruction. In addition, athletes report that their coaches' often talk or joke with them and keep things organized on practices. However, they report high levels of nonreinforcement, punishment, and that their coaches simply ignore their mistakes. Finally, perception of a mastery climate was positively associated with subjective vitality and positive affect, and negatively associated with the three dimensions of burnout. The canonical loadings are presented in Figure 3.

Table 3. Correlation Matrix 1; Mastery and Ego Motivational Climate, CBAS-PBS, Vitality, Burnout, Reduced Sense of Accomplishment, Exhaustion, Sport Devaluation and Positive and Negative Affect.

Variable	1	2	3	4	5	6	7	8	9	10
1. Mastery Motivational Climate	-									
2. Ego Motivational Climate	**-.235****	-								
3. CBAS_PBS	**.527****	**-.363****	-							
4. Vitality	**.316****	-.135	**.347****	-						
5. Total Burnout	**-.158***	**.206****	**-.221****	**-.465****	-					
6. Reduced sense of accomplishment	**-.289****	**.262****	**-.325****	**-.476****	.662**	-				
7. Exhaustion	**-.181***	**.262****	**-.177***	**-.487****	.879**	.565**	-			
8. Sport devaluation	-.127	**.163***	**-.254****	**-.419****	.872**	.554**	.619**	-		
9. Positive affect	**.323****	**-.159***	**.301****	**.642****	**-.387****	**-.510****	**-.382****	**-.390****	-	
10. Negative affect	.055	-.008	-.094	**-.220****	**.376****	**.173***	**.429****	**.297****	-.012	-

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).

Table 4. Correlation Matrix 2; Mastery and Ego Motivational Climate, Reward for Good Performance, Reward for Effort, Non-reinforcement, Mistake-contingent encouragement, Mistake-contingent technical instruction, Punishment, Punitive technical instruction, Ignoring mistakes, Keeping control, Technical instruction, Encouragement, Organization, and General communication.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. MCSYS_mas	-														
2. MCSYS_ego	**-.235****	-													
3. Reinforcement (play)	**.292****	**-.217****	-												
4. Reinforcement (effort)	**.326****	-.137	.579**	-											
5. Non-reinforcement	**.308****	**-.314****	.335**	.238**	-										
6. M-C encouragement	**.305****	**-.200****	.367**	.470**	.243**	-									
7. M-C technical instruction	**.346****	**-.206****	.296**	.302**	.370**	.300**	-								
8. Punishment	**.242****	**-.354****	.169*	.215**	.175*	.286**	.064	-							
9. Punitive technical instruction	**-.221****	**.246****	-.082	-.115	-.189**	-.203**	-.067	-.577**	-						
10. Ignoring mistakes	**.211****	**-.310****	.191**	.156*	.383**	.163*	.203**	.226**	-.209**	-					
11. Keeping control	.010	.115	.136	.108	.067	-.020	.262**	-210**	.110	-.153*	-				
12. Technical instruction	**.409****	**-.269****	.281**	.256**	.300**	.229**	.451**	.000	-.092	.242**	.236**	-			
13. Encouragement	**.405****	-.131	.448**	.449**	.271**	.344**	.333**	.101	-.046	.176*	.199**	.421**	-		
14. Organization	.229**	-.106	.053	.198**	.110	.258**	.339**	.169*	-.083	.147*	-.019	.172*	.283**	-	
15. General communication	.310**	-.105	.253**	.273**	.218**	.198**	.391**	.071	-.006	.044	.236**	.435**	.390**	.249**	-

**. Correlation is significant at the 0.01 level (2-tailed).
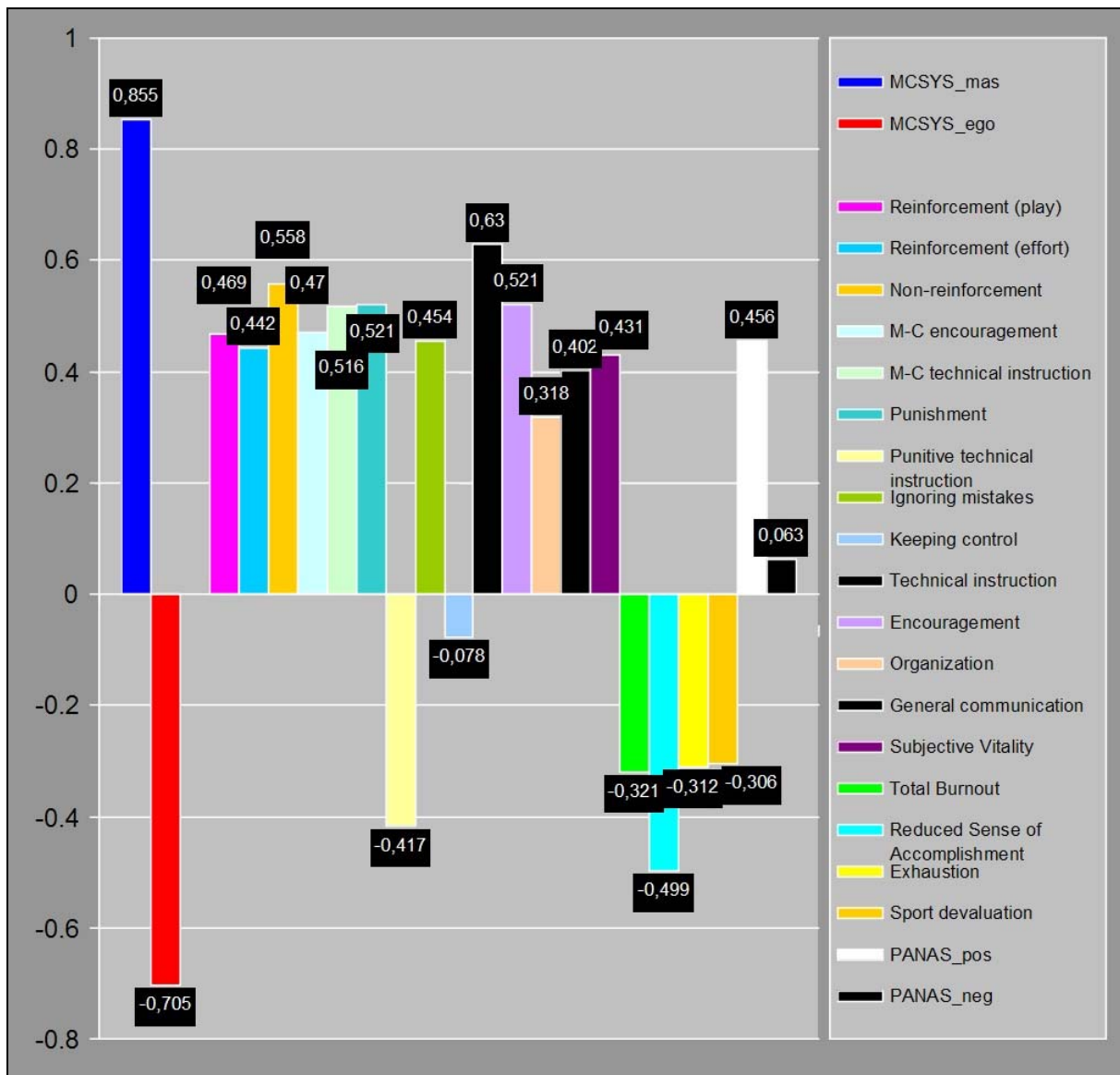*. Correlation is significant at the 0.05 level (2-tailed)

Figure 3. Canonical loadings: high mastery climate and low ego climate and other variables, such as coaching behavior, subjective vitality, burnout, positive affect and negative affect.

