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Perception of Coach, Training Progression, and Daily Planning**

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**Investigating the Impact of Coach Communication of Training Plans on Athlete's
Motivation, Perceptions of Coach, Training Preparation, and Daily Planning**

Danelle Kabush

**Thesis submitted to the
Faculty of Graduate and Postdoctoral Studies
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Table of Contents

ACKNOWLEDGEMENTS 4

LIST OF APPENDICES 7

THESIS ABSTRACT 8

CHAPTER 1 – INTRODUCTION AND LITERATURE REVIEW 10

INTRODUCTION 11

 INTRODUCTION 11

 SELF-DETERMINATION THEORY 14

Intrinsic Motivation 15

Extrinsic Motivation 16

Consequences of Self-Determination 19

 COGNITIVE EVALUATION THEORY 21

 PLANNING WITH IMPLEMENTATION INTENTIONS 27

 MENTAL SIMULATION 30

 PLANNING AS A SELF-REGULATORY ACTIVITY 34

 INTEGRATION OF PLANNING AND COACH INTERPERSONAL BEHAVIORS 35

 RESEARCH DESIGN 37

 RESEARCH QUESTIONS AND HYPOTHESIS 39

 THESIS FORMAT 41

 PRESENTATION OF THE MANUSCRIPTS 42

CHAPTER 2 – ARTICLE 1 43

 ABSTRACT 45

Motivational Climate in the Coach-Athlete Relationship 47

Planning in the Coach-Athlete Relationship 48

 STUDY 1 50

 METHOD 51

Participants 51

Interview Setting 52

Data Preparation, Coding and Analysis 53

 RESULTS 54

Athlete Characteristics 54

Athlete Motivation 55

Athletes' Goals 58

Coach-Athlete Training Plan Communication 60

Training Plans: Athlete Perceptions and Preferences 61

Advantages to knowing training plans in advance 64

Disadvantages to knowing training plans in advance 65

Contrasting the Advantages and the Disadvantages 67

Degree of athlete dependency on coach for training plans 67

Coach versus athlete influence on communication of training 71

Validating the Study 77

 DISCUSSION 79

Limitations of Study 1 80

 STUDY 2 81

 METHOD 83

Participants 83

Procedures 84

Measures in the Initial Questionnaire 84

Measures in the Diary Questionnaire 87

Measures in Post-Study Questionnaire 88

RESULTS.....	89
<i>Descriptives</i>	89
<i>Paired-Samples T-Tests</i>	90
<i>Time-Level Analyses</i>	91
<i>Pre-Post-Study Analyses</i>	94
DISCUSSION.....	96
GENERAL DISCUSSION.....	97
<i>Training Plans and Autonomy Support</i>	97
<i>Training Plans and Preparation and Planning</i>	98
<i>Training Plans and Motivation</i>	99
<i>Implications for Coaches</i>	100
<i>Limitations and Future Research</i>	102
REFERENCES.....	103
CHAPTER 3 – ARTICLE 2.....	108
ABSTRACT.....	109
INTRODUCTION.....	111
OVERVIEW OF STUDY.....	115
METHOD.....	117
<i>Participants</i>	117
<i>Procedures</i>	118
<i>Measures</i>	118
RESULTS.....	122
<i>Descriptives</i>	122
<i>Correlations</i>	124
<i>Multiple Regressions</i>	126
DISCUSSION.....	127
<i>Theoretical Implications</i>	128
<i>Limitations and Directions for Future Research</i>	130
REFERENCES.....	132
CHAPTER 4 – ELABORATED DISCUSSION.....	137
SUMMARY AND CONCLUSION OF FINDINGS.....	138
<i>Research Questions Revisited</i>	138
<i>Linking the Research Questions</i>	145
STRENGTHS AND LIMITATIONS.....	145
<i>Strengths</i>	145
<i>Limitations</i>	147
CONTRIBUTIONS TO THE KNOWLEDGE IN THE AREA.....	147
IMPLICATIONS.....	148
FUTURE RESEARCH DIRECTIONS.....	148
REFERENCES CITED IN CHAPTERS 1, AND 4.....	151

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List of Tables

TABLE	TITLE	PAGE
1	Study 1 Participant Descriptives	54
2	Study 2 Descriptive Statistics of the Measured Variables in the Pre-Study Questionnaire	90
3	Means and Standard Deviations (SD) of Variables during No Training Plans in Advance (NTPA) and Training Plans in Advance (TPA), t-values and non-significant (NS) or Significant Changes	93
4	Means and Standard Deviations (SD) of Daily Motivation Variables in Pre-Study and NTPA, t-Values and Non-Significant or Significant Changes	94
5	Means and Standard Deviations (SD) of Daily Motivation Variables in Pre-Study and TPA, t-values and Non-Significant and Significant Changes	94
6	Pre and Post Study Comparisons	95
7	Descriptive Statistics of the Measured Variables Involved in the Prediction between Planning and Athlete Motivation	124
8	Correlations between Model Variables and Sport Practice Variables not Included in the Model	126
9	Means, Standard Deviations, and Pearson Correlations Among the Variables Included in the Proposed Model	127

List of Figures

FIGURE	TITLE	PAGE
1	Hypothesized Model	117
2	Final Model	128

List of Appendices

APPENDIX	TITLE	PAGE
A	Contributions of Collaborators	170
B	Ethics Approval	171
C	Consent Forms	172
D	Interview Guide for Article 2	176
E	Pre-study Questionnaire for Article 2	178
F	Daily Diary Measure for Article 2	185
G	Post-study Questionnaire for Article 2	189
H	Questionnaire for Article 3	191

Thesis Abstract

Using the theoretical framework of Self-Determination Theory (Deci, 1975; Deci, & Ryan, 1985, 2000; Ryan, & Deci, 2002) and Cognitive Evaluation Theory (Deci & Ryan, 1985, 1991, 2000) it was hypothesized that a specific coach behavior, the provision of training plans in advance to athletes, could positively impact athlete intrinsic and self-determined motivation as well as other positive athlete attributes such as sport satisfaction, goal setting, vitality, and better preparation and planning for training. A mixed methodology approach was employed as both qualitative and quantitative data were obtained. The qualitative component involved the use of structured interviewing to understand better how individual sport athletes (N = 13) perceive their coaches in relation to their communication of training plans. For the quantitative components, a daily diary methodology was used with the goal of investigating how track athletes (N = 11) working with the same coach would perceive either receiving no training plan information over time as well as receiving detailed training plan information over two-week periods. Finally a correlational study (N = 130) using athletes from fourteen sports was undertaken to more clearly determine the links between coach communication of training plans, athlete perceptions of coach behavior, athlete self-determined motivation, and goal orientation. The qualitative component of the study revealed that athletes current motivation, the coaching tradition in a sport, and the development stage of an athlete's career all play a large role in the communication of training plans between a coach and athlete. The analyses of the daily diary study suggested some positive consequences may be associated with advance communication of training plans such as better athlete preparation and planning for training as well higher moods and motivation at practice.

Regression results from the correlational study provide some clear links between advance communication of training plans, coach clarity of communication, and coach interpersonal behaviors related to athlete needs for relatedness, competence, and autonomy. In turn coach interpersonal behaviors are highly related to athlete self-determination and other positive consequences such as a mastery goal-orientation and high vitality and sport satisfaction. These finding are discussed in terms of how they relate to self-determination theory, and more specifically Deci and Ryan's cognitive evaluation theory (1980, 2000). Practical implications for coaching are also discussed.

CHAPTER 1 – Introduction and Literature Review

Introduction

Sport Canada has reported that at least thirty-four percent of Canadians aged fifteen or older participate in one or more sports regularly (Statistics Canada, 1998). Furthermore, approximately 3 million Canadians regularly participate in competitions or tournaments. For many individuals, participating and competing in sport can be a positive experience, but for others who lose interest and eventually drop out of sport, the experience might not be so positive. Thus, what factors motivate athletes in positive ways and contribute to higher satisfaction levels, feelings of competence, belonging, and freedom, while pursuing their chosen sports? One such contributing factor is when individuals are considered to be responsible for initiating and regulating their behaviors (deCharms, 1968). Thus, when athletes feel responsible for their own behavior, their motivation is self-determined, meaning their sport activities are pursued for the inherent satisfaction found in the activity itself, regardless of any external rewards or consequences, and is most closely associated with optimal functioning.

According to a well-developed theory of motivation, self-determination theory (SDT: Deci & Ryan, 1985, 1991, 2000), human beings are naturally proactive and naturally autonomously motivated in their environments. However, the social context can facilitate or impede self-determined functioning as clearly demonstrated in a sub-theory of SDT called cognitive evaluation theory (CET: Deci & Ryan, 1985, 1991, 2000). For example self-determined motivation has been found to increase when communications in one's social contexts are free from pressure, when feedback is interpreted as high in information about competence and when one's needs for autonomy and relatedness are met (Deci & Ryan, 2000). Furthermore, the internalization (the process of transforming

external regulations into internal regulations) of activities that may not be inherently interesting has been shown to be facilitated by three contextual factors: 1) providing a rationale for the activity, 2) acknowledging the feelings of the one behaving, and 3) conveying choice to promote the internalization of behaviors and self-determined motivation (Deci, Eghrari, Patrick, & Leone, 1994). Also, in a more recent study, a verbal explanation of why putting forth effort might be a useful thing to do for learning an uninteresting task resulted in students with significantly greater identified regulation, greater interest regulation, greater engagement, and greater learning than those students who were not provided with a rationale for the same task (Reeve, Jang, Hardre, & Omara, 2002). Thus, in the athletic domain, coaches can play a large role in helping to facilitate the internalized motivation for training.

Clearly, one of the most influential roles a coach can have is through the administration of a training program for his or her athletes. In accordance with CET, if an athlete interprets the manner in which a coach administers a training plan to them as controlling, their self-determined motivation should decrease. On the other hand, if a coach administers a training plan in an informational manner to his or her athletes, a coach could then increase self-determined motivation by 1) helping athletes to understand what they are doing for each training session and why they are doing it (e.g., what goals each training session will accomplish), 2) aiding athletes in developing self-determined motivation and instilling a source of being an active agent in the achievement of important goals, and 3) helping athletes to plan for the specific phases of their training program, and more specifically for specific workouts.

Previous studies have found variables such as training and instruction,

information, and feedback to be directly related to athlete satisfaction and motivation (Allen & Howe, 1998; Black & Weiss, 1992). It has also been found that coaches who give cognitive-behavioural types of instructions (i.e., proper technique, psychological skills, stress management, goal setting, and self-monitoring) have athletes who experience more intrinsic motivation than athletes who only receive physical skills instructions (for example, Beauchamp, Halliwell, Fournier, & Koestner, 1996). Furthermore, Voight (2002) has suggested that to improve the quality of training, one of the most important areas that coaches and athletes should address is the utilization of quality preparation prior to training, which involves helping athletes to come up with individual standards and goals for upcoming practices, and to develop a clear understanding of their objectives, the standards to which they will be held, and the methods they can use to meet the standards and accomplish their goals. If quality preparation is undertaken, it is proposed that the athletes will have a more motivated and productive attitude, and be better prepared for the practice session. Conversely, when athletes are not given explicit directions and standards, and as a result go into practice with little or no understanding of their objectives, they are predicted to be more likely to simply go through the motions.

Thus, no studies to date have yet examined: (1) the most effective strategies for planning and communicating workouts to athletes, and (2) how such strategies could impact athletes' feelings of autonomy and self-determination toward their sport. When athletes lack motivation towards their sport they may stop enjoying their sport altogether and eventually dropout (Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2001). Research on the role of motivation in sport is also critical for understanding its links to various

positive and negative consequences for athletes (Pelletier, Fortier, Vallerand & Briere, 2001; Pelletier, Fortier, Vallerand, Tuson, Briere, & Blais, 1995; Sarrazin et al., 2001).

Therefore, we propose three studies to specifically look at how coach behaviors, specifically the communication of training plans, are linked to athlete motivation.

Through these studies we hope to gain a clearer understanding of how a very specific coach behavior may lead to more positive or negative motivational consequences for athletes. It is also hoped that any knowledge gained from this study will be of practical use for athletes and coaches in dealing with the communication of training plans.

The first two sections lay out the theoretical foundations of motivation. Self-determination theory is outlined and described along with research that has examined the consequences of different self-regulatory styles as well as the effects of social-contextual events on motivation. The next four sections review the literature on the activity of planning and its benefits. Thus, research on interpersonal behaviors related to motivation, and planning will be comprehensively reviewed. Finally, the last four sections will sum up the goals, hypotheses and methodology of this thesis.

Self-Determination Theory

Over the past three decades, one of the most popular theories of motivation has been Self-Determination Theory (SDT) (Deci, 1975; Deci, & Ryan, 1985, 2000; Ryan, & Deci, 2002). According to SDT, whether engagement in an activity is autonomous (i.e., intrinsically motivated or self-determined) versus controlled (i.e. externally motivated or amotivated) makes an important difference in terms of one's effectiveness and well-being. These authors propose that the self-regulation of behavior can take many forms that correspond to qualitatively different behavioural regulatory styles. Deci and Ryan

(1985, 1991, 2000) propose three types of motivation: intrinsic, extrinsic and amotivation. Furthermore, the assumption is that people are naturally inclined to integrate and internalize experiences and behaviors. To the extent that people integrate a behavior with their sense of self, individuals are more autonomous and self-determined. Unlike most of theories of internalization (Bandura, 1986) that view internalization in terms of a dichotomy, SDT views the internalization of behavior on a continuum. On one end of the continuum is intrinsic motivation, a state of doing an activity out of interest and inherent satisfaction, which also equates autonomous and self-determined behavior. Each type of motivation on the continuum refers to a theoretically, experientially, and functionally distinct type of regulation. Extrinsically regulated behaviors are characterized by four types of regulation: external, introjected, identified, and integrated, and fall along the continuum between amotivation, the state of lacking the intention to act, and intrinsic motivation. Each point on the continuum is described more thoroughly below.