CHAPTER IV

DISCUSSION

The general purpose of this investigation was to examine how Norwegian swimmers perceived their coaches' behavior and the corresponding motivational climate, and how these influenced a range of well-being parameters (e.g., athlete burnout, subjective vitality, as well as positive and negative affect). Findings from the present study partially supported the hypotheses by revealing significant relationships between the variables. More specifically, the canonical analysis indicated that the coach-created motivational climate (mastery and ego climate) accounted for 30 % of the variance in the criterion variables.

Questionnaires - a Brief Evaluation

Previous research findings (Cumming *et al.*, 2007; Smith *et al.*, 2008) have indicated that the MCSYS subscales have acceptable internal consistency, and research studies have confirmed its construct validity (Smith *et al.*, 2008). However, the current investigation could not match these results. The Cronbach's alpha coefficient was .64 for the mastery scale and .66 for the ego scale. Thus, it is of interest why the questionnaire achieved Cronbach's alpha coefficients below .7. A possible explanation may be that the content of the translated version of the questionnaire was perceived differently by Norwegian athletes than those in the USA. However, the questions in the MCSYS should at least be easy to understand, because the questionnaire is an age-appropriate measure of the motivational climate created by the coach, and it has a readability level of grade 4.0 or below (Smith *et al.*, 2008). Further, research findings have indicated that children and adolescents from 9 to 14 years of age have the ability to distinguish between mastery- and ego-involving coaching behaviors (Smith *et al.*, 2008). More research is needed to examine the reliability of the translated version of the MCSYS, and how it is related to other variables, such as dispositional goal orientation,

intrinsic motivation, self-esteem, learning strategies, anxiety, and enjoyment in samples of young Norwegian athletes from individual and team sports.

Athletes' Perceptions of Coaching Behavior and the Motivational Climate

It was important in considering the results to first examine the relationship between athletes' perceptions of coaching behavior and the corresponding motivational climate in this sample of Norwegian swimmers. Thus, we hypothesized that athletes will experience a mastery climate when they perceive coaching behaviors that emphasize positive reinforcement, mistake-contingent encouragement, corrective instruction given in a positive and encouraging fashion, and proper technical instruction. In contrast, athletes will experience an ego climate when they perceive coaching behaviors that emphasize non-reinforcement, punishment, punitive technical instruction, and ignoring mistakes.

The results in the present study partially supported the predictions of achievement goal theory (Nicholls, 1989; Ames, 1992b; Duda & Hall, 2001), and previous investigations that have examined coaching behavior in sport settings. Some of these investigations (Smith *et al.*, 1978, 1979, 1983) found that the coach and the motivational climate on the team were evaluated more positively by athletes when their coaches provided them with more positive reinforcement, responded to their mistakes with corrective technical instruction, and exhibited less punishment. In the present investigation, the bivariate correlational analysis indicated that a mastery climate was positively and significantly associated with coaches who used high levels of reinforcement to reward their athletes when they achieved a desirable performance level or when they exerted much effort on practices or in competitions, and who responded to athletes' mistakes with mistake-contingent encouragement and technical instructions. The canonical loadings supported the hypothesis, by revealing a significant and positive relationship between a mastery climate and coaching behaviors that were supportive and

instructive in nature. As expected, athletes are more inclined to perceive a mastery climate when their coach encourages them to work hard, expresses that mistakes are part of the learning process, and tells them to exert high degrees of effort if they want to improve their performance over time (Ames, 1992b; Roberts, 1993; Duda & Balaguer, 2007). In regard to positive reinforcement and the perceived motivational climate, Smith (2006) argues that coaches have the ability to foster a mastery climate by reinforcing athletes' effort, persistence, and improvement. By doing so, the coach can make all athletes, regardless if they perceive themselves as possessing high and low ability, feel successful and competent. This is because all athletes have the ability to learn something new, improve their athletic skills, master a new task, and give maximum effort. As Rick Pitino (cited in Smith, 2006) suggests; *"to really win, you have to get every player to go beyond his capabilities. He must feel great about himself. He must feel that his coaches or supervisors have total confidence in his ability"* (p. 40). In recent research in handball, the findings of Balaguer *et al*. (2002) indicated that athletes were more likely to perceive a mastery climate if coaches provided them with positive reinforcement and engaged themselves in more instructional behaviors. Pensgaard & Roberts (2002) found that even elite athletes placed great importance on the team climate, because they considered an accepting and caring climate as important. In fact, they believed that the motivational climate was one of the most important factors to explain their earlier success, and they emphasized that coaches should be supportive and build confidence.

Newton & Duda (1999) characterize an ego climate as one where athletes will receive punishment if they perform worse than others, receive negative feedback if they are not among the best athletes on their team, and perceive increased pressure from their coach to outperform other teammates. But most importantly, Newton & Duda (1999) stress that athletes who perceive an ego climate have to prove over and over again to their coach that their ability is normatively superior to that of others. As expected, our results indicated that an

ego climate was positively and significantly associated with coaches who responded to athletes' mistakes with punitive technical instruction. We can understand how coaching behavior can have a negative impact on athletes' participation in sports when we look closer at the corrective instruction and punishment item in the CBAS-PBS questionnaire. This item includes the following statement; *"a basketball coach might angrily say, pass the ball, don't dribble so much, dummy!"* Based on the arguments made by Smith (2006), we know that coaches who reinforce athletes who outperform other teammates and punish unsuccessful performance are more likely to create an ego climate and arouse fear among their athletes. Obviously, athletes who participate in an environment that emphasizes ego-involvement and who receive punitive technical instructions, underlying what they are doing wrong in a hurtful way, are more likely to perceive themselves as having less competence than their peers. Research findings have also indicated that a motivational climate in which coaches use extrinsic criteria for success (an ego climate) is related to maladaptive motivational responses (Ntoumanis & Biddle, 1999).