Intrinsic Motivation

Intrinsic motivation is defined as “the innate propensity to engage one’s interests and to exercise one’s capacities and in doing so to seek out and master optimal challenges” (Deci & Ryan, 2000). Behaviors are performed for their own sake, because they are inherently interesting, and for the pleasure and satisfaction derived from them. Such behaviors are voluntarily performed in the absence of material rewards or constraints (Deci & Ryan, 1987). It is argued that people are naturally endowed with intrinsic tendencies for activities that are novel, and challenging. Intrinsically motivated behavior is associated with enhanced learning, creativity, persistence and well-being (Deci & Ryan, 2002). It is also the prototype of autonomous regulation. When

intrinsically motivated, one embraces the activity with a sense of personal choice and commitment. An athlete who participates or competes in sport for intrinsically motivated reasons would do so for inherently satisfying reasons such as the enjoyment, the challenge, and seeking personal mastery of skills.

Extrinsic Motivation

Extrinsic motivation refers to an environmentally created reason to initiate or persist in an action (Ryan, 1993, 1995). In other words, extrinsically motivated behaviors are performed for goals that extend beyond those inherent in the activity itself. Such activities or behaviors are generally engaged in as a means to an end rather than for their own sake. Extrinsic motivation was originally thought to refer to any activities performed in the absence of self-determination, solely prompted by external contingencies.

However, now four different types of extrinsic motivation are proposed to exist along a self-determination continuum that vary to the extent that the regulation of behaviour is perceived as constrained by external sources or as freely chosen by the individual: external regulation, introjected regulation, identified regulation, and integrated regulation.

Lowest on the continuum is external regulation. Externally regulated behaviour is usually performed solely for rewards or by constraint. For example, athletes may be motivated to participate in sport by external rewards such as prize money, recognition, and praise. Motivation is extrinsic because the reason for participation in the activity lies outside the activity itself. Externally regulated behavior is never self-chosen or self-determined. For example, athletes may also compete in sport for external reasons because they feel pressured by parents, coaches, or peers.

A slightly more self-determined form of extrinsic motivation is termed introjected

regulation. At this stage, a formally externalized source of motivation has become internalized. In other words the reasons for actions begin to become internalized because the source of control is now inside the individual. However, behaviours are still not performed for fully self-determined reasons since the internalization consists of self-imposed pressure with the feeling of "I have to" versus "I want to". Any rewards or constraints are simply now imposed by the individual rather than others. Thus, while there are now internalized beliefs and controls, the internalization is only partial in the sense that one is still "being regulated" rather than operating from an integrated sense of volition (Williams & Deci, 1996). While an external source of control is no longer needed to initiate behaviour, an athlete may go to practice or train because they would feel guilty if they did not.

The next step on the continuum towards more self-determined behaviors, while still remaining extrinsically motivated is termed identified regulation. At this stage behavior is valued by the individual as personally important and is perceived as being chosen by one self. Behavior is now internally regulated in a self-determined way. For example, athletes may choose to be involved in their sport because they believe it is a means of keeping in shape or maintaining a certain weight. However, the motivation still remains extrinsic because the activity is not performed for itself but as a means to an end (i.e., to stay in shape or keeping unwanted weight off). Identified regulation is also self-determined because choosing to be involved in sport because it would be beneficial to one's health, gives a sense of direction and purpose to the individual, instead of feelings of obligation and pressure. Since identified regulation is a relatively conflict free, volitional expression of the self, it is expected to lead to a greater sense of personal

commitment, better quality of engagement in activities, more behavioral effectiveness, and enhanced subjective well-being. What is missing, however, is consistency between the regulation of this activity and other regulatory processes that have previously been integrated to the self.

Finally, integrated regulation represents the greatest level of self-determination for extrinsically motivated behaviors. Behavior is now performed willingly by an individual and is consistent with his or her self-concept. The person focuses on how the behavior fits with the rest of their life activities and valued goals. An example of such harmony and integration can be found in the following statement, "I compete in sport because it is in line with my deepest values or is congruent with how I've chosen to live my life." However, behaviours characterized by integrated regulation are still considered extrinsically motivated because they are done to attain separable outcomes rather than for their inherent satisfaction.

In addition to either extrinsically or intrinsically motivated behavior, Deci and Ryan (1985) also proposed a third category, a complete lack of motivation, termed amotivation. Amotivation occurs when one perceives a lack of contingency between behavior and outcomes, and as a result the individual may experience feelings of incompetence and a lack of control. With no perceived rewards (intrinsic or extrinsic), participation in the given behavior could cease or fail. Amotivation is non self-determined and is similar to learned helplessness because there is no sense of purpose and no expectation of reward or the possibility of changing the course of events. Amotivation is generally associated with impaired cognitive performance, negative affect, and at times, low self-esteem. Amotivation may occur in sport when an athlete loses interest or

feels incapable of succeeding or achieving their goals.

However, according to SDT, individuals are said to be naturally inclined to progress from external forms of regulation to more self-determined forms of regulation. The concept of internalization proposed by self-determination theory refers to this active assimilation and reconstitution of behavioral regulations that are originally alien or external to the self (Ryan, 1995). Internalizing the regulation of behaviors is thought to be an innate positive process that is important to an individual's socialization and well-being. In nearly every life domain, individuals are required to perform non-interesting behaviors or adopt values not personally important to them. Internalization allows individuals to incorporate these behaviors and values into their selves so they can experience greater autonomy while enacting them, and in turn become more self-regulated.

Consequences of Self-Determination

Many previous studies have demonstrated that motivational consequences improve as one makes progress from low self-determined forms of regulation to highly self-determined forms of self-regulation. Lower self-determined regulations (introjected, external regulation, and amotivation), compared to higher forms of self-determined regulation (intrinsic motivation, integrated and identified regulations) are expected to lead to less stable, less persistent, less well-performed, and less subjectively enjoyable behaviors as a result perceived outer forces, which entail feelings of lack of control and alienation (Ryan, 1995).

Because the regulatory styles coexist on a continuum from high to low self-determination, and considering that higher self-determination is associated with

beneficial consequences (Deci, 1980, Deci & Ryan, 1985), the associations between the regulatory styles and positive consequences should vary with the level of self-determination. Specifically, self-determined regulatory styles are expected to lead to positive consequences whereas non self-determined regulatory styles are expected to bring negative outcomes. In general, it has been found that the more self-determined forms of regulation led to enhanced learning, greater interest, greater effort, better performance, higher self-esteem, increased life satisfaction, persistence, and enhanced health whereas the less self-determined forms of regulation were negatively related to the same outcomes (Vallerand, 1997).

Research over the last few decades has demonstrated that autonomous engagement in an activity leads to greater well being in several domains including sport and exercise (Ryan, Frederick, Lepes, Rubio, & Sheldon, 1997; Reeve & Deci, 1996; Frederick, & Ryan, 1995; Deci, Betley, Kahle, Abrams, & Porac, 1981), leisure (Pelletier, Vallerand, Green-Demers, Blais, & Brière, 1996), education (Pelletier, Séquin-Lévesque, & Legault, 2001; Vallerand, Fortier, & Guay, 1997; Grolnick & Ryan, 1989, 1991), work (Blais, Brière, Lachance, Riddle, & Vallerand, 1993) interpersonal relationships (Blais, Vallerand, Pelletier, & Brière, 1994), eating behaviors (Pelletier, Dion, Slovenic, & Reid, in press), pro-environmental action (Pelletier, Tuson, Green-Demers, Noels, & Beaton, 1998; Green-Demers, Pelletier, & Legault, 2000), and religious beliefs (O'Conner & Vallerand, 1990).

SDT is founded on a dialectical view with the assumption that individuals have natural, innate tendencies to develop a more unified sense of self that involves autonomy (i.e. inner organization and holistic self-regulation) as well as homonomy (the integration

of oneself with others: Ryan & Deci, 2002). Thus, individual regulatory styles result from the interaction of one's active self with his or her social context, which in turn may either nurture or inhibit one's natural tendencies to integrate ongoing experiences. While several factors may influence the internalization process, SDT proposes that there are three basic and universal psychological needs which when satisfied, promote optimal well-being and provide the basis for categorizing one's environment as either supportive, or not, of healthy functioning. The three needs are competence, relatedness, and autonomy. Competence is feeling effective in one's environment and having opportunities to express one's capabilities which facilitates the seeking of optimal challenges. Relatedness is met through feelings of security through a sense of belongingness and being connected with others, and having the opportunity to care and be cared for by others. Autonomy occurs when one perceives oneself as the initiator of one's behaviours where behaviour is chosen as an expression of the self. Whether these three fundamental needs are met plays a role in whether behaviour is self-determined or non self-determined. In other words, the more the three needs are met, the more self-determination and intrinsic motivation will increase. The next section will address the role the behaviour of persons in authority, such as a coach, can play in meeting one's three basic needs.

Cognitive Evaluation Theory

Cognitive evaluation theory (CET: Deci and Ryan, 1980, 1985, 1987, 1991) is a sub theory of SDT to describe the effects of social context on people's intrinsic motivation and self-determination. CET suggests that social-contextual events such as rewards, positive feedback, or deadlines affect intrinsic motivation to the extent that they

support or thwart the satisfaction of the needs for competence, autonomy and relatedness. For example, such contextual factors can influence one's perceived locus of causality, that is, the experience of what initiates and regulates behaviors (deCharms, 1968) to be either more external (undermining intrinsic motivation) or internal (enhancing intrinsic motivation). Likewise, when an event increases feelings of perceived competence or relatedness, intrinsic motivation and self-determination will also tend to be enhanced, and vice versa.

Furthermore, according to CET, contextual events or climate can have both a controlling aspect and an informational aspect. For example, when social environments are perceived to be controlling or pressuring, one's perceived locus of causality becomes more external, thus decreasing levels of intrinsic motivation and self-determination. Conversely, the informational aspect of the social environment represents communication and feedback that increases perceptions of competence and in turn intrinsic motivation. For example, Zuckerman, Porac, Lathin, Smith and Deci (1978) and Swann and Pittman (1977) found that providing choice about what to do or how to do it enhanced intrinsic motivation, and Koestner, Ryan, Berneiri, and Holt (1984) showed that empathy and non-controlling behaviors could help maintain intrinsic motivation.

CET also includes the concept of functional significance, which refers to the idea that individuals will actively interpret input from others in their social environments as either informational or controlling, subsequently determining their level of intrinsic motivation and self-determination. For example, although positive feedback would generally be regarded as informational, Ryan (1982) showed that if positive feedback is administered within a pressuring climate, such as one that emphasizes performance

outcomes, it tends to be experienced as controlling. Similarly, while many studies have shown tangible rewards to undermine intrinsic motivation and to be experienced as controlling, Ryan, Mims, and Koestner (1983) found that if rewards are administered in a non-evaluative context that supports autonomy, they tend not to be undermining. In sum CET predicts that intrinsic motivation will increase when communications are free from pressure (i.e., promoting the perception of choice) and when feedback is interpreted as high in information about competence (i.e., rewards, praise).

One social factor found to be important in influencing motivation through perceptions of autonomy, competence, and relatedness is the interpersonal behaviors of people in positions of authority. Several studies have effectively demonstrated that the interpersonal behaviors of people in positions of authority impact the motivation of their subordinates. For example, in a study using swimmers, the athletes who perceived their coach to be high in autonomy support, were also found to have higher self-determined motivation and greater persistence (Pelletier, Fortier, Vallerand, & Blais, 2001). Another study by Amorose and Horn (2001) examined changes in intrinsic motivation of first year college athletes from pre- to post-season as a function of their scholarship status and perceptions of their coaches' behavior. Contrary to the initial predictions, neither scholarship status nor time affected the athletes' level of intrinsic motivation. However, strong support was found for the relationship between athletes' perceptions of coach behavior and changes in athletes' level of intrinsic motivation over the season. Increases in athletes' intrinsic motivation were associated with athletes' perceptions that their coaches exhibited high frequencies of training, social support, and instruction behavior and low frequencies of autocratic behavior.

Another interpersonal behavior influencing intrinsic motivation and self-determined motivation is the aspect of perceived choice. Thompson and Wankel (1980) divided women registering for a fitness program into either a choice or a no-choice condition. In the choice condition women were told that their preferences for fitness activities would be taken into account as a fitness program was being developed for them. The women in the no-choice condition were told that their preferences would not be considered while in reality the fitness programs for both groups were based on the same degree of activity preference. Over the course of six weeks, attendance for the perceived choice group was significantly higher than that of the no-choice group, supporting the view that increasing one's sense of self-determination enhances continuing motivation.

In a similar study by Goudas, Biddle, Fox, and Underwood (1995), physical education teachers who offered their students choices had students who reported higher levels of intrinsic motivation in comparison to the students in a no-choice condition for track and field lessons. Another study looking at the effects of intrinsic motivation in an exercise setting found that participants who had a perceived choice in the music accompanying and aerobics video reported enhanced intrinsic motivation compared to a no-choice condition (Dwyer, 1995).