Other research studies have shown similar findings as the present study. For example, Smith *et al*. (2005) examined how athletes perceived their coaches' behavior. This study had some statistical problems regarding the factor analysis results (e.g., cross-loading on factors and low factor loading). However, the findings indicated that athletes perceived a mastery climate if their coaches did not ignore their mistakes, and provided them with positive and encouraging feedback - after successful and unsuccessful performances. In contrast, athletes who perceived their coaches to provide them with less positive feedback, and more punishment feedback, were perceiving an ego climate. In another research study, Black & Weiss (1992) revealed that coaches who were perceived as giving more frequent information and praise following desirable performances, and more frequent encouragement combined with information following undesirable performances, were associated with athletes who had

higher levels of perceived success, competence, enjoyment, effort and preference for optimally challenging activities. There was also a significant correlation between coaching behaviors that were contingent and appropriate, and the athletes' performance, perception of ability, positive affect, and motivation. Horn (1985) has also suggested that feedback from coaches should be more appropriate and performance-contingent because empirical and theoretical findings have indicated that this type of feedback has a greater impact on athletes' perceptions of competence and control.

The most unexpected finding in the present study was the positive association between a mastery climate and coaching behaviors, such as non-reinforcement, punishment, and ignoring mistakes. The nature of these relationships is unclear. Our results were not supported by previous research findings (e.g., Balaguer *et al.*, 1996; Balaguer *et al.*, 2002; Smith *et al.*, 2005). Even though perceptions of a mastery climate were positively related to punishment in the present study, a possible explanation may actually be that athletes perceived such behavior to be an indication of their lack of effort, and that their coach expected them to work harder on a specific task. Another possible explanation is that coaches ignored their athletes' mistakes because they wanted them to detect and understand what they were doing wrong, instead of always telling them what to do and how to do it. Thus, coaches' tendency to ignore their athletes' mistakes may actually be a pedagogical tool to enhance their self-awareness. More research is needed to examine this tendency among Norwegian swimming coaches.

With respect to future participation in swimming, athletes with low athletic abilities are more likely to receive less positive attention and recognition if coaches continue to create motivational climates that emphasize ego-involvement (Smith, 2006; Smith & Smoll, 2007). In regard to youth sports, heightened self-awareness among young athletes can also inhibit the development of new motor skills. More specifically, Theebom, DeKnop & Weiss (1995) results suggested that a mastery climate is more favourable than an ego climate when coaches

are teaching athletes new motor skills. In another study, Ommundsen *et al*. (1998) found that athletes who perceived the motivational climate as ego-involving were likely to avoid practice. In contrast, athletes who perceived a mastery climate reported a greater willingness to learn from practice. Recently, Alfermann, Lee & Wuerth (2005) examined the relationship between skill development, coaching behavior, and the perceived motivational climate. They found that athletes' skill development was predicted by a mastery climate and coaching behaviors that emphasized social support and technical instruction.

Athletes' Perceptions of the Motivational Climate and Athlete Burnout

We conducted a bivariate correlation analysis to determine the association between perceptions of the motivational climate (mastery- or ego-involving climate), the three dimensions of burnout (reduced sense of accomplishment, physical/emotional exhaustion, and sport devaluation), and positive and negative affect. Although the association between the variables was weak, the results were conceptually consistent. In support of the predictions, perception of an ego climate was significantly and positively associated with the three dimensions of burnout, and significantly and negatively associated with positive affect. In contrast, perception of a mastery climate was significantly and negatively associated with reduced sense of accomplishment and physical/emotional exhaustion, and negatively associated with sport devaluation. It was also significantly and positively associated with positive affect. In addition, a canonical correlation analysis was used to examine the multivariate relationship between the variables. The canonical loadings indicated that athletes are more at risk of developing burnout symptoms when coaches make them believe that success is achieved when they demonstrate superiority relative to others (Roberts *et al*., 2007; Lemyre *et al*., 2008). The canonical correlation analysis support the findings of Lemyre *et al*. (2008), who examined the relationship between social cognitive motivational variables at the

start of a season and signs of burnout at the end of the season among elite winter athletes. Overall, the results supported the argument that the risk of developing burnout symptoms increases when athletes have a maladaptive motivational profile (e.g., an ego goal orientation, an ego climate, a strong concern about making mistakes, a perception that parents are critical of performance, and doubt their current ability).

Nicholls (1989) has argued that; *"working under these different conceptions of ability will have related consequences for the experience of interest or enjoyment in a task performance"* (p. 86). Why is this so? The majority of athletes in this sample had competed at the national level, and even a few of them had competed in the European and/or World Championships. Participation at this competitive level means that athletes have to spend many hours in the swimming pool every day to improve their physical skills, which means that they are heavily exposed to the coach-created motivational climate. Clearly, it is much more adaptive for athletes to be encouraged by their coach to believe that hard work and practice will lead to an improved performance in swimming. In contrast, athletes who are being encouraged to demonstrate superiority by their coach may experience increased competitive stress when they realize that their efforts will not result in a desirable outcome. Smith (1986) suggests that athlete burnout is a reaction to chronic stress. Smith further argues that burnout occurs when *"a previously enjoyable activity becomes an aversive source of stress"* (p. 39). Recently, in elite wrestling, Kristiansen, Roberts & Abrahamsen (2008) found that athletes who perceived a high mastery and a low ego climate used more adaptive coping strategies in competitive situations than athletes who perceived a high ego and low mastery climate. The role of the coach was also mentioned in this study. The results suggested that the coach was an important support person, who needs to teach athletes how to cope with the stress in competitions. This may be one possible explanation why athletes are more at risk of developing burnout symptoms when they perceive an ego climate.

Research findings (e.g., Cresswell & Eklund, 2005; Amorose, Anderson-Butcher & Cooper 2009) have also revealed that athletes who suffer from burnout experience a loss of motivation. In the present study, the canonical loadings indicated that it was a strong positive association between reduced sense of accomplishment and perceptions of an ego climate. This result can be due to reduced motivation. For example, from a self-determination theory perspective, Lemyre *et al.* (2006) have presented evidence associating less self-determined motivation with the three dimensions of burnout. In another study, Perreault, Gaudreau, Lapointe & Lacroix (2007) revealed that a lesser degree of need satisfaction (autonomy, competence, and relatedness) was positively related to athlete burnout. More specifically, the only basic need that predicted athlete burnout was relatedness. It was argued that athletes who perceive a controlling coaching style will have fewer self-determined reasons for why they participate in sports. As a result, these athletes are at risk of developing burnout symptoms. These results are relevant in the present study for two reasons. First, Nicholls (1989) has argued that; *"our striving will tend to be experienced as the means and not as an end in itself"* (p. 86). In other words, athletes are more likely to be extrinsically motivated when they participate in an achievement environment that emphasizes ego-involvement. Second, previous results have supported this argument, by revealing a positive association between athletes who perceive an ego climate and less self-determined motivation (Brunel, 1999; Cecchini, Gonzàlez, Carmona, Arruza, Escarti & Balaguè, 2001; Petherick & Weigand, 2002; Standage, Duda & Ntoumanis, 2003).