Although little research has addressed factors that produce autonomy versus controlling coaching styles, one interesting study suggests that people may be more likely to appeal to external motivators to "instill" motivation in others when it is not apparent (Courneya & McAuley, 1991). In this study, undergraduates read scenarios depicting children in sport situations who exhibited either high or low interest in the activities. Participants were then asked to choose low-control (reasoning, noninterference) or high

control (rewards, punishment) strategies to maximize the child's interest in the activity. For children in high interest group, low control rewards were preferred, while for children in low interest group, high control rewards chosen more frequently. Although contradictory to the proponents of SDT, perhaps this is the popular belief of coaches as well.

Finally, the least researched psychological need is relatedness. Relatedness refers to the need to feel connected with others, to care for and be cared for, and to feel a sense of belongingness (Bauemeister & Leary, 1995, Ryan, 1995). A coach, who encourages an athlete to feel secure within the coach-athlete relationship as well as within a sport team, helps meet an athlete's need for relatedness. Although, little research has been done to show how relatedness promotes intrinsic motivation (Ryan & Deci, 200) it has been deduced that since all three needs are essential to growth and development, it is expected that relatedness also plays a role in intrinsic motivation. To illustrate, Fodi, Bridges, and Grolnick (1985) found that more securely and infant was attached to his or her caregiver, the more they were likely to display intrinsically motivated exploration.

The above studies lend support to the idea that if a coach were to communicate training plans in a manner that gives athletes the perception of choice in training it would help to facilitate their intrinsic and self-determined motivation. By providing athletes with choices in training, a coach is meeting their needs for autonomy. An autonomy supportive coach would take time to provide a rationale for each workout, let the athlete identify goals, help find creative ways to correct technique, and encourage athletes to develop their own strategies for conducting competitions. On the other hand a controlling coach would take charge and make all of the above decisions for the athletes. Although

research has been shown that pressures from above may influence people in positions of authority to behave in a more controlling way towards their subordinates (e.g. Pelletier et al., 2002; Deci, Spiegel, Ryan, Koestner, and Kauffman, 1982), what appears to be key in increasing self-determination are the athlete *perceptions* of whether a coach is meeting their needs for autonomy (e.g., allowing athletes to take initiative in their training behaviors), competence (e.g., providing positive informational feedback), and relatedness (e.g., showing genuine concern for the athletes total development).

In summary, this section has presented self-determination theory, a continuum of six different self-regulatory motivation styles. From highest to lowest on the continuum, the regulatory styles are: intrinsic, extrinsic (integrated, identified, introjected, and external), and amotivation. Research has demonstrated that meeting three basic, universal psychological needs for autonomy, competence, and relatedness will facilitate increased intrinsic motivation and self-determination, in turn resulting in more positive consequences such as enhanced learning, greater interest, greater effort, better performance, higher self-esteem, increased life satisfaction, persistence, and enhanced health (Deci, 1980, Deci & Ryan, 1985; Deci & Ryan, 2000). Furthermore, research on cognitive evaluation theory has shown how social-contextual factors are important in helping to shape individuals' regulatory styles. More specifically, the behaviours of persons in authority can influence subordinates motivation according to how such behaviours are perceived by the subordinates. For example, coaches who provide a rationale for various types of training and provide athletes with choices may help to create more intrinsically motivated and self-determined athletes.

Some coach behaviors may encourage autonomy, while other coach behaviors

help to instill competence, or foster a sense of relatedness. As suggested above, few studies have examined the specific behaviors that coaches could use to facilitate intrinsic motivation and self-determination. In the present thesis, I am proposing to examine one specific coaching behavior that could have an impact on athletes' motivation, whether training program information is provided to athletes in advance or not. Although there is no direct evidence thus far that supports the proposition that the advance communication of training plans to athletes may help to facilitate the attainment of autonomous regulation, and to develop a source of competence, it makes sense to believe that those behaviors may foster self-determined motivation because they may also facilitate the planning of behavior, a construct that we examine next.

Planning with Implementation Intentions

A plan, as defined by Bridgeman (1992), is an internally held image of an intended achievement, which can then control a sequence of actions to achieve a goal. Plans are what motivate behavior and become the path from motivation to action. The path that a plan represents has been termed an "implementation intention" as demonstrated in a line of research by Gollwitzer (1996, 1999). Gollwitzer has shown that good intentions alone, that is, simply making commitments to various goals, are not always sufficient for successful goal attainment. The purpose of implementation intentions are to specify the when, where, and how of responses leading to goal attainment. For example, it could be argued that successful implementation intentions for training in sport would include 1) making short and long term goals with clear and realistic goals for the training program, 2) specifying measurable objectives that represent achievement of training goals, 3) determining how to deliver the training program to the

athletes, 4) making a training program schedule, 5) having a plan for how to evaluate and monitor the process of the training.

Forming implementation intentions have been shown to facilitate goal attainment for several reasons. First, is the concept of “mind-set” that when a person becomes involved in planning a given activity, relevant cognitive procedures become activated and as a result are highly accessible. Gollwitzer has also differentiated between a “deliberative” mind-set (thinking about a goal or whether to pursue it) and an “implemental” mind-set (planning the execution of a goal). As demonstrated in a study by Gollwitzer, Heckhausen, and Ratajczak, (1990) committing to a certain way of implementing a wish strengthened participants readiness to turn the wish into a binding goal in comparison to the participants who only thought about and imagined the various consequences that would come true once their wish had been implemented.

A second benefit of implementation intentions is perceptual readiness by linking certain situational cues to specific behaviors. Given that such links lead to a heightened accessibility of cues, such planning should facilitate effective goal pursuit. For example, if an athlete has been given a training schedule ahead of time that involves doing weight training, the act of passing by a gym, or seeing a muscle magazine will be cues to remind the athlete of his or her plans to for strength training. A third reason why implementation intentions aid in goal achievement is because they serve to disrupt focused attention when needed. In other words, by forming implementation intentions, people will stay alert to opportunities to pursue their goals while focused on other things such as worries, and strong emotions, or while consciously pursuing other goals. For example, while studying, working, or eating, an athlete can stay mindful of their training goals and spontaneously

be thinking about ways to meet those goals. Finally, implementation intentions aid in behavioral readiness to get started on pursuing a goal by helping people to feel committed to initiate the behavior once the situational cues are presented. For example, a runner who has been given plans ahead of time from a coach to complete a certain number of intervals during practice at a certain pace may feel more mentally prepared to commit to the effort needed when the time comes than the athlete who does not learn about the interval session or its objectives from the coach until immediately before practice is to begin. Such behavioral readiness through implementation intentions or frequent situation-response pairing also helps to lead to the automatic, direct environmental control of behavior, by helping the intended behavior to be executed faster and more effortlessly (Brandstätter, 1992). By planning out training or race strategies ahead of time, athletes have reported that the effort needed to stick to the plan can be produced more automatically (Orlick, 1990).

Implementation intentions may also result in more optimal, less effortful execution of behavior by allowing people to spontaneously take advantage of unforeseen opportunities to achieve their goals. Such a concept has also been termed “opportunistic planning” by Hayes-Roth and Hayes-Roth (1978) and tends to occur when people seize opportunities to group together plans that have similar requirements. In other words opportunistic planning is defined as the problem of recognizing the relevance of a goal stored in memory given circumstances in the current environment (Birnbaum, 1986). For example, as an athlete envisions preparing an upcoming week of training, the mental pictures that are created may lead the athlete to see opportunities that might otherwise have been missed: completing a difficult school assignment ahead of time on a less

demanding training day, preparing nourishing meals the nights before longer training days, and organizing the best times to book appointments, to socialize, and to run errands during the upcoming week. Thus, in anticipating the demands of upcoming training sessions, an athlete can plan other activities in the week in order to best manage his or her energy needed for various training sessions. Another means of anticipating upcoming events is through mental simulation, which we will look at next along with its benefits in planning.

Mental Simulation

Mental simulation refers to the imitative representation of the process of an event or a series of events and includes the cognitive construction of hypothetical scenarios and the reconstruction of real ones (Taylor, & Pham, 1996). In other words mental simulation may involve replaying events that have already occurred, constructing hypothetical scenarios, fantasizing, or a mixture of real and hypothetical events before they happen. Rather than just thinking about future events, by translating thoughts into mental simulations, the likelihood of the action consistent with the simulation increases considerably (Taylor & Pham, 1996). Many studies have demonstrated that when people run through a set of events in their minds and imagine them in concrete and specific form, it often makes those events seem true. After engaging in mental simulation, people are more likely to believe the events will actually occur than when they have followed other cognitive activities that have focused on those hypothetical events. (e.g., Anderson, 1983; Anderson & Sechler, 1986; Carroll, 1978; Gregory, Cialdini, & Carpenter, 1982; Hirt & Sherman, 1985; Sherman, Skov, Hervitz, & Stock, 1981; see Koehler, 1991, for a review). Furthermore, mental simulations are useful as a planning tool for future events

because mental simulation also involves problem-solving and emotional regulation skills. The management of affect or emotional states and the ability to plan and solve problems are essential to effective self-regulation (Taylor, Pham, Rivkin & Armor, 1998).

Mentally simulating an upcoming event has been shown to help people evoke emotional states and their potential control. For example, the extensive use of mental simulations in research has been shown to be one of the best ways to manipulate affective states (e.g., Larsen & Ketelaar, 1991; Morrow & Nolen-Hoeksema, 1990; Strack, Schwarz, & Gschneidinger, 1985; Wright & Mischel, 1982). There is also a large body of research in sport psychology to support a link between mental simulations and action due to the self-regulatory activities they evoke (Cratty, 1984; Neideffer, 1976; Orlick, Partington, & Salmela, 1983). Most athletes say that they can actually feel the muscle twitches associated with their imagined physical actions as they visualize themselves executing a dive, landing a jump in skating, shooting a basketball, and a variety of other skills (Orlick & Partington, 1986). Meta-analyses of mental practice effects have shown that these mental practice efforts are very beneficial. Although physical practice is superior to mental practice of a motor skill, mental practice significantly advances learning compared with no practice at all, and the combination of mental and physical practice appears to be the most effective for honing skills and making progress (Feltz & Landers, 1983).

Mental simulation that has been effective in leading to behavior change, as demonstrated in the sport psychology literature, has placed the emphasis on simulating the process needed for reaching a goal. According to this process-simulation viewpoint, one sets a goal and then actively mentally rehearses the steps one needs to go through to

reach it, which leads to appropriate changes in behavior, increasing the likelihood that the goal will be attained. The athlete who wishes to peak for a championship event would, according to this approach, increase his or her chances for so doing by mentally simulating the process of going through the steps he or she would need to get there, such as mentally preparing for daily practices as part of a structured training plan, getting enough rest and sleep, eating healthily, participating in various competitions leading up to the championship event and the like.

By rehearsing the process one needs to follow to reach an envisioned end state, one is forced to identify and organize the steps involved in the activities needed to get there, resulting in a plan. For example, if an athlete receives training plans in advance of practice, he or she can mentally walk through the practice sessions related to various training phases, the emotions that will be involved or may be evoked (e.g., perhaps a mixture of nervous anticipation for the challenges of training, determination, and excitement about progressing toward goals). Although such emotions may only be evoked to a modest degree, they help one to anticipate what these emotional states will be and develop some degree of control over them through mental preparation. The same rehearsal can be done for competition environments where emotions are likely to be more heightened than in training settings.

In summary, mental simulation is a tool athletes can use when they know in advance what they will be doing in training. By knowing the details of workouts in advance, an athlete can develop knowledge about training, can construct goals in advance of each training activity, and have more opportunity to use and benefit from the conscious or even non-conscious practice of mental simulation. Finally, there are four

viewpoints to account for the beneficial effects of mental simulation on performance, which could also be facilitated by the coach-athlete relationship. First, coaches who encourage the mental simulation of upcoming workouts may enhance athlete feelings of self-efficacy through making a goal seem more realizable by providing information and guiding the athlete to generate ideas about how to achieve a training goal (Bandura, 1986; Locke & Latham, 1990). In turn, such perceptions may lead to higher athlete motivation and enhanced performance. Second, encouraging athletes to mentally simulate a plan for practice may increase the subjective likelihood of accomplishing a training goal as well as the value of the training goal (Atkinson, 1958; Feather, 1982), which also facilitates motivation and productive progress. Third, mental simulations may make one more mindful of one's goals and the steps needed to be taken to reach the goals, helping to initiate goal-directed actions (Gollwitzer, 1993). In other words, if athletes are encouraged by their coach to be more mindful of their training goals and the steps they need to take to reach their competition goals, they can develop more autonomy by initiating their own means of reaching their goals. Finally, mental simulation may affect goal-directed behavior by changing the level at which individuals identify their actions (Vallacher & Wegner, 1985). More specifically, mental simulations that focus on the process of goal achievement is a kind of lower level action identification which is thought to facilitate performance on complex and difficult tasks (Wegner & Vallacher, 1986). Thus, through the use of mental simulation as a planning tool for training athletes become focused on the process of training, which is more highly associated with self-determined motivation than a purely performance focus. In the next section, we will look at the interaction of planning, coach interpersonal behaviors, and motivation in the coach-

athlete relationship.