It is reasonable to suggest that various aspects of training can be related to the development of burnout symptoms (Lemyre *et al.*, 2006). Swimming is an endurance sport, which requires athletes to dedicate much of their spare time to extensive training over a number of years. In regard to training hours per week, athletes in the present study reported that they spent an average of eight hours per week training. If athletes in the present study are

not training during school vacation, then we can estimate that they exercise 38 weeks of the year, and have a total of around 300 training hours each year. Current results are in line with findings from the ones found by Gustafsson, Kenttä, Hassmèn, Lundqvist & Durand-Bush (2007), who examined the burnout process in three elite endurance athletes. Participants in this study reported that they spent somewhere between 6.8 and 9.4 hours per week training, and trained for 23 to 50 weeks of the year. Their total annual training hours were between 230 and 398. The results suggested that the reasons why these athletes experienced burnout were that they perceived pressure from significant others to perform well, felt that they were involved in cross-country skiing because they had to, felt isolated from their friends, had a desire to be number one, had high training loads during the competitive season, and did not allow themselves to recover well enough. Based on the achievement goal theory, some of these reasons give an impression of an ego climate (i.e., Nicholls, 1989; Duda & Hall, 2001; Roberts *et al.*, 2007).

Findings in the current study provided insight into the relationship between athlete burnout and negative affect. The bivariate correlation analysis indicated that there was a significant and positive association between negative affect and the three dimensions of burnout, as well as total burnout. These results are consistent with previous findings in achievement environments, where the three dimensions of burnout were related to negative affect (Lemyre *et al.*, 2006). In swimming, Lemyre *et al.* (2006) examined the variability in motivation and affect among elite swimmers, and how these variables were related to burnout vulnerability. Their findings showed that intraindividual variations in negative affect was related to all three dimensions of burnout, as well as total burnout. However, our results demonstrated that there was no correlation between perception of an ego climate and negative affect. Diener *et al.* (2003) suggest that positive and negative affect reflect everyday experiences of the ongoing events in people's lives. Thus, a possible explanation can be that

other variables, such as failure to invoke sound recovery (Lemyre *et al*., 2006), contributed more to athletes' feelings of negative affect than the coach-created motivational climate. Finally, in support of the predictions, both of the correlation analyses indicated that athletes' perceptions of a mastery climate were significantly and positively associated with positive affect. This is supported by previous research findings, which have shown that perception of a mastery climate is positively associated with enjoyment (Seifriz, Duda & Chi, 1992; Theeboom *et al*., 1995; Kavussanu & Roberts, 1996).

Thus, it seems reasonable that researchers have suggested that more research is needed on the role of significant others (coaches/parents), in order to more fully understand the burnout process (Raedeke & Smith, 2004; Perreault *et al*., 2007), and why others emphasize that athletes' perceptions of the motivational climate have the potential of changing athletes' motivation from adaptive to maladaptive (Lemyre *et al*., 2008). It is common to believe that the coach has the ability to change his/her behavior and the motivational climate (Duda & Balaguer, 2007; Smith & Smoll, 2007). Yet, few studies have used a cognitive-behavioral intervention (Hall, Cawthraw & Kerr, 1997; Smoll & Smith, 2006) to teach coaches how to establish a mastery climate in achievement environments, to inhibit the development of athlete burnout. But some studies (Udry *et al*., 1997; Vealey *et al*., 1998; Price & Weiss, 2000) seem to agree that certain coaching behaviors, such as giving athletes positive reinforcement, encouragement, and technical instruction, prevent the development of burnout symptoms in athletes. Other findings (e.g., Ommundsen & Roberts, 1999; Roberts *et al*., 2007) have also indicated that coaches should focus their attention on changing the criteria of success and failure inherent in the motivational climate, because coaches can promote adaptive achievement behaviors by enhancing the mastery criteria within the achievement context.

Athletes' Perceptions of the Motivational Climate and Subjective Vitality

One question of great interest in this study was if there is a relationship between a mastery climate and higher levels of vitality and positive affect. Thus, it was hypothesized that athletes who perceive a mastery climate will have higher levels of vitality and positive affect, compared to athletes who perceive an ego climate. Consistent with what was hypothesized, a bivariate correlation analysis suggested that a mastery climate was significantly and positively associated with both vitality and positive affect. Perceptions of an ego climate were negatively associated with vitality and significantly and negatively associated with positive affect. Further, the canonical loadings supported the hypothesis by revealing a significant and positive association between perception of a mastery climate, vitality, and positive affect. In contrast, these variables were significantly and negatively associated with an ego climate. In line with AGT, previous sport-related studies (e.g., Pensgaard & Duda, 2003; Reinboth & Duda, 2004, 2006) have shown that a mastery climate is positively related to psychological well-being outcomes, such as global self-esteem, subjective vitality, and positive emotions. Our results, therefore, extended previous work by showing that perception of the motivational climate has important implications for well-being outcomes (vitality, positive affect) among Norwegian swimmers.

As mentioned earlier, previous research studies that have been conducted have mainly examined well-being (e.g., subjective vitality, self-esteem, positive and negative affect) from a self-determination theory perspective. For example, Gagnè *et al.* (2003) examined how young gymnasts perceived the support from coaches and parents, and how this influenced their need satisfaction, motivation, and well-being. Athletes reported that daily motivation only influenced well-being before practice, and athletes' need satisfaction (autonomy, competence, and relatedness) during practice influenced the change in well-being (subjective vitality, self-esteem, and positive and negative affect) from before to after the practice.

However, athletes' perceptions of parent and coach autonomy support and involvement did not moderate this relationship. In another study, Mouratidis, Vansteenkiste, Lens & Sideridis (2008) examined the motivating role of positive feedback on affective outcomes (i.e., well-being, ill-being). Their findings showed that positive feedback had a positive effect on competence need satisfaction and autonomous motivation, and through this on the athletes' experienced well-being (vitality and vigor). These findings are in line with the results in the present study. More specifically, the canonical loadings indicated that it was a significant and positive relationship between both of the positive reinforcement variables, subjective vitality, and positive affect.

On the theoretical side, the present study supports AGT's (Nicholls, 1984b, 1989) proposal that athletes will experience achievement activities as more intrinsically satisfying when coaches emphasize task-involvement in achievement environments instead of ego-involvement. Subjective vitality (Ryan & Frederick, 1997), or an individual's feeling of inner energy and spirit, has been positively related to perceptions of competence (Reinboth *et al.*, 2004), and findings have shown that autonomous motivation produce more vitality (Nix *et al.*, 1999; Reis *et al.*, 2000). A mastery climate will encourage all athletes, also those who perceive themselves as less competent (Nicholls, 1989), to understand, learn, and develop new athletic skills, and thereby making sure that athletes achieve a sense of competence while participating in achievement environments (Nicholls, 1989). This is also supported by Reinboth & Duda (2004), who suggest that coaches are more likely to increase athletes' perceptions of competence if they encourage the athletes to develop internalized performance standards. Consequently, athletes will experience more vitality when they participate in environments where coaches emphasize task-involvement. There is also reason to believe that athletes will prefer to participate in such environments, because they are given some choice and control in relation to their own participation. Nix *et al.* (1999) support this suggestion by

arguing that subjective vitality should be maintained or enhanced if individuals achieve

success at behaviors that are autonomously regulated. From an achievement goal perspective,

Nicholls (1989) argues that; *"...task involvement will be heightened if students are given*

choice or some say in matters such as which tasks to work on and the order in which they

complete assignments. Choice itself tends to increase commitment to chosen activities. And, to

the extent that task involvement is fostered, students will choose tasks that are personally

challenging rather than too easy or hard for them. This in turn will increase their chances of

gaining satisfaction from developing their skills, knowledge, or understanding" (p. 169).