Planning as a Self-Regulatory Activity

The above research suggests that planning, through implementation intentions and mental simulations, is a self-regulatory behavior that may facilitate the automatization of effortful activities as well as the control of emotions needed to successfully reach one's goal. According to Baumeister and Heatherton (1996), successful self-regulation has been found to involve three key ingredients, which are also a part of successful planning: setting standards, monitoring progress, and energy or strength to regulate the behavior itself. The view that self-regulation requires energy implies that successful self-regulation necessitates exertion that expends energy. As most would agree, physically training for a sport is demanding and requires a certain degree of self-discipline to override numerous other daily distractions and obstacles such as work or school responsibilities, socializing opportunities, physical tiredness, or lack of motivation. Furthermore, successful planning is also an activity that requires energy and resources. However, in the present thesis, we hypothesize that having a well laid out training plan between coach and athlete may be one way to help automatize the physical and mental demands of training, such as through the mental stimulation involved in planning.

To illustrate, if given a detailed workout plan in advance, athletes can mentally rehearse what they want to happen during their training. For example, if athletes know the details of what their workout will involve and the specific training objectives for the day, they can mentally rehearse things like the amount of effort needed, the type of technique they will focus on, the training conditions they will be facing (e.g., weather, interaction with other teammates), and strategies to overcome any daily obstacles, such as

other time commitments (e.g., school work) that may impede their training. In the next section we will discuss how the communication of training plans in the coach-athlete relationship may be a coach interpersonal behavior that will facilitate not only performance, but support self-determination as well.

Integration of Planning and Coach Interpersonal Behaviors

Planning is essential in sports for setting effective seasonal training and competition goals. Coaches and athletes, to differing degrees, spend a significant amount of their time planning each aspect of training. In the role of a coach, planning may involve the following: (a) gathering background information on the athletes (experience, competitive background, other commitments, time available for training, medical and training facility resources, lessons learned from previous seasons, commitment level, expectations of coach, etc.), (b) forming objectives for the year, and (c) organizing the training year into phases where each phase has specific aims for the development of the athlete. Furthermore each training phase may have specific objectives (i.e., general development, specific fitness, competition experience, or active recovery), activities (i.e., conditioning, strength, technique, mobility, speed, and endurance), as well as evaluation processes to monitor progress. However, although coaches may typically develop up to a year long training plan for their athletes as well as develop specific objectives for each training phase, how such information is communicated to the athletes can be crucial in determining how the athletes will use the information, approach training and are motivated to do the various aspects of training. For example, the work of Gollwitzer (1999) has stressed the direct effects of good planning on motivation which include clarification of paths to goal attainment, clarification of goals; specification of specific,

attainable goals; and active involvement of the individual in the goal setting process.

Furthermore, in accordance with CET, whether a coach communicates training plans in advance (or not) to an athlete can be a functionally significant behavior. In other words, thus far it is clear that in any relationship between a subordinate (e.g. athlete) and a superior (e.g. coach), the interpersonal behaviors of the coach can have a significant influence on athlete perceptions of whether their psychological needs for autonomy, competence, and relatedness are met. If a coach's behavior increases athletes' perceptions of autonomy support, competence support and relatedness, intrinsic and self-determination are consequently increased as well.

The above review has demonstrated the benefits of implementation intentions and mental simulations as forms of planning that facilitate goal achievement. In other words, in the context of the coach-athlete relationship the formation of action plans along with mental practice for upcoming training sessions, may facilitate higher quality training, and increase self-regulation and self-determination in the athletes.

Furthermore, coach interpersonal behaviors may determine whether the training environment is one that encourages athletes to develop their own action plans for upcoming training sessions. We would suggest that such an environment may be facilitated by a coach who promotes a task-involving climate. For example, in a study of French handball players, a perceived task-involving climate was positively related to greater perceived progress while perceptions of ego-involving climate corresponded to lower perceived autonomy (Sarrazin, Vallerand, Guillet, Pelletier & Cury, 2001).

Therefore given the above findings on the relationship between perceived interpersonal behaviors and self-determination, and the benefits of planning for effective

self-regulation and performance, a central prediction of the present thesis was that the extent to which a coach involves and informs an athlete in the planning of training would be positively related to the athletes perceptions of autonomy support, competence support and relatedness received from coach, self-determined motivation, and sport satisfaction.

To date studies have demonstrated the important link between planning and motivation (e.g., Gollwitzer, 1999, Gollwitzer & Brandstatter, 1997), as well as the link between interpersonal coach behaviors and athletes' motivation. However, no studies have yet examined the joint effect of planning and interpersonal behaviors of coaches on self-determination in athletes. Therefore, the goal of the following program of research was to explore the effects of revealing training plan information in advance on the interpersonal behaviors of coaches, and the self-determined motivation of athletes.

In agreement with previous studies (Deci & Ryan, 1987; Frederick & Ryan, 1995; Pelletier et al., 2001), we proposed that advance coach communication of training plans would have an effect on athletes' self-determined motivation by enhancing athlete perceptions of positive coach behaviors (autonomy, competence and relatedness), as well as improving athlete planning and preparation for training. Furthermore, it was predicted that self-determination in athletes would be associated with positive consequences. The following section presents important research design pertaining to the present thesis. Specific goals and hypotheses are summarized thereafter.

Research Design

In order to investigate the effect of coach planning on athlete motivation both quantitative and qualitative methodologies were employed. A sequential transformative design will be followed which will involve three distinct phases and the use of a mixed

methodology. A sequential transformative design is a type of mixed methods strategy that is guided by a theoretical perspective (Creswell, 2003). For the present study, the purpose of using a sequential transformative design was to better understand the process and impacts of coach-athlete communication regarding the planning of training.

Mixing research methods first began in psychology in the 1950's when Campbell and Fiske made use of multiple methods to study validity of psychological traits. Soon afterwards traditional surveys (quantitative data) began to be combined with field methods such as observations and interviews (qualitative data) (Sieber, 1973). Thus, the idea of triangulating data sources (Jick, 1979) came about with the recognition that all methods have limitations and inherent biases, which could be cancelled out by converging qualitative and quantitative methods. Triangulating data sources can be advantageous for researchers by having results that help develop or inform the other method (Greene, Caracelli, & Graham, 1989), or by providing insight into different levels or units of analysis by having one method nested within another method (Tashakkori & Teddlie, 1998).

In employing a mixed methodology, a sequential procedure was used in which the purpose was to elaborate or expand the findings of one method with another method (Creswell, 2003). For the present study, three phases of data collection took place, one which used qualitative measures and two which employed quantitative measures. Phase 1 was a qualitative study that explored athletes' experiences and preferences for how they receive workouts and communicate with their coaches about training. Phase 2 used a quantitative study to investigate changes over time in athletes as a function of when they received training plans from their coach. Phase 3 was a quantitative correlational study

that tested a model linking 1) coach communication of training plans, 2) the perceived interpersonal behaviors of coaches, 3) athlete self-determined motivation, 4) mastery and performance oriented goals, and 5) a variety of sport and training outcomes.

Research Questions and Hypothesis

From the previously mentioned objectives, the following three main research questions and hypotheses emerged.

1) 1) How do athletes who receive training plan in advance (or not) perceive their coach? What are the advantages and disadvantages? What are their preferences? It was predicted that athletes working with a coach who provided training plans in advance would indicate more self-determined reasons for pursuing their sport goals, as well as a greater feelings of autonomy and understanding of their progress and development as an athlete in comparison to athletes working with a coach who did not receive training plans in advance. It was also anticipated that most athletes would prefer their present coaching situation due to familiarity.

2) Will athletes experience any significant changes over time in motivation, perceptions of coach, feelings in training, mood, planning and preparation as a function of receiving training plans in advance (or not)?

It was hypothesized that for the two weeks during which athletes received training plans in advance they would experience higher motivation, better planning and preparation for training, and feel a higher degree of autonomy and positive mood around training in comparison to the two-week period in which they did not receive any training plans in advance. Furthermore, it was anticipated that athletes would have a stronger preference to receive training plans in advance after experiencing both scenarios.

3) Is there a sequential relationship between how a coach communicates training plans, athlete perceptions of coach behaviors, athlete self-determined motivation, and athlete goal-orientation? It was predicted that the advance and clear communication of training plans by a coach would be associated with positive perceptions of coach interpersonal behaviors (autonomy support, competence support, and relatedness). These behaviors are hypothesized to be related to self-determined sport motivation in athletes. Finally, high self-determined motivation was predicted to be linked to a goal orientation and other positive consequences (vitality, sport satisfaction, well-being, perceptions of choice and progress in training, and training concentration).

Thesis Format

This section contains a brief preamble that explains the format for the remaining four chapters of the thesis document. Although this thesis is the product of one main research program, the findings that emerged warranted their description in two separate chapters. The majority of the findings were presented in two articles, which are found in chapters two and three. Chapter two contains the results stemming from the qualitative interviews and the daily diary study. Following this, in chapter three, a manuscript containing the results from the survey data is presented. The concluding chapter of the thesis document consists of an elaborated discussion that integrates the links between each chapter's findings and that offers a summary and a conclusion for this dissertation's findings.

Presentation of the Manuscripts

The following two chapters contain the manuscripts to be published. The manuscript entitled “Coach-athlete communication of training plans: Exploring athlete experiences followed by the impact of an intervention” will be submitted for publication in a, yet to be determined, reputable journal within the field of social psychology. For this article, I am the principal investigator and Dr. Luc G. Pelletier (thesis supervisor) is the co-author. The manuscript entitled “The association between the communication of training plans in advance, clarity of communication, coaches’ interpersonal behaviors, and athletes’ self-determined motivation” has been submitted for review at the *Journal of Sport and Exercise Psychology*. I am the principal investigator and Dr. Luc Pelletier is the co-author for this article. For further information, please refer to the Contributions of Collaborators section in Appendix A.

CHAPTER 2 – Article 1

Coach-Athlete Communication of Training Plans: Exploring Athlete Experiences

Followed by the Impact of an Intervention

Abstract

Coaching variables such as effective communication (Bloom, 1997, Culver, & Trudel, 2000) training and instruction, information, and feedback (Allen & Howe, 1998; Black & Weiss, 1992; Horn, 1992) have been found to directly relate to athlete satisfaction and motivation. These issues were examined in two studies. The goal of the first study was to explore individual sport athletes' experiences and preferences for how they communicate with their coach about training through interviews. In the second study, the goal was to investigate the impact of a coach providing training plans in advance or not with the same group of athletes during two different time periods. In accordance with Cognitive Evaluation Theory (Deci & Ryan, 2000), it was hypothesized that whether or not a coach provides advance communication of training plan information is a specific interpersonal behavior, which should be perceived as informational and autonomy supportive by the athletes. In turn, supportive behaviors were hypothesized to increase their level of intrinsic motivation and self-determined motivation. In contrast, coaching environments in which little or no information is communicated to the athletes about training plans were predicted to be perceived as controlling or pressuring. In turn, controlling behaviors should decrease athletes' intrinsic motivation and self-determined motivation. More specifically it was hypothesized that when athletes received training plans in advance they would experience higher levels of motivation, report higher levels of positive feelings in training, and prepare and plan better for training in comparison to when they did not receive training plans in advance. Although research hypotheses were not supported by results, studies yielded interesting information regarding the role that aspects such as sport coaching traditions and an athlete's developmental stage in a sport,

can play in athletes' preferences for training plans. In the second study, athletes experienced some more positive consequences related to training when they received training plans in advance (e.g., better preparation for training and coping with obstacles) as well as a reported increase in how motivated they felt for each day's training.

Introduction

Several studies have shown that the more autonomous a person's motivation, the greater his or her persistence, performance, and well-being (Deci & Ryan, 2000). Furthermore, greater autonomy of motivation has been found to relate to quality of experience and sport attitudes (Pelletier et al, 1995), and with readiness to initiate exercise and enjoyment (Markland, 1999; Mullan & Markland, 1997). We believe that how a coach communicates to their athletes about training plans can result in several negative or positive consequences and ultimately may impact an athlete's motivation in sport. That is, we expect that athletes working with coaches who communicate training plans in advance will have higher autonomous motivation, which will, in turn, be associated with other positive consequences such as higher vitality, need satisfaction, and sport satisfaction.

Motivational Climate in the Coach-Athlete Relationship

According to Self-Determination Theory (SDT: Deci & Ryan, 2000, 2001), pressure and control have negative effects on one's adopted motivational style because they thwart the satisfaction of the basic psychological needs for autonomy, competence, and relatedness. These needs are either fulfilled or thwarted through interactions with key people in a given context. For example, the quality of the interactions within the coach-athlete relationship represents an important determinant of the athlete's motivation. Autonomous motivation is fostered in an environment that supports satisfaction of the three psychological needs, while controlled motivation is expected in an environment that does not support these needs. Thus, the coach, who has the power to influence athletes, should be autonomy supportive in order to facilitate autonomous motivation. Autonomy

support concerns the extent to which a coach enables and encourages initiative and choice in the athletes, and can share in his/her perspective when solving problems and offering advice (Reeve, 1998; Ryan, 1993). In other words, an autonomy-supportive coach is a coach that allows choices in training, encourages the athlete to take initiative in training, and is open to feedback from the athlete and discussion with the athlete.

Conversely, the opposite of autonomy support is control, that is, when a coach is more directive, authoritarian, and pressuring. A controlling coach will likely foster externally regulated or introjected motivation in an athlete while an autonomy supportive coach will likely foster identified and integrated regulation, and intrinsic motivation. Two longitudinal studies have shown that the motivational orientation and supportiveness of coaches increased autonomous motivation in adolescents and in competitive swimmers, which in turn increased their persistence in sports (Fortier, 2000; Pelletier, Fortier, Vallerand, & Brière, 2001). In the present studies, we hypothesized that the specific coach behavior of communicating training plans to athletes would be related to more positive consequences and foster more autonomously motivated athletes to the extent that the athletes perceive the behavior as autonomy-supportive.