One of the important features of the present study was to examine how athletes

perceived their coaches' behaviors. Findings in the present study indicate that coaching

behavior that was characterized by supportiveness and instructiveness, was significantly and

positively related to a mastery climate and athletes' subjective vitality and positive affect.

What is particularly interesting about these results is that they are supported by other sports-

related research studies. For example, Reinboth *et al.* (2004) examined the relationship

between coaching behavior, need satisfaction, and well-being. Findings showed that coaches

who were perceived by athletes to focus their attention on mastery, were a positive predictor

of athletes' perceptions of competence. In regard to need satisfaction, the need for autonomy

was a positive, but weak predictor of athletes' subjective vitality. This underline the

importance of involving athletes in the decision making (Treasure, 2001). In fact, Ryan &

Frederick (1997) suggest that autonomy is important if individuals want to experience

increased vitality in their personal lives. Further, results revealed that the need for competence

was also positively associated with subjective vitality. In another study, Reinboth & Duda

(2006) examined the relationship between perceptions of the motivational climate (mastery-

or ego-involving), athletes' need satisfaction, and subjective vitality. Results indicated that

coaches can enhance athletes' subjective vitality by creating an environment that emphasizes

task-involvement. It was also demonstrated that an internal perceived locus of causality (aspect of autonomy) and perceptions of coach relatedness were positive predictors of an increase in athletes' subjective vitality. Thus, athletes who participate in a mastery climate where they are given opportunities by their coach to monitor their own performance and progress are more likely to report satisfaction with the athletic environment and increased subjective vitality. In regard to coaching behavior and the corresponding motivational climate, Treasure (2001) has argued that coaches should rethink how they design learning activities, involve athletes in decision making, give recognition, group athletes, give athletes evaluation, and how much time they allow athletes to spend on certain tasks, if they are concerned about how to create an athletic environment that emphasizes task-involvement rather than ego-involvement.

A possible explanation for why athletes' perceptions of an ego climate were negatively correlated with subjective vitality can be due to the fact that they were encouraged by their coaches to establish superiority relative to others (Nicholls, 1989). Previous studies (e.g., Krane, Greenleaf & Snow, 1997; Reinboth & Duda, 2004, 2006; Lemyre *et al*., 2006, 2008) that have studied indicators of well-being in relationship to the motivational climate have pointed out that perceptions of an ego climate are positively related to negative sport participation outcomes, such as athlete burnout, perfectionism, disordered eating, serious injuries, and negative affect. Therefore, coaches can prevent athletes, particularly those who perceive themselves as less competent, from experiencing increased well-being (e.g., subjective vitality, self-esteem, and positive and negative affect) by establishing an environment that emphasizes attention on outcome-focused goals, social comparison, competition, and outperforming others. Nicholls (1989) argues that; *"in a situation of ego involvement, performance is impaired more by the expectation that failure will indicate one's lack of competence than by the mere expectation of failure to complete a task"* (p. 119).

By creating either a mastery climate or an ego climate, coaches are able to facilitate or debilitate athletes' psychological and physical well-being while they are engaged in achievement activities (Nicholls, 1989; Reinboth & Duda, 2004, 2006). Reinboth & Duda (2004) suggest that coaches should create a motivational climate that emphasizes task-involvement, and thereby foster athletes' perceptions of competence in physical activities. These findings are also supported by a research study from the physical education context (Treasure, 1997), which found that students who perceived a mastery climate reported feelings of satisfaction. In contrast, students in an ego climate reported feelings of boredom.

CHAPTER V

LIMITATIONS OF THE STUDY

This Master thesis has some limitations that readers should keep in mind when they read and interpret the current findings. First, this study did not investigate whether there were gender differences in perceptions of the motivational climate, perceptions of coaching behavior, athlete burnout, subjective vitality, and positive and negative affect. This decision was made because of time constraints. Second, the results in the present study do not describe relationships between cause and effect, as the results are based on correlation analyses only. Further, this study has a cross-sectional design, meaning that the data was collected at one point in time. This limits the interpretation of the results. It would also have been preferable to create different profiles of the perceived motivational climate by classifying athletes into four groups (high/low mastery climate * high/low ego climate) based on median split scores (e.g., Kavussanu & Roberts, 1996; Treasure, 1997; Ommundsen & Roberts, 1999). However, this was also not done due to the timeframe. Further, statistical textbooks suggest that research studies which use a canonical correlation should have at least 10 observations or more per variable to avoid "overfitting" the data. The present study lacked 18 participants to meet the

demands from the statistical textbooks. This restricts the validity of the results. We could also

have measured how athletes evaluated their head coach by including questions in the

questionnaire, such as "liked playing for the coach," "coach's knowledge of sport," "coach's

teaching ability," "play for coach next year," and "fun playing on team." By doing this, we

could have tested the mediational model of adult leadership behaviors in sport to a greater

extent, and it would have allowed us to make even more comparisons between the current

findings and results revealed by the work of Smith, Smoll and their colleagues (e.g., Smith *et

al.*, 1978, 1979; Cumming *et al.*, 2006, 2007).

CHAPTER VI
CONCLUSION AND FUTURE DIRECTIONS

The ways in which coaches relate to their athletes, and the achievement standards they

emphasize, have an impact on athletes' well-being (Ames, 1992b; Gagnè *et al.*, 2003;

Cumming *et al.*, 2007; Reinboth & Duda, 2004, 2006; Lemyre *et al.*, 2008). Thus, grounded

in AGT (Nicholls, 1989), the purpose of this investigation was to examine how Norwegian

swimmers perceived their coaches' behavior and the corresponding motivational climate, and

how these influenced a range of well-being parameters (e.g., athlete burnout, subjective

vitality, as well as positive and negative affect). Overall, the results indicated that athletes

who perceived a mastery climate were significantly and positively correlated to subjective

vitality and positive affect. In contrast, athletes who perceived an ego climate were

significantly and positively correlated to the three dimensions of burnout, as well as total

burnout. The results also demonstrated that athletes' perceptions of different kinds of

coaching behaviors were significantly and positively related to either a mastery climate or an

ego climate. More specifically, coaching behaviors that emphasized positive reinforcement,

mistake-contingent encouragement, corrective instruction given in a positive and encouraging

fashion, and proper technical instruction was significantly and positively correlated to a mastery climate. Finally, the fact that the participants ranged in age from 14 to 24 years, represented 15 Norwegian swimming clubs, and had competed at different competitive levels make these results interesting for researchers, significant others (coaches/parents), and other sports that are associated with the Norwegian Confederation of Sports.