Planning in the Coach-Athlete Relationship

A central premise of this article is that a specific behavior associated with being an autonomy supportive coach is the communication of training plans in advance. By communicating training plans in advance to an athlete, a coach facilitates effective, autonomous planning by the athlete. For example, by receiving training plans in advance, the athlete can prepare for how he or she wants to execute a training session (e.g., setting

practice goals), as well as effectively manage other weekly tasks in order to maximize the energy and focus available for specific training sessions.

As proposed by Voight (2002), if quality preparation is undertaken before training, the athletes will have a more motivated and productive attitude and will be better prepared for the practice session. Furthermore, knowing one's training in advance allows athletes to develop implementation intentions by specifying the actions required to reach training goals (Gollwitzer, 1999), as well as to practice mental simulations, the cognitive construction of hypothetical scenarios and the reconstruction of real ones (Taylor, & Pham, 1996), both which lead to the automatic, direct environmental regulation of behavior, by helping the intended behavior to be executed faster and more effortlessly (Brandstätter, 1992). This is a result of behavioural readiness brought about through implementation intentions and/or mental simulations, which involve frequent situation-response pairing of upcoming situations.

Thus it is predicted that knowing training plans in advance promotes autonomous motivation through allowing athlete to better regulate their training preparation and weekly planning behaviors. The goal of the present research was to gain a better understanding of how coach-communication of training plans impacts athletes. The objective of Study 1 was to explore the communication of training plans between individual-sport athletes and their coaches with the aim of gaining insight through the perspectives of athletes who either received training plans in advance or did not receive training plans in advance. Study 2 further examined the impact of receiving training plans in advance (or not) over time by isolating the investigation to one sport and a group of athletes under the supervision of the same coach.

Study 1

More specifically, the main objective of study 1 was to explore the following: (1) the types of motives athletes experience for practicing their sport, (2) the short-term and long-term goals of athletes, (3) how the athletes communicate about training plans with their coach, and (4) athlete preferences for how they receive their training, (5) perceived advantages and disadvantages to receiving training plans in advance, and (6) athlete perceptions of other athletes with the same coach. The final objective was to gain an understanding of the extent to which athletes depend on their coaches for training plans and the effect that the behavior of communicating training plans in advance may have on the athletes' motivation.

To begin to explore the relationship between the communication training plans between athletes and their coaches, a qualitative investigation was utilized in order to better understand the meaning of such behaviour as perceived by athletes. Qualitative research has become increasingly popular within sport psychology with the intention of an improved understanding of athletes' and coaches' experiential knowledge (see Schinke, and da Costa, 2000, for a review).

In qualitative research, the researcher tries to minimize the distance between him or herself and what is being researched. As a result, the researcher strives to actively report his or her values, as well as the value of the information gathered which is reported in the first person (Creswell, 1994). For the present study, an inductive method of inquiry was used, which means possible theories were developed and categorized according to information gathered from the participants. Induction in the present study can be seen as a process of describing, connecting, and classifying.

The theoretical paradigm, which guided the present study, is a post positivist approach. Unlike positivists who believe research can find the complete truth, post positivism posits that any claims about reality must be critically examined in order to understand it as well as possible, although never perfectly (Denzin & Lincoln, 1994). The researcher asks questions such as, "Do the findings fit with existing knowledge, and with what others have found such as editors, referees, and professional peers?" Replicated findings are seen to be probably true but always subject to correction. The methods of post positivism involve doing research in more natural settings, collecting more situational information, and giving voice to the insider's/participant's view to help determine the meanings and purposes that people ascribe to their actions (Strauss & Corbin, 1990).

Method

Participants

Purposeful sampling, selecting research participants on the basis of their experience with the phenomena being investigated and their willingness to share their knowledge and experiences, is a research strategy in which specific people are deliberately chosen in order to provide important information that is not accessible using other sampling techniques (Maxwell, 1996). Thus, for this study, thirteen competitive athletes in various individual sports who work regularly with a coach were invited to participate. Seven of the athletes regularly received training plans 1-8 weeks in advance, while six of the athletes did not receive training plans in advance of practice, although some reported they were aware of the general training phases they would be going through.

Interview Setting

Potential participants were informed that the interview would take no more than one hour of their time and they would be given information sheets explaining the objectives of the study. Consent forms were distributed for the athletes to sign if they were willing to participate. The athletes were interviewed at a time and place of their convenience.

Interview Protocol

The type of interview chosen for the present study was a semi-structured topical interview. With this interview format, the goal was to sort out and balance the different perspectives of the participants (Rubin, & Rubin, 1995) and to gather precise data to code and explain within pre-established areas of interest (Denzin, & Lincoln, 1994). In order to provide a deeper understanding of athletes' experiences with their coaches and the communication of training plans, several main questions were asked in a predetermined fashion, while at the same time allowing for flexibility to probe and explore certain topics in greater depth (see Appendix D for Interview Guide).

Since the main difference between an interview and a normal conversation is that the interviewer guides the conversation in an interview, several steps were taken to ensure that the questioning remains appropriate as well as guided by the interviewer. Rubin and Rubin (1995) have proposed some important stages involved in building a good conversational relationship, which included the following: (a) creating a natural environment by beginning the interview with a non-threatening question (e.g. how did you first get involved in your sport?); (b) encouraging conversational competence by beginning with the easiest topics for the athletes to talk about such as their sport goals; (c)

showing understanding with follow-up questions that show factual understanding (e.g. the interviewer was also an athlete so could establish a good rapport and empathy with the participants); (d) getting basic facts and descriptions by good probe questions that encourage participant to talk at length and in great details; and (e) closing the interview while maintaining contact (e.g. creating the opportunity to continue the discussion and allow athletes to have input with interview transcripts).

Data Preparation, Coding and Analysis

All interviews were audiotape recorded and transcribed verbatim in order to produce texts to analyze. To ensure the accuracy of all data collected, a printed copy of the interview transcript was sent to each participant. The athletes were asked to verify that their thoughts were accurately represented in the texts, and to make additions, deletions, or changes to the text if they were warranted.

Data analysis in a qualitative study can be seen as a circular process alternating between description, classification, and connection through developing categories, and making comparisons and contrasts (Creswell, 1994). While much of the work in the analysis process consists of “taking apart” (for instance, into smaller pieces), the final goal is the emergence of a larger, consolidated picture (Tesch, 1990, p. 154). Therefore, for the present study, the different motivations, goals, preferences, perspective and athlete experiences with coaches were classified and categorized in relationship to how they received their training from their coach.

Results

Since we were interested in any differences between athletes who received specific training plans in advance and those that did not, the results that are presented here differentiate between the athletes who reported that they received specific training plans in advance and those that did not. For the purpose of this study, receiving training plans in advance is defined as the athlete knowing the details of training plans at least one week in advance. The results were divided into two main sections: Section one describes the athletes in terms of characteristics, motivation, and goals set. Section two explores the communication of training plans by coaches and athletes as described by the athletes.

Athlete Characteristics

The athletes who participated in the study competed in four different individual sports, ranged in age from 21 to 34 years ($M = 25.62$ years), and have between 5 and 20 years of competitive experience in their sport ($M = 12.54$ years). Seven athletes reported receiving specific training plans in advance while six athletes did not report receiving specific training plans in advance (see Table 1). In this study the athletes who received training plans in advance reported receiving a minimum of one week of detailed training plans at a time, as well as knowing the general training phases a minimum of one month in advance.

Table 1

Study 1 Participant Characteristics

Athlete	Age	Sport	Years in Sport	Competitive Level	Receive training plans in advance
1	26	Cycling	11	International	Yes
2	30	Cycling	16	International	Yes
3	22	Swimming	15	Varsity	No
4	23	Swimming	16	Varsity	No
5	34	Cycling	15	International	Yes
6	22	Cross-country skiing	14	National	No
7	29	Cross-country skiing	7	International	Yes
8	27	Cycling	9	International	Yes
9	24	Cycling	5	National	Yes
10	22	Running	10	Varsity	No
11	21	Swimming	15	Varsity	No
12	27	Running	15	National	No
13	26	Cross-country skiing	15	National	Yes

Athlete Motivation

The athletes were asked to describe as many reasons they could think of for what motivated them to participate and compete in their sport. Much research has shown that more internalized reasons for pursuing a sport, stemming from identified and integrated regulation, as well as intrinsic motivation, are associated with more positive affect, greater achievement persistence, effort expenditure, and well-being (Vallerand, 1997). Through consultation with experts on Self-Determination Theory (SDT), the reasons the athletes gave were divided into intrinsic, integrated, identified, introjected, and external reasons. Not surprisingly, none of the athletes gave any amotivated reasons, or reasons that suggested a lack of motivation, for doing their sport.

What drew the thirteen athletes to compete in their given sports was a mix of different motivations. Intrinsic reasons for practicing one's sport would include reasons related to inherent pleasures found in sport through accomplishment, stimulation, and

learning. Intrinsic reasons for pursuing their sport were mentioned by all seven athletes who received training plans in advance (e.g., Athlete 1: “I enjoy doing my sport to see how much better I can get at it”) and by three out of the six athletes who do not receive training plans in advance (e.g. Athlete 4: “I’ve always just loved water and wanted to swim”).

Next on the self-determination continuum (Deci & Ryan, 1985) are integrated reasons for practicing one’s sport. Integrated motivational reasons are consistent with one’s self-concept but are still done to obtain separable outcomes, and were only mentioned by two athletes, both whom did not receive training plans in advance. For example, Athlete 6 mentioned, “It has just been the one part of my life that I’ve always looked forward to and enjoy doing” and athlete 5 said, “Physical activity is an integral part of my life and who I am and I have to do it in order to be happy for sure”

Athlete 12 stated,

I try to adhere to the philosophy that if I’m 100% healthy then my performances in the sport are going to be reflected, are going to be achieved as well because of my health so I try to tie running in with everything else in my life.

Identified reasons to practice a sport are chosen because one values such a pursuit as personally important, such as keeping fit or socializing. Five out of seven athletes who receive training plans in advance mentioned identified reasons for pursuing their sport (e.g., Athlete 5: “I really enjoy the lifestyle of the sport I have chosen, traveling and all the people I meet”), while all six athletes who do not receive training plans in advance mentioned identified reasons (e.g., Athlete 12: “I would do it even if I weren’t competing because of that base of health that I enjoy”).

Introjected reasons are when one imposes internal constraints on his or herself for pursuing a sport. Interestingly, no introjected reasons for pursuing sport were mentioned any of the athletes.

Finally, external reasons are the result of external rewards, pressures, or constraints. Two out of seven athletes who reported receiving training plans in advance cited some external reasons for practicing their sport. Athlete 1 stated, "Right now it (my sport) is my livelihood". Athlete 8 also mentioned some motivation coming from the financial side of competitive sport, "I can make a living out of it so there is nothing else I'd rather be doing right now... If I couldn't make money out of it I wouldn't keep on doing it at this level". Two out of the six athletes who do not receive training plans in advance also mentioned some external reasons for pursuing their sport such, as the rewards.

I love to race because I love the glory, I love hearing the crowd...I like the awards at the end. (Athlete 10)

When I first got to university I improved and I was one of the top swimmers and in the paper all the time. I've received a lot of recognition that I didn't get in high school. So I've really liked that and that has kept pushing me. (Athlete 11)

Interestingly, the same two athletes also mentioned some external motivation that came from the influence of a parent.

My dad follows my races, my training, everything, he wants to know everything about my running, all my injuries. He's been like a coach kind of I guess. He's a main reason why I run. (Athlete 10)

My mom would set up goals for me and external rewards. I remember I won a race and she got me some sunglasses, she'd give me little kind of rewards like and that's the way it has been all the way through. (Athlete 11)

Athlete 11 also touched how her motivation has evolved through some intrinsic

and extrinsic phases.

First off it was just fun, I was pretty good at it, it kept me busy and I always liked the challenge. I always wanted to see if I could make myself better. I just enjoyed it and I liked the team, being able to talk to people. And then it was about just reaching goals, being able to do better, win first or second place and get the ribbons. I really liked that. In high school I started swimming for my mom because I started not liking it because it was taking over my life. I had to sacrifice my friends, I'd wake up at 5:30 and then I'd have to go to school, then go back to swim practice, do my homework and go to sleep and that was my life. At that time I was swimming for my mom. It was all pressure; I was swimming only for my mom. In high school the motivation for swimming went from being for my mom to focusing more on me and getting an education by the end of high school. I was thinking maybe it could help me get into a university somewhere because I wanted to continue swimming and if I could get it paid for, great! And when I first got to university I improved, I was one of the top swimmers and in the paper all the time, I received a lot of recognition that I didn't get in high school. In my second and third year it has become more purely for me, just racing against myself to see if I can improve myself.

In sum, the present interviews did not present any clear differences in the number of self-determined reasons of athletes who receive training plans in advance and those who do not. However, intrinsic and identified reasons were most frequent with 11 out of 13 athletes mentioning both types of motivation while only 4, 2, and 1 athletes referred to external, integrated, and introjected reasons respectively. Next we will present the athletes goal orientations and identify any patterns between goal setting and the reception of training plans.

Athletes' Goals

The athletes were asked to share their short term and long-term goals in sport. This question was posed to examine similarities or differences in the types of goals set by the respondents. More specifically, we were interested in seeing if the athletes distinguished their goals more in terms of outcome goals, which are focused on social

comparison and object outcome (e.g. place in a race, winning or losing) versus process type goals, which are focused on improving form, technique, and strategy (Kingston & Hardy, 1997). We wanted to explore the goal focus of the athletes because we also believe that process goals, which are more flexible and controllable than performance goals, are related to more positive motivational consequences and may be an inherent part of working with a coach who provides a rationale for upcoming training plans. This is because athletes who receive training plans with at least some explanation may better understand the training process, and as a result have a greater focus on process goals *as well as* their performance goals.

Due to popularity and emphasis of outcome goals in sport (Gould, 1998) it was expected that most goals stated would be outcome related goals. As expected outcome goals easily came to mind for all the athletes when asked to identify their goals in their sport. For example, “To get World Cup eligibility and to win a medal possibly at Nationals, that would be the best case scenario for me right now” (Athlete 7).

However, there did not appear to be any differences between the group of athletes who received training plans in advance and those who did not in the in the number of process goals mentioned. Approximately half of each group also referred to having clear process goals. Seven out of the thirteen athletes mentioned process oriented goals, four whom received training plans in advance (e.g. Athlete 1: “I’m just focused on the fitness at the moment, getting that to my highest level”), and three who did not (e.g., Athletes 6: “I think my other goal is to just be more relaxed, and just enjoy myself and have fun”). Athlete 8 also appeared to have a clear understanding of how her process and outcome goals can work together,

I think that the physical and the mental things, like I want to be able to climb faster, are more the things that are going to lead me to get to that goal. My goals are definitely position oriented or making teams but those other goals are going to have to be part of that. If I don't get faster, if I don't get fitter, if I don't get the whole mental stuff sorted out, then I'm not going to be making that top five in a World Cup and I'm not going to be making the Olympic team. My goals are definitely set on specific placings I guess. I don't consider my goal so much to be to climb a hill faster *but* that is kind of what it is if that makes sense...

As expected, outcome goals easily came to mind for all the athletes when asked to identify their goals in their sport. However, there were no differences between the group of athletes who received training plans in advance and those who do not in the number of process goals mentioned. Approximately half of each group also referred to having clear process goals.

Coach-Athlete Training Plan Communication

The athletes who did not receive training plans in advance reported that they did not know the details of their training in advance of practice. However, some of them reported knowing the general types of workouts or upcoming training phases in advance.

According to the seven athletes who received training plans in advance, coach communication varied regarding training and included any or all of the following: (a) providing a training schedule of suggested workouts (in detailed or general form) from one to six weeks in advance, as (b) providing an overall goal plan for the season or year, (c) explaining the purpose of the training, and (d) interpreting athlete feedback on the training in order to make ongoing modifications. In turn, these seven athletes felt more autonomous as they took on responsibility for things such as providing necessary feedback to the coach, making necessary adjustments to daily training sessions such as the number of intervals, total time or intensity. Such athlete decisions may be based on

feelings, heart rates, or lactate levels, as well as deciding with the coach which competitions are most important.

For example, Athlete 1 touched on why his sense of autonomy has increased while working with his coach because of coach explanations.

One of the big things as I've worked with him over the years is that he's also teaching us about our training and explaining it. So we gain a lot of knowledge and the longer I train with him the less info I need because I've learned more and more about my body so I've been able to work more with the training with less input from him.

However, what seems to differ slightly between the two groups is the degree of autonomy the athletes are given in training. Athletes who reportedly received training plans in advance were also encouraged to make any needed changes to their daily training based on their own feedback while this occurred to a less often for the athlete who did not receive training plans in advance. As described by Athlete 10, "Once he (the coach) tells you what you're doing at practice that's pretty much it." However the same athlete completely trusted her coach for giving her the best training for her ability, "He (the coach) knows us well as athletes and would never tell me to do fifteen reps of a hill if I can only do 10 or 12."

Training Plans: Athlete Perceptions and Preferences

The athletes were asked to comment on their own preferences regarding the timeline of how they receive workouts from their coaches. They commented on what they prefer as well as things they would change.

Seven of the athletes' preferences matched their current means of communicating about training plans with their coaches. Three of these athletes received workout plans in advance, while four of them did not. The three athletes who received training plans in

advance, preferred such a coaching situation in order to plan their day according to what their workout will entail, “I like to know because then I don’t kill myself during the day doing something stupid” (Athlete 9), as well as planning for responsibilities outside of training, as described by Athlete 1.

It’s nice to be able to plan at least a week ahead. I like to know how to arrange my schedule and decide where I might do certain workouts, and try to work everything into my schedule with different jobs and tasks I’m doing related to my training or not.

Of the four athletes who did not receive workouts in advance, yet preferred not to, two preferred not knowing their workouts in advance because they claimed it would influence their motivation to go to practice. For example Athlete 3 stated, “If you know that the morning practice is going to be a really hard set then you’re just not going to go to that practice”, while Athlete 4 commented, “If I knew everything in advance I wouldn’t show up sometimes (laughs)...you can be like totally man I don’t want to do this tonight, whereas if you don’t know then once you get there you just do it.”

Two athletes appeared to have a preference for the daily one-on-one contact with their coach and trusting in what their coach has planned. Athlete 6 liked daily contact with her coach because she did not like keeping a training log or communicating via e-mail. Athlete 12 claimed he did not need to know workouts too far in advance because he generally knew what the coach was planning, “Things do change throughout the year but now that I know what those changes are the specific workouts aren’t going to change too much.”

For the other six athletes who felt they would like to change how they received training plans in advance from their coach, it was divided between three athletes who received workouts in advance and three who did not. However, for the six athletes who

wanted to change how they communicated with their coach about training, *all* six expressed a desire to be given *more* details or information on their training in advance. For example, Athlete 5 mentioned, “I wish that I had more of a clear outline and a clear plan. I like to have a three-week plan before a big race like leading up to worlds.” Athlete 13 also wished to know the training plan details even farther in advance, “I’d like about a month and then I can have more time to look ahead and say this is giving me a problem here. It’s a lot easier to talk to my coach about something if it’s farther ahead”, as did Athlete 8, “Ideally I’d like to have the whole year so I can be like okay this is what I’m doing. I’d like to be able to look ahead.” Athlete 10 wanted to know more details of specific workouts, “When I get to the workouts I would like to know more details ahead of time like the number or the distance of intervals instead of just knowing that we’re going to do a speed workout.” Athletes 7 also expressed wanting a clearer outline of the training in advance in order to have confidence in a systematic training plan,

I train a lot better when I train systematically. I find that I see results. When I have a plan ahead of me and I accomplish it I feel that I can check off one step towards a big goal and I think that has just been huge for me to figure that out because my coach is very disorganized. He’s got a great vision but he can’t get the details down. I need to see it on paper. I need to see that it’s working towards something.

Athlete 11 clearly expressed her frustration with coaches who have not given her the training plan in advance or explained it to her,

Nobody has ever sat down to explain a training plan to me, why I’m doing specific sets, or at the beginning of the year, this is our plan, this is your goal, and this is the plan to get you there. I know it would help because I need to know where I’m going to go and how I’m going to get there. I need a plan. That is what goal setting is all about. It’s not just about swimming your guts out everyday and giving your best. Give me a little bit more. That’s pretty much what all the coaches have done for me, just do your best in every workout and that’s all we ask, and that is pretty much how it has been for me. (Athlete 12)

It is clear from the above quotes that whether coaches give workouts in advance or not, these athletes wanted to learn even more details about their training plans and why they were doing each workout. To elaborate on why this could be, the next question asked the athletes to comment on what they feel the advantages would be to receiving workout plans in advance, regardless of their current situation.

Advantages to Knowing Training Plans in Advance

The athletes were asked to comment on what they felt were any advantages or disadvantages for athletes in knowing their training plans in advance. The main advantages mentioned by all the athletes were motivation enhancement, confidence building, time-management, goal setting in advance, mental preparation (imagery), nutritional planning, and having a learning tool for improving their training. Examples of each of the advantages mentioned are given below.

Athlete 1 talked about the motivational advantage to knowing training in advance through being able to mentally prepare, “I like to be able to think about the workout, the ride, where I’m going to go, if there are different intensities, where I might do them on the training ride.”, as did Athlete 8, “I like knowing a few days in advance because then I can mentally prepare for it.” Both of these athletes also talked about the ability to organizationally prepare better for training, “It (knowing training in advance) gives you the heads up as far as nutrition and refueling, and preparing your bikes and food to correspond to your training program.” (Athlete 1), and “I like going to bed at night going okay I have a 3-hour ride to do the next day. You can plan your day, and you can plan your week around it” (Athlete 8). Athlete 12 also mentioned the nutritional advantage to knowing workouts in advance, “If you don’t know when you’re working a certain system

then I don't think you'll be able to plan your meals very effectively. If you know you're doing something really long you might be eating a different combination of carbohydrates and proteins."

Athlete 1 also mentioned that knowing his workouts in advance gave him more confidence in his coach by seeing that his coach carefully plans out the route to different goals and doesn't make things up day by day. Athlete 5 also spoke about the confidence that comes from having a training plan in advance, "I think the advantage is confidence building and when you follow the plan you feel like you're going into the race prepared."

Athlete 4 mentioned the advantage of being able to set goals in advance for swim practice, "When you get in the water you know what you want to do, like I want to hold under five minutes for this period."

Finally, Athlete 13 talked about the advantage of having a training plan which can act as a learning tool for future development.

If you don't have a plan, if you can't look at it on paper, you can't make mistakes and then learn what they were and how to fix them. And from year to year you can't figure out other ways to do what works and what doesn't work.

Disadvantages to Knowing Training Plans in Advance

While two of the athletes could not see any disadvantage to knowing their training in advance, eleven of the thirteen athletes mentioned such things as the possibility of following a training plan too strictly and not listening to your body, getting distracted by thinking about the difficulty of an upcoming workout, not being prepared to deal with the unknowns of race day since there are usually no unknowns in training, the possibility of overanalyzing your training, and holding back in training because of knowing what

workout will follow the next day. Again, examples of each disadvantage mentioned are provided below.

Athlete 3 and Athlete 9 talked about how knowing your training in advance could be distracting or stressful.

You could work yourself up. If I knew there was a hard practice at night all day I would like oh, its going to be really hard, am I going to be able to do it? It would probably be distracting. That's why it would be easier to just go and do it (Athlete 3).

It could make your day miserable if you didn't really want to do the workout. You could spend the whole day dreading it (Athlete 9).

Athlete 6 spoke about the possibility of not paying attention to your body as much as a result of following a training plan.

Sometimes once people see a program they stop listening to themselves. Like tomorrow I'm supposed to do intensity but if tomorrow I wake up and I'm tired, do I do my intensity? But most people never think about that, whatever is on their program is exactly what they're going to do, its going to make me into this perfect athlete if I follow this program perfectly.

Athlete 7 spoke about the possibility that having training plans in advance could lead an athlete to stop listening to his or her own feedback and to follow the training plan so closely that it would not prepare an athlete for adversity on race day such as a delayed start, "It (a training plan) should be a guideline to what you're trying to achieve and if you're sticking to it like its everything then that is just silly". On a similar note, some athletes mentioned the possibility of over thinking or overanalyzing training when training plans are known in advance and stated, "If you know too much about it you might start thinking, I don't want to do that or I'd rather do this instead. I think you might overanalyze it if you had too

much detail". (Athlete 10), and "I think I'd constantly worry about whether I could make the sets, or what happens if this happens" (Athlete 13).

Contrasting the Advantages and the Disadvantages

The advantages and disadvantages mentioned by the athletes brings about the question of whether the advantages outweigh the disadvantages to receiving training plans in advance (or vice versa) in terms of motivating the athletes. In other words, are the advantages such as time to plan, set goals for practice and mentally prepare, as well as being more actively involved in the training program and enhancing confidence in one's coach, more important to enhancing an athlete's self-determination than the disadvantages such as being stressed out about upcoming workouts, or following a plan too strictly. As with athlete preferences to how they receive their workouts from their coach, what each athlete perceived to be advantageous or disadvantageous may also be reflective of their motivational orientation. In other words, athletes who *prefer* receiving training plans in advance and see more advantages to doing so may be more self-determined athletes than those athletes who prefer not receiving workout plans in advance and see more disadvantages to receiving workout plans in advance than not. Since we are predicting that athletes who receive clear workout plans in advance will be more autonomous toward their training, we also decided to ask the athletes to what degree they felt they were dependent on their coach.

Degree of Athlete Dependency on Coach for Training Plans

While a certain amount of autonomy in training is believed to be beneficial (Deci & Ryan, 2000), the athletes in the present study depended on their coaches to a varying degrees for things such as keeping up with the latest training knowledge, helping with the

assessment of fitness levels, motivation to train, help with technique, confidence in making training decisions, doing the majority of workout planning, and finally, having someone with whom to share victories and defeats.

For the athletes reporting to receive workout plans in advance, four out of seven felt confident enough to train independently of a coach as expressed by Athlete 7, “I wouldn’t feel lost. I’d feel a little less confident and a little unsure of myself at times but I don’t think I’d feel completely out of it (without a coach), and Athlete 2, “I could train pretty reasonably by myself but I do like having someone when I’m unsure”.