Nicholls (1989) highlights that; *"...we do not have to create the illusion that everyone is or (if they work hard enough) can be above average to sustain equality of optimum motivation and sense of accomplishment"* (p. 95). However, all coaches in youth sports should strive to create an environment that promotes athletes' well-being and optimizes their achievement motivation. Smith and Smoll (Smoll & Smith, 2006) have developed a four-part philosophy of winning. One of its goals is to help coaches to establish a mastery climate in youth sports. Coaches should understand that; (1) winning isn't everything, nor is it the only thing, (2) failure is not the same as losing, (3) success is not synonymous with winning, and (4) children should be taught that success is found in striving for victory (p.464). They have also developed training programs to increase coaches' effectiveness in sport settings. For example, "Coaching Effectiveness Training" and "Mastery Approach to Coaching" are two programs that have been developed and tested (e.g., Smoll & Smith, 2002; Smith *et al*., 2007; Smith & Smoll, 2007). Their aim has been to foster positive coach-athlete interactions, increase the amount of fun in sport programs, create more supportive environments, increase athletes' self-esteem, reduce performance-destroying anxiety, and decrease dropout rates in youth sports (www.y-e-sports.com).

Future research should consider the influential role played by teammates in the creation of the perceived motivational climate. Ntoumanis & Vazou (2005) have suggested that an interesting line of research would be to examine whether the coach climate and peer climate in a club are contradictory. Further research should also use more than one

motivational theory as a conceptual framework to examine coaching behavior, athlete burnout, and subjective vitality in sport settings. It would be interesting to examine the relationship between perceptions of the motivational climate, psychological need satisfaction, subjective vitality, and athlete burnout in Norwegian individual and team sports. There is also a need for further research to examine the influence of the perceived motivational climate on athletes' well-being (subjective vitality, burnout, and affect) in a longitudinal research study.

We find it also appropriate to suggest that researchers should develop a new and more accurate measure of how athletes perceive their coaches' behavior. In a statistical analysis, such as canonical correlation, researchers need 10 observations or more per variable to avoid "overfitting" the data. Based on this criterion, it is difficult to examine how perceptions of coaching behavior are related to several other variables when the CBAS-PBS contains thirteen items that must be included in the analysis. A more advanced version of the CBAS – Perceived Behavior Scale should measure the three independent behavioral dimensions (i.e., supportiveness, instructiveness, and punitiveness) of coaching behavior. This suggestion supports previous research findings (Smoll *et al*., in press), and makes it easier for researchers to include the questionnaire in statistical analyses.

"...In the context of swimming, a coach can focus swimmers on their individual improvement, personal bests, and skill development and, in so doing, establish the basis for a mastery orientation. Such a structure emphasizes personal challenge in small, achieveable steps; it stresses learning new techniques; and it fosters an attitude of enjoyment" (Ames, 1992, p. 167).

CHAPTER VII

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WebPages:

http://www.mvstats.com

http://www.faculty.chass.ncsu.edu/garson/PA765/canonic.htm

http://www.y-e-sports.com

Appendixes

Appendix A

Letter of Collaboration with The Norwegian Swimmingfederation

INFORMASJON VEDRØRENDE DELTAKELSE I UNDERSØKELSEN

En gruppe forskere innen ungdomsidrett fra Norges idrettshøgskole ønsker å foreta en spørreskjemaundersøkelse blant et utvalg av norske svømmere. Gruppen planlegger en undersøkelse som blant annet tar sikte på å skaffe bedre kunnskap om unge svømmeutøveres trivsel i svømming.

Opplegget vil gå ut på at en eller flere fra forskningsgruppen vil besøke svømmeklubben i den respektive svømmehallen i løpet av uke 49 (3-8 desember, 2007). Her vil spørreskjemaene deles ut for utfylling og innsamling umiddelbart etterpå. Spørreskjemaet vil ta ca 30 minutter for utøverne å fylle ut.

Norges svømmeforbund støtter denne undersøkelsen. Forbundet ser den som viktig med sikte på å fremskaffe et bedre kunnskapsgrunnlag når det gjelder betingelser for at svømming for unge svømmere skal kunne videreutvikles i retning av å bli en mer trivelig, sportslig læringsfremmende og bedre sosial arena.

Vi vil herved oppmuntre hver enkelt trener til å få sine svømmeutøvere til å delta. Enhver deltakelse er imidlertid helt frivillig, og en eventuell utfylling av skjemaet vil selvsagt være anonym. Vi ber dere om å informere foreldrene til svømmeutøverne (se vedlagt brev) om dette forskningsprosjektet.

De klubbene som blir trukket ut for deltakelse vil bli kontaktet pr. brev av 1. amanuensis Nicolas Lemyre og mastergradsstudent Bård Erlend Rustad ved Norges idrettshøgskole med mer detaljert informasjon.

Sportslig hilsen fra

Norges Svømmeforbund

Appendix B

Letter sent out to Coaches

Til hovedtrener for……………………………………………………………… Svømmeklubb.

Fra: Nicolas Lemyre (1. amanuensis), Bård Erlend Rustad (mastergradsstudent), Norges idrettshøgskole.

Vi henviser til brev fra Norges svømmeforbund vedrørende muligheten for at svømme-utøverne i din klubb vil bli spurt om å delta i et forskningsprosjekt vedrørende trivsel i svømming. Undersøkelsen inngår i et forskningsprosjekt ved Norges idrettshøgskole der hensikten er å få til en sportslig kvalitetsheving i norsk svømming.

Din klubb er plukket ut og inviteres herved til å delta i forskningsprosjektet. I den forbindelse vil klubbens ledelse (kontaktperson oppgitt til Norges svømmeforbund) bli forsøkt kontaktet pr. telefon av en av oss (Nicolas Lemyre/Bård Erlend Rustad) med sikte på å avtale en passende tid i svømmehallen hvor vi kan møte klubben, og få spørreskjemaene utfylt. Vi vil selvsagt sørge for at et slikt møte i svømmehallen også passer inn i forhold til klubbens treningstider.

Planen er at en fra vår forskningsgruppe vil komme til svømmehallen hvor dere trener, informere utøverne, distribuere spørreskjemaene, og samle dem inn igjen etterpå. Utfyllingen er beregnet å ta ca 30 minutter. Vi vil sette stor pris på om du kan sørge for at utøverne blir informert, og at de er samlet og klare til å fylle ut skjemaene til avtalt tid.

Enhver utfylling av spørreskjemaet er selvsagt frivillig og den er anonym (det vil si at ingen svømmeutøvere skal sette navn på spørreskjemaet, og lagets navn vil heller ikke bli koblet til svømmeutøverens svar eller på annen måte bli brukt).

Vi takker på forhånd for samarbeidet, og ser fram til å møte deg og svømmeutøverne.

Sportslig hilsen fra
Nicolas Lemyre (1. amanuensis) og Bård Erlend Rustad (mastergradsstudent)

Appendix C

Letter to, and Approval from Parents

En gruppe forskere innen ungdomsidrett fra Norges idrettshøgskole ønsker å foreta en spørreskjemaundersøkelse blant et utvalg av norske svømmere. Gruppen planlegger en undersøkelse som blant annet tar sikte på å skaffe bedre kunnskap om unge svømmeutøveres motivasjon i svømming og miljøet rundt svømmeaktiviteten.

Data som samles inn vil bli lagret på en sikker måte, som ikke gjør dem tilgjengelig for andre enn prosjektgruppen. Data vil også kodes slik at det ikke skal kunne etterspores av andre. Resultatene vil ikke bli offentliggjort enkeltvis, men vil kunne bli brukt i artikler eller forskningsrapporter som omhandler deltakelse og motivasjon i svømming.

Norges svømmeforbund støtter denne undersøkelsen. Forbundet ser den som viktig med sikte på å fremskaffe et bedre kunnskapsgrunnlag når det gjelder betingelser for at svømming for unge svømmere skal kunne videreutvikles i retning av å bli en enda mer trivelig, sportslig læringsfremmende og bedre sosial arena.

Vi ber om din/deres tillatelse til at ditt/deres barn kan delta i spørreskjemaundersøkelsen.

Jeg/vi gir min/vår tillatelse til at

_____
Navn på svømmeutøver

Kan delta i spørreskjemaundersøkelsen som er i regi av Norges idrettshøgskole.

_____
Underskrift foresatte

Appendix D

The Motivational Climate Scale in Youth Sport

Vi ønsker å finne ut hvor godt du husker hvordan miljøet er i svømmegruppen din. Når du svarer på disse spørsmålene, tenk bare på miljøet i <u>din</u> svømmegruppe. Les hvert spørsmål og sett et kryss på det svaralternativet som er mest riktig for deg.

	Spørsmål	Ikke Sant	Litt Sant	Passe Sant	Ganske Sant	Veldig Sant
		1	2	3	4	5
1.	Å vinne konkurranser var det aller viktigste for treneren.	☐	☐	☐	☐	☐
2.	Treneren ga utøvere en god følelse når de forbedret ferdighetene sine/en av ferdighetene sine.	☐	☐	☐	☐	☐
3.	Treneren brukte mindre tid på utøvere som ikke var så gode.	☐	☐	☐	☐	☐
4.	Treneren oppmuntret oss til å lære nye ferdigheter.	☐	☐	☐	☐	☐
5.	Treneren fortalte oss hvem som var de beste i svømmegruppen.	☐	☐	☐	☐	☐
6.	Treneren sa at utøverne måtte hjelpe hverandre til å bli bedre.	☐	☐	☐	☐	☐
7.	Treneren sa at det aller viktigste var at vi gjorde vårt beste.	☐	☐	☐	☐	☐
8.	Treneren brydde seg mest om de beste utøverne.	☐	☐	☐	☐	☐
9.	Treneren sa at lagkamerater bør hjelpe hverandre til å bli bedre.	☐	☐	☐	☐	☐
10.	Utøvere ble byttet ut i konkurranser når de gjorde feil.	☐	☐	☐	☐	☐
11.	Treneren sa til oss at alle var viktige for at klubben skulle lykkes.	☐	☐	☐	☐	☐
12.	Treneren sa at vi måtte forsøke å bli bedre enn klubbkameratene våre.	☐	☐	☐	☐	☐

Appendix E

CBAS – PBS

Vi ønsker å finne ut hvor godt du husker hva hovedtreneren din gjorde. Vi ønsker også å finne ut hvor ofte treneren gjorde slikt på trening og i konkurranser. Når du svarer på disse spørsmålene, tenk bare på handlingene til hovedtreneren din.

Spørsmål	Aldri	Nesten Aldri	Sjelden	Noen Ganger	Ganske Ofte	Svært Ofte	Nesten Alltid
	1	2	3	4	5	6	7
1. Det første kalles **Belønning for God Prestasjon**. Trenere belønner eller roser svømmeutøvere når de gjør noe bra eller svømmer godt. Noen trenere gir mye belønning mens andre ikke gjør det. Hvor ofte ga hovedtreneren din deg belønning for gode svømmeprestasjoner? Sett et kryss i boksen som indikerer hvor ofte hovedtreneren din belønnet deg.	☐	☐	☐	☐	☐	☐	☐
2. Trenere **Belønner eller Roser** svømmeutøvere også når de virkelig anstrenger seg selv om de ikke får det til. Noen trenere gir mye belønning for innsats mens andre ikke gjør det. Hvor ofte belønnet treneren din deg for god innsats? Sett et kryss i boksen som indikerer hvor ofte hovedtreneren din belønnet deg.	☐	☐	☐	☐	☐	☐	☐
3. **Ingen Belønning** er når en trener ikke belønner eller roser en svømmeutøver	☐	☐	☐	☐	☐	☐	☐

verken etter at han eller hun svømmer godt eller gjør en god innsats. Med andre ord, treneren overser det. Sett et kryss i boksen som indikerer hvor ofte hovedtreneren din ikke belønnet deg når han eller hun burde ha gjort det.

4. Noen ganger ødelegger svømmeutøvere og gjør feil. Noen trenere gir masse **Oppmuntring etter Feil**. For eksempel kan han eller hun si: "Det er ok, ikke bry deg om det. Du får det til neste gang". Andre trenere oppmuntrer ikke svømmeutøverne sine noe særlig etter at de gjør en feil. Sett et kryss i boksen som indikerer hvor ofte hovedtreneren din oppmuntret deg etter feil.

☐ ☐ ☐ ☐ ☐ ☐ ☐

5. En annen ting en trener kan gjøre etter en feil er å fortelle utøveren **hvordan det skal gjøres riktig**. For eksempel, en trener kan fortelle hvordan eller vise den rette måten å ta en vending på. Dette kalles **Korrigerende Instruksjon**. Sett et kryss i boksen som indikerer hvor ofte hovedtreneren din gjorde dette med deg.

☐ ☐ ☐ ☐ ☐ ☐ ☐

6. **Straff** innebærer slikt som å skrike til en utøver som har gjort en feil. Straff er også å si noe som sårer en svømmeutøvers følelser eller

☐ ☐ ☐ ☐ ☐ ☐ ☐

gjør det pinlig for ham eller henne. Sett et kryss i boksen som indikerer hvor ofte hovedtreneren din gjorde dette med deg.

7. Noen ganger vil en trener vise deg hvordan du kan rette opp en feil, men på en utrivelig, straffende måte. Dette er en kombinasjon av **Korrigerende Instruksjon og Straff**. For eksempel, en svømmetrener kan si sint: "Bedre armtak, mer innsats i beinsparkene, tulling!" Sett et kryss i boksen som indikerer hvor ofte hovedtreneren din gjorde dette med deg.

☐ ☐ ☐ ☐ ☐ ☐ ☐

8. Noen ganger når du gjør feil, verken sier eller gjør trenere noe. De **overser simpelthen feil**. Sett et kryss i boksen som indikerer hvor ofte hovedtreneren din gjorde dette med deg.