Athlete 8 talked about the choice to be dependent on her coach even though she felt capable of training on her own,

I’ve chosen to be dependent on my coach to a certain extent. I like having someone just give me a program instead of having to think about it too much. And I think that if he decided he didn’t want to coach me anymore I’d be fine. I’d be able to set up a training program and be quite comfortable with it but I’ve chosen to be 100% dependent and I like it that way. It makes it easier in the sense that I don’t have to think about it or to stress about it. I’ve always got someone there that I can ask who’s sitting there watching the race. He comes to a lot of the races so he gets to see how I’m racing. It’s just easier.

These same athletes relied on their coach for the latest training knowledge.

Athlete 7 said, “I think just being connected to someone who has a lot of knowledge about physiology and having someone to bounce ideas off of and to give me confidence in what I’m doing”, as similarly expressed by Athlete 2, “He’s got a couple of degrees. He does a lot of studying so he knows how to train certain systems in your body, things that I might not know a lot about.” Athlete 1 also talked about the constant learning while working with his coach,

And that’s what I like about my coach; the training is constantly changing and progressing. We know very little about training right now but I think

my coach knows a lot more than others. I think we learn a lot of neat things and the training is constantly evolving.

One of the athletes who did not report receiving workout plans in advance also mentioned being dependent on his coach for training knowledge,

It's hard to be confident about your training when you only have yourself to trust. With a coach you can say if I think that and he thinks that it's probably a good idea because my coach has a master degree in coaching. He's got more knowledge of physiology than I do so it makes sense to listen to him. (Athlete 12)

Four athletes spoke about relying on their coach in part for motivating them to train, three of which do not receive training plans in advance. Athlete 3 stated, "I'd be able to train on my own but I wouldn't be motivated to do if I wasn't on that team with a coach." Athlete 4 also said, "I wouldn't work as hard as when I know he's there to push me on. Just the fact that I know he's there and that he's watching me I'll work my butt off. But when he's not there I'll work hard for me but I wouldn't be pushed to do the extra." Like Athlete 4, Athlete 11 also spoke about being motivated to push harder in training as a result of her coach, "It is a totally different experience when a coach isn't there on the deck with you. You're doing the workout they want you to do but the intensity is not there." Athlete 13, who did receive workout plans in advance, also enjoyed the motivation of having a coach and a team present during training, "Personally I'm not the type of person that likes to do all the training alone so usually having a coach and having a team go hand in hand. I know that I just don't respond very well to training by myself."

Three athletes stressed their dependence on their coach for helping them with technique issues. Two such athletes, Athlete 4 and 6, who do not receive workout plans in advance, both talked about the importance of having their coach watch them for

technique issues. Athlete 4 stated, "I think at the point we're at now, its more the technique side that he's helping me with. When something is not working I'll let him know and he'll fix it. You can't see yourself do stuff. I mean there are still things I need to work on like my turns" and Athlete 6 said, "Technically I think I'd be quite a bit behind (without a coach) because you can't really see yourself. It's different having a different pair of eyes on you." Athlete 13, who receives workout plans in advance, also relies on his coach for helping him to continually perfect his technique, "You can ski past him twice and he can point out, watch it you're doing this or that. You might go for a month or two, and you're working on your technique but you're doing something that you totally forgot about and it takes someone else to catch it."

Athletes 6 and 9, who both received training plans in advance, mentioned how their coach plays a role in holding them back from training too much. For example, Athlete 6 stated, "I just need someone more than anything to hold me back, not just to push me forward because I'll do that myself." Athlete 9 similarly said, "I tried training on my own and kind of burned myself out so having a coach has helped hold me back a bit more and I like that it stops me from questioning myself."

Athletes 8, 10, and 11 mentioned their reliance on a coach for doing the "thinking" part of putting a training program together. Athlete 10 stated, "I'm hugely dependent on my coach. I don't like to have to think and to design my own workouts. I just know I have to be here at this time and ready to run and he takes care of everything else." Athlete 11 spoke about the dependence that comes with being accustomed to being told what to do in training, "I need someone to tell me what to do. Somebody has always told me how to train and I think that is why. I think I would be a lot better off getting

explanations but it is a controlling factor. I'm just used to people telling me what to do in swimming. I couldn't do it without a coach."

Athlete 12 talked about the positive points of a coaching relationship for having someone to be accountable to for training, "It puts one more person who is a back-up for the (training) ideas I have", as well as having someone with whom to share the victories and defeats of competition, "The other positive is having somebody to talk to if things didn't go well or share with when things go really well."

Coach versus athlete influence on communication of training

In the present study, some sports require a lot of technical assistance with a coach present quite frequently (i.e., swimming), somewhat often, (i.e. cross-country skiing or cycling), or rarely (i.e., running). Different sports may also breed different traditions of coaching styles. Both may influence how a coach and athlete communicate about training. For example, Athlete 11 shared how she felt swimming is a sport in which she felt coaches tend to be more autocratic,

You don't really have control in this sport. All the coaches I know, I've had Olympic coaches and it's been the same thing. They don't give you your workouts either. I've been to distance camps with Olympic coaches there. They never gave us the workouts. You're never told and some of the best coaches I know in swimming are like that. You show up, you do it and then you go home and recover for the next one. That's how it works so they control everything. That's why they give a lot of credit to coaches in swimming. You can analyze it all you want but this is just from my own thinking and my own experience in the sport. It's a dominant sport in which people need to take control and to dominate over others.

Furthermore, athletes may have only experienced one style of coaching, and because that is all they know, they tend to prefer what they are used to, as could be illustrated in a quote from Athlete 3,

I like not knowing in advance. That's what people do in swimming. So it's never been another way. There would never be a time where the coach

would give the workouts for a week. I've never heard of that. Like that would be really abnormal.

However, despite the nature of the sport, and what coaching backgrounds athletes have come from, the interviews also suggested that the motivation and personality of the athlete can also influence the communication of training plans and interaction with the coach. For example, Athlete 12 stated, "I think some athletes are happy just showing up at practice and doing the workout and then leaving and doing no more mental interaction with what they're doing as far as their training schedule until they show up for practice the next time." On the other hand, "the athletes that are more inquisitive are going to be in talking with the coach about why we are doing this certain workout and where it is leading...I think our coach has the answers but he leaves it more up to the athletes to take the initiative." This type of athlete initiative was also mentioned by Athlete 10, "Sometimes I get to workouts and one or two people know exactly what we're doing. So clearly they've gone and said, 'coach tell me what we're doing today, and I want to know'".

With different athlete personalities, coaches may change how they communicate training plans to individual athletes. Two athletes made similar observations of other athletes working with the same coach, "She needs to know what day to do this, morning and afternoon, she needs to have it all written down and she needs to have it three weeks prior so our coach will sit down and do all this for her" (Athlete 6). The other athlete did not like to know, "She'll know we're going to do intervals but she doesn't like to know the details until right before while I like to know before" (Athlete 9).

Although, the personal motivation and personality of the athlete can influence coach-athlete communication of training plans, the coach may be influenced according to

the coaching system within which he or she works. Individuals who coach for their livelihood may feel more real or perceived pressure to get results from their athletes (Pelletier, Séguin-Lévesque, & Legault, 2002). Athlete 6 touched on her experience with coaching situations where there is real or perceived pressured to get results.

The bad thing I think sometimes is that coaches, because it's their job, they feel like they have to produce results. One coach said to us that people would phone and say why didn't you have results at this race and we're just not going to give you money if you don't have a team that's getting results. They feel pressure from higher up that all filters down. But I think it is also how the individual person responds to that because not all coaches are like that.

And despite a coach's communication style, three athletes touched on the importance of personality fit and even the role the right timing of a coach-athlete relationship can play. For example, Athlete 5 stated, "I think there is a pattern or a certain style to certain coaches and what works for one person might not work for another." Athletes 4 touched on how well he gets along with his coach while others may not, "For other people my coach is not easy to talk to but for me we really fit together well, I have no complaints", as did Athlete 12, "My relationship with this coach is amazing while the other athlete may be saying (his or her) relationship with this coach sucks...I think finding the right relationship that the athlete needs at that time is important."

The above quotes may also lend evidence to the possibility that different types of coaching in terms of how training plans are communicated to athletes may work better for developing athletes at different points in their career. For example, Athlete 12 described coaching developing athletes as similar to parenting a child towards independence.

I think that is probably the biggest complaint that the younger athletes have, is that they want him (the coach) to take more control. And it's

almost like parenting. At a younger age, kids need a lot more attention, they need to be walked to school, someone to hold their hand and that is the stage that these athletes are in they want a coach to hold their hand. But a certain point a teenager doesn't want their parent to hold their hand, they want a bit more freedom, and at a certain age definitely not. When they get older they want almost complete independence and maybe someone to talk to now and then when things are going right so they call their parents on the phone. So I think it is the same way with a coach. (Athlete 12)

Furthermore, there is evidence that coach-athlete communication regarding training plans may vary according to the developmental level of the athlete within the sport as supported by Athlete 5, "I think different people have different relationships with our coach depending on how long they've been coached as well as where they are in their experience." As a result athlete preferences for how they receive their training from their coach may vary according to their experience, "They might be less experienced and not know their body as well so how long you're with a coach as well as where you're at in your sport will probably factor into your preferences" (Athlete 5). Finally, at a very experienced level, an athlete needs to know when to take more responsibility as expressed by Athlete 13, "I'm not going to get any farther by just doing what the coach says. I have to put my own thought into it (training) and figure it out for myself." Similarly, Athlete 6 described her maturation in her sport and growing independence from her coach, "Last year I felt like I needed to have him at my workouts. I always needed his input. Now I'm starting to learn things on my own but I still him for the support at races and for technique."

Thus if athletes can grow from being very dependent on a coach for training to becoming more autonomous to the point of making many of their own training decisions, the question arises as to how coaching behaviors encourage such increases in athlete self-

determination toward their training. There is some evidence from the present interviews of the types of coaching behaviors that can facilitate athlete self-determination, such as explaining and teaching the purpose behind the training, being open to athletes' questions, and encouraging athlete personal responsibility and accountability to their training.

For example, a coach can foster self-determination by imparting knowledge.

One of the big things as I've worked with him over the years is that as he gives us our training he's also teaching us about our training and explaining. So we gain a lot of knowledge and the longer I train with him the less info I need because I've learned more and more about my body so I've been able to work more with the training with less input from him.
(Athlete 1)

A coach can also be open to explaining the training and making changes according to athlete feedback. For example, athletes mentioned, "I can ask my present coach why am I doing this or say hey, I think I need to work on this more and he changes things around" (Athlete 8) and, "I have a lot of say in what I'm doing and it has to really make sense to me, and right for me because I'm seeing results, not just because a coach told me it is very good to do" (Athlete 7). Athlete 12 also appreciated his coach for the degree of autonomy he was given, "I like the amount of independence I have in training...he has never given me more attention than I need and is not pressing to have any more involvement in my training than he already has, for me he is the perfect coach right now."

Conversely, some coach behaviors regarding the communication of training, such as not acknowledging an athlete's opinion, may impede self-determination. Athlete 14 felt he was not able to question any of the training, "If I don't think I should do a workout, he'll never talk to you about it...he'll say, 'you are wrong, you will come here,

and you will do this'...there's no room for discussion." Athlete 2 felt some coaches choose to create the sort of environment "where they do everything for the athletes so the athletes become totally dependent and that's what the coaches like."

Athlete 11 talked about how she felt the need to take some action in order to feel more autonomous in her controlling environment,

Everybody else controls my career except for me. I have never felt like I've had much control until this year. I've decided I'm making the decisions. I'm going to train the way I want and I'm going to give the coaches more input. My distance coach is more open minded towards it and the head coach isn't but at least I get my input in, but I'm taking an active role in my training by saying I want to focus on this and I take an active role in my mental training. I want to work on overcoming my fears and my fear of success so I'm taking control more of the mental because that has been my biggest flaw. So even though I feel like I'm getting a better command of the mental side of things I couldn't do it (compete in swimming) without a coach. I couldn't just jump in the pool and start training myself. I physically could not do it. I would need somebody to do it because that's just the way I've been trained and that is the way I know.

In summary from the information gathered from the athlete interviews, there is reason to believe that the communication of training plans in the coach-athlete relationship has the potential to pass through developmental stages that lead to more self-determined athletes. Whether a coach-athlete relationship passes through such stages may be influenced by specific coach behaviors such as a coach's willingness to teach and explain training principles, a coach's encouragement for athletes to take an active role toward their training, as well as athlete motivation to learn about their training, provide feedback to their coach and seek out information. For example, the communication of training plans may pass through developmental stages such as follows.

Stage One: When an athlete first begins a new sport/event the coach's role is to direct the athlete in all aspects of training (autocratic coaching role). The athlete is

completely dependent on his or her coach for what to do in training. The athlete may rarely actively engage cognitively about the purpose behind each training session. They follow their coach, with a sort of “blind faith” and complete trust.

Stage Two: As the athlete develops and demonstrates a sound technical understanding of the sport/event, the coach's role changes to one where the coach and athlete discuss and agree upon appropriate training requirements (democratic coaching role). If the athlete is with a coach who explains training, the coach will start to encourage the athletes and provide choices in training as the athletes' grow in knowledge of how their bodies respond to training. If more self-determined, the athletes in this stage will start to become more engaged in the training they are doing. The athlete gains a much better understanding of their training in this phase, he or she is still dependent on a coach for a day-to-day training program.

Stage 3: In this stage, the coach-athlete relationship becomes more of a consultant type relationship. Much less explaining needs to be done by the coach and the more mature athlete may feel very capable of putting together a training program. As the athlete matures and demonstrates a sound understanding of training principles, the athlete will determine his or her own training requirements. The coach's role becomes one of a mentor providing advice and support when required. Thus, the athlete still benefits from having confidence in a knowledgeable coach with whom to consult with over issues and decisions related to the planning of training.