☐ ☐ ☐ ☐ ☐ ☐ ☐

9. Det neste kalles **å Holde Kontroll**. Trenere gjør dette når svømmeutøverne deres ikke oppfører seg ordentlig eller ikke er oppmerksomme. For eksempel, hvis utøvere bare soser omkring, kan treneren si: " Kutt ut og følg med!" Sett et kryss i boksen som indikerer hvor ofte hovedtreneren din gjorde det?

☐ ☐ ☐ ☐ ☐ ☐ ☐

10. Noen svømmetrenere **Underviser** mye. En trener kan gi instruksjoner, ikke fordi noe er gjort feil, men for

☐ ☐ ☐ ☐ ☐ ☐ ☐

å vise en utøver hvordan det skal gjøres korrekt. Sett et kryss i boksen som indikerer hvor ofte hovedtreneren din ga deg instruksjoner?

11. Trenere gir **ikke bare oppmuntring etter feil**. **De kan gjøre det når som helst, selv når ting går bra.** For eksempel, kan en trener klappe eller rope en oppmuntring når som helst i løpet av trening eller i konkurranser. Sett et kryss i boksen som indikerer hvor ofte hovedtreneren din oppmuntret deg?

☐ ☐ ☐ ☐ ☐ ☐ ☐

12. Det neste kalles **Organisering**. Dette inkluderer slikt som å få treninger til å gå fint, passe på at utstyr er på rett plass, si ifra om innbytte - med andre ord **holde orden på ting**. Sett et kryss i boksen som indikerer hvor ofte hovedtreneren din gjorde slikt?

☐ ☐ ☐ ☐ ☐ ☐ ☐

13. Noen trenere snakker og spøker mye med utøverne sine. De kan snakke om skolen, profesjonell idrett, ferier eller om da de var aktive idrettsutøvere. Dette kalles **Generell Kommunikasjon**. Sett et kryss i boksen som indikerer hvor ofte hovedtreneren din gjorde dette med deg.

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Appendix F

Athlete Burnout Questionnaire

I de følgende spørsmålene skal du svare hvor ofte du har hatt den nevnte følelse eller tanke i løpet av det seneste året. Det gjør du ved å sette et kryss i en av boksene med numrene fra 1 til 5, hvor 1 betyr: "Jeg har det nesten aldri sånn" og 5 betyr: "Jeg har det nesten alltid sånn".

Spørsmål: Hvor ofte føler du det på denne måten?	Nesten Aldri	Sjelden	Noen Ganger	Ofte	Nesten Alltid
	1	2	3	4	5
1. Jeg utretter mange verdifulle ting i svømming.	☐	☐	☐	☐	☐
2. Jeg føler meg så sliten på grunn av treningen min, at jeg har problemer med å finne energien til å gjøre andre ting.	☐	☐	☐	☐	☐
3. Den innsatsen jeg legger i svømming kunne være brukt bedre på andre ting.	☐	☐	☐	☐	☐
4. Jeg føler meg alt for sliten av å delta i svømming.	☐	☐	☐	☐	☐
5. Jeg oppnår ikke mye i svømming.	☐	☐	☐	☐	☐
6. Jeg bekymrer meg ikke på langt nær så mye om mine svømmeprestasjoner, som jeg gjorde tidligere.	☐	☐	☐	☐	☐
7. Jeg lever ikke opp til mine egne forventninger i svømming.	☐	☐	☐	☐	☐
8. Jeg føler meg utslitt av svømming.	☐	☐	☐	☐	☐
9. Jeg er ikke så engasjert i svømming som jeg har vært tidligere.	☐	☐	☐	☐	☐
10. Jeg føler meg fysisk utslitt av svømming.	☐	☐	☐	☐	☐
11. Jeg føler meg mindre bekymret om det å være suksessfull i svømming enn jeg har vært tidligere.	☐	☐	☐	☐	☐
12. Jeg blir både mentalt og fysisk utmattet av kravene i svømming.	☐	☐	☐	☐	☐
13. Det virker som om, at uansett hva	☐	☐	☐	☐	☐

jeg gjør, så er ikke prestasjonene
mine så gode som de burde være.

14.	Jeg føler, at jeg har suksess i svømming.	☐	☐	☐	☐	☐
15.	Jeg har negative følelser overfor svømming.	☐	☐	☐	☐	☐

Appendix G

Subjective Vitality Questionnaire

Vær vennlig å svar på de følgende utsagnene med utgangspunkt i hvordan du har følt deg når du har drevet med svømming den <u>SISTE UKEN</u>.

	Når jeg svømmer…	Helt Uenig	Uenig	Litt Uenig	Nøytral	Litt Enig	Enig	Helt Enig
		1	2	3	4	5	6	7
1.	Jeg føler meg full av liv og overskudd	☐	☐	☐	☐	☐	☐	☐
2.	Har jeg ikke følt meg særlig energisk	☐	☐	☐	☐	☐	☐	☐
3.	Noen ganger har jeg følt meg så energisk at jeg nesten sprekker!	☐	☐	☐	☐	☐	☐	☐
4.	Jeg har energi og "spirit"	☐	☐	☐	☐	☐	☐	☐
5.	Jeg ser fram til hver eneste trening	☐	☐	☐	☐	☐	☐	☐
6.	Jeg føler meg nesten alltid på "hugget" og våken	☐	☐	☐	☐	☐	☐	☐

Appendix H

The PANAS

Denne delen av skjemaet består av en rekke ord og uttrykk som beskriver ulike følelser. Se på hver enkelt av disse og angi for hvert enkelt ord/uttrykk i hvor stor grad du har opplevd denne følelsen i løpet av de siste syv dagene.

	Spørsmål	Svært Lite	Litt	Passe	Ganske Mye	Svært Mye
		1	2	3	4	5
1.	Redd	☐	☐	☐	☐	☐
2.	Oppmerksom	☐	☐	☐	☐	☐
3.	Fiendtlig	☐	☐	☐	☐	☐
4.	Interessert	☐	☐	☐	☐	☐
5.	Aktiv	☐	☐	☐	☐	☐
6.	Skjelven	☐	☐	☐	☐	☐
7.	Spent	☐	☐	☐	☐	☐
8.	Oppskjørtet	☐	☐	☐	☐	☐
9.	Frykt	☐	☐	☐	☐	☐
10.	Bestemt	☐	☐	☐	☐	☐
11.	Skyldig	☐	☐	☐	☐	☐
12.	Stolt	☐	☐	☐	☐	☐
13.	Oppvakt / klar	☐	☐	☐	☐	☐
14.	Irritabel	☐	☐	☐	☐	☐
15.	Inspirert	☐	☐	☐	☐	☐
16.	Stresset	☐	☐	☐	☐	☐
17.	Nervøs	☐	☐	☐	☐	☐
18.	Entusiastisk	☐	☐	☐	☐	☐
19.	Skamfull	☐	☐	☐	☐	☐
20.	Sterk	☐	☐	☐	☐	☐