Validating the Study

It is important to address the criteria necessary to judge the quality of the present approach of inquiry. Qualitative researchers have developed their own language to

address validity and reliability, traditionally viewed as quantitative research terms. Qualitative researchers use terms such as trustworthiness, transparency, and consistency (Rubin & Rubin, 1995). A study is trustworthy if the accuracy of the transcripts are verified. For example, after the interviews were conducted, the athletes were given the opportunity to verify the authenticity of their transcript and to edit it. According to Rubin and Rubin (1995), transparency refers to documenting the data collection process. Thus, details of how the transcripts will be made, and how they will be organized and analyzed should be given. Finally, to be credible, a qualitative researcher must also demonstrate that they have investigated inconsistencies between ideas and responses. For example, if the researcher is unsure about an inference to be made, it should be verified with the participant.

In line with the post positivist approach of this study, the use of discourse can serve as a means of validity. Therefore, to validate the study, the respondents, as well as someone with experience and knowledge in the given domain would be competent in assessing the validity or truth of the present research findings. To ensure trustworthiness in the present study, several steps were taken:

1. The final interview guide was developed by the research objectives and information gained in pilot interviews,
2. Sampling was purposive and designed to include individuals who were able offer numerous perspectives on the subject being investigated,
3. The semi-structured nature of the interview allowed for dialectical exchanges between the researcher and the participants,

4. Accuracy of the interview transcripts was confirmed by having the respondents review and modify the text,
5. The research data was organized according to the study objectives in order to facilitate a better understanding of how coach-athlete communication regarding workouts relates to motivation, goals, athlete preferences/perceptions, and strategies to complete training.

Discussion

In Study 1, we used interviews to explore thirteen individual-sport athletes with one major dividing factor: seven individuals who received training plans in advance from their coaches, and six of whom did not report receiving training plans in advance. Although there were no apparent differences in the two groups in motivational reasons to practice sport, or types of goals set, we did gain some great insight from the athletes' perspectives. For example, the athletes described a wide variety of ways they communicate about training with their coaches, and the perceived advantages and disadvantages to receiving training plans in advance. Aside from the primary questions of the interview, some interesting further discussion arose from the conversations with the athletes as to the factors that influenced the communication of training plans.

Athletes who received training in advance reported a higher degree of autonomy in training (e.g., the freedom to make daily changes to their training according to how they felt). Furthermore, out of the seven who received training plans in advance, four reported wanting more information on training from their coach. Of the six athletes not receiving training plans in advance, two reported a desire to receive training plans in advance. For the four that did not want training plans in advance, it was because they

would dread the workout if they knew in advance, or just preferred the day-to-day contact with a coach and not worrying about the training until practice time.

The athletes also expressed their opinions on receiving training plans in advance which included advantages such as motivation enhancement, confidence building, time-management, goal setting in advance, mental preparation (imagery), nutritional planning, and having a learning tool for improving their training. Disadvantages included the possibility of following a training plan too strictly and not listening to your body, getting distracted by thinking about the difficulty of an upcoming workout, not being prepared to deal with the unknowns of race day since there are usually no unknowns in training, the possibility of overanalyzing your training, and the possibility of holding back in training because of knowing what workout will follow the next day.

Finally, the athletes discussed the degree to which they felt dependent on their coach for training plans. In relaying their personal experience along with their perceptions of other athletes with the same coach, it became apparent that the structure of a sport and the perceived pressure of the coach, the athlete's personality, and stage of development in sport, may all influence how training plans are communicated within the coach-athlete relationship.

Limitations of Study 1

Information gained in the present study is limited for several reasons. One is that athletes may be biased towards their own coach's communication style because it is what they prefer or because it is the only coaching style they have experienced. As well, the amount of direct contact with the coach may directly account for differences in coaching communication styles. Not all athletes were equally verbal and expressive or insightful

and the number of athletes, thirteen, and the number of sports, four, limit the extent to which the conclusions of the study can be generalized. Since only one contact session was made with each athlete, the study is limited in that follow-up questions could not be made. Finally, the interview method may have limitations as to any influences the interviewee may have had on the responses, as well as to limit the number of and the types of questions posed. However, it is hoped that the interview format brings us closer to understanding the various complexities in how athletes and coaches communicate about training plans.

In light of the above limitations, Study 2 aimed to explore how the same athletes working with the same coach perceived both experiences: receiving and not receiving training plans in advance. Using a daily diary methodology, Study 2 used pre-measures of athlete preferences, as well as post-measures of athletes' preferences after receiving and not receiving training plans in advance over two different time periods.

Study 2

This study represents the second phase in our investigation of the relationship between coach planning and communication of workout plans and athlete motivation. Thus far we have focused on individual perceptions of the impact of receiving training plans in advance in the coach-athlete relationship through one interview with each athlete. However, the ongoing experience of practicing sport varies from day-to-day and week-to-week. Athlete feelings may fluctuate between feeling very confident, energetic, and inspired some days to more tired, impatient, and insecure at other times. Furthermore, abilities and outside factors required to plan and prepare for practice may fluctuate as well. Diary studies (Reis & Gable, 2000) allow one to examine factors that

may influence such fluctuations. In this manner, the present investigation had the goal of exploring whether there would be any significant changes in athlete motivation, planning, moods and feelings related to training, as a result of initially receiving detailed training plans over a two week period and subsequently receiving no information prior to training over another two week period.

According to DeLongis, Hemphill, and Lehman (1992), there are some primary reasons to use a diary methodology which are relevant to present study: (a) it increases ecological validity, (b) it can address questions concerning process, and change, and related causal issues, (c) aggregated information gathered across multiple situations can provide more reliable and valid indicators than single assessments, and (d) structured diaries can lead to an increase in the reliability and validity of self-report data.

In the daily diaries, training hours, responses to items pertaining to practice preparation and planning (whether various obstacles are allowed to interfere with training), feelings during training, and motivation to train were recorded. Athletes were asked to complete short questionnaires at the end of every second training day for a period of two successive weeks in the month of March just prior to the beginning of the track season. The data was then structured across two levels, the first being the daily fluctuations of measures within the individual athletes, who may differ at a second level in terms of planning, feelings, support experienced, and motivation.

Individual-level hypotheses: At the between-athlete level, analyses were conducted to examine relations between self-reports obtained in the initial questionnaire and aggregated data from the daily reports. The communication of training plans in advance were expected to be positively related to dealing well with daily distractions

(planning), overall preparation for training, moods and feelings around training, coach perceptions, and motivation towards training. In turn, self-determined motivation was expected to have positive effects on practice planning and preparation, and daily feelings associated with training.

Daily-level hypotheses: Athletes were asked to report after each training day how prepared they felt for practice(s), the extent to which various obstacles interfered with or disrupted training, their feelings associated with training, and their motivation for training. It was expected that incoming motivation would be related to all of the above, but that coach communication of training plans would predict higher preparation and planning, as well as more positive feelings associated with daily training.

Method

Participants

While 25 athletes were initially approached for the study, 11 varsity track and field runners provided complete data for the four-week period. The sample included 4 females and 7 males, training with the same coach. The athletes ranged in age from 18-28 years with a mean age of 21.45 years. The athletes had been competing in track for a minimum of 5 years ($M = 10.82$), reported training from 11-21 hours per week ($M = 16$), competing in 7-22 races per year ($M = 17.55$) with the majority of the races being at the provincial or intervarsity level, and working with the present coach from 1-7 years ($M = 3.82$). Running was chosen because it is a sport that does not require a lot of technical coaching in comparison to most sports, therefore eliminating a potential confound between athlete preferences and experiences related to the communication of training plans. In agreement with the interviews in Study 1 and the personal experience of the

principal researcher of this thesis, running is a sport in which there is no established tradition of coach-athlete communication regarding training plans. Finally, in the sport of track and field, it is common for runners' training to include a mix of training with and without a coach present, as well as a mix between group and solo training workouts. Thus, athletes could potentially more clearly decipher how the reception of training plans in advance (or not) impacts various variables related to their training apart from other training variables such as training alone, with a group, or with a coach present.

Procedures

The initial phase of participant recruitment involved contacting personal coaches by electronic mail, telephone, and/or a letter to ascertain their interest in the study and to request their cooperation. The second phase of participant recruitment involved approaching the athletes to voluntarily participate in the study. All those contacted were provided with background information about the study in person. Once they agreed to participate, the participants were asked to complete an initial questionnaire as well as daily diaries, a short structured questionnaire package to be filled out 3 times per week over a four-week period. For the first two weeks, the coach did not provide athletes with any training information in advance of practice. For the second two-week period, athletes received all training details. Finally, a follow-up questionnaire was completed at the end of the four-week daily diary phase.

Measures in the Initial Questionnaire

The athletes completed the initial questionnaire prior to starting the diary study. Athletes were asked to report general information including their age, gender, years practicing their sport, competitive level, the number of hours spent training per week, and

how long they have been working with their present coach. Athletes also completed the following measures.

Items on planning. The second section of the questionnaire included ten questions regarding the planning of training sessions by the coach and the athlete's reaction to these planning factors. The athletes responded to questions about the planning of their training ("How often do you receive your workouts in advance?", "How far in advance do you learn what your workout(s) will be?"), the usefulness of receiving their workouts in advance ("To what extent do you prefer to receive workouts in advance?") and how far in advance the workouts were received ("How far in advance do you learn what your workout(s) will be?"). The athletes also responded to questions concerning perceptions of their coach. For example, "How confident are you in your coach's knowledge of the principles of training for your sport?" and "How clearly do you feel your coach explains workouts?" Finally, this section had the goal of determining what general effects the reception of workouts in advance had on the athletes, such as whether knowing the workout(s) in advance influenced the athlete's stress level ("To what extent do you find receiving workouts in advance to be stressful?").

Sport Satisfaction Scale. This scale consists of six items devised to measure the athletes' level of satisfaction in their sport (e.g., "The conditions of my sport life are excellent"). The scale was adapted by Pelletier et al. (1995) from the Life Satisfaction Scale (Diener, Emmons, Larsen, & Giffin, 1985). The athlete evaluates the extent to which they agree to each item on a 7-point Likert scale (1 = Strongly disagree, 7 = Strongly agree). The sport satisfaction index is calculated by adding the six items together.

Interpersonal Behavior Scale. (Otis, & Pelletier, 2002). The Interpersonal Behavior Scale was used to evaluate athlete perceptions' of coaches' autonomy support ("My coach provides me with lots of opportunities to make personal decisions in what I do"), competence support ("The feedback I get from my coach makes me feel uncertain about my capabilities"), and relatedness ("I feel that my coach sincerely cares about me"). The scale consists of 12 items to evaluate according to a 7-point Likert scale (1 = Never, 7 = Always).

Sport Motivation Scale. (Pelletier et al., 1995). The Sport Motivation Scale was used to determine the athletes' level of self-determined motivation toward their sport. The athletes are asked to respond by deciding to which extent each item corresponds to the reason for why they practice their sport. Twenty-eight items are used to represent 7 different subscales on the motivation continuum: intrinsic motivation ("For the pleasure it gives me to know more about the sport that I practice"), integrated motivation ("Because practicing sports reflects the essence of who I am"), identified motivation ("Because, in my opinion, it is one of the best ways to meet people"), introjected motivation ("Because I must do sports to feel good about myself"), external motivation ("For the prestige of being an athlete"), and amotivation ("It is not clear to me anymore; I don't really think my place is in sport"). A 7-point Likert scale was used to calculate the degree of correspondence to each item (1 = Does not correspond at all, 7 = Corresponds completely). The sport self-determination index is compiled using the sum scores of each subscale in following formula: $(3 \times \text{Intrinsic}) + (2 \times \text{Integrated}) + \text{Identified} - \text{Introjected} - (2 \times \text{External}) - (3 \times \text{Amotivated})$.

Measures in the Diary Questionnaire

At the end of every second day, for two consecutive weeks (e.g. six times per two-week period), the athletes were asked to complete a short questionnaire comprising the following measures.

General Information. Each day the athletes recorded how many hours they trained, what types of training they did, whether the day included a competition, and the extent to which the coach explained the training week to them.

Planning. Using a 7-point Likert scale (1 = Not at all, 7 = Completely), the athletes were asked to evaluate the extent to which other activities interfered or disrupted their training plans during the day. Such activities include lack of sleep, social distractions, work or school responsibilities, relationship/family concerns, health problems, environmental conditions for training, stress, lack of motivation, or other.

Practice Preparation. This scale was designed to measure the extent to which the athletes were able to prepare for workouts during the day. On a 7-point Likert scale (1 = not at all, 7 = completely), athletes were asked to evaluate their daily preparation for training in the areas of goal setting, visualization, mental focus, stress management, nutrition, arousal level, rest and recovery.

Feelings/Mood during Training. This scale included ten items in order to evaluate athlete variables related to training, such as feelings (“I looked forward to the workout” or “I was worried or anxious about the difficulty of today’s training”), vitality (“I was feeling drained”), mood (“I was in a good mood”), and competence (“I did not feel very competent”). The athletes were asked to evaluate the extent to which items related to their training week using a 7-point Likert scale (1 = Not at all true, 7 = Very true).

Coach Variables. Two items were used to measure daily coach perceptions of perceived autonomy support (“My coach helped me chose my own direction in training”), and (“my coach took my feelings into consideration for today’s workout”) using a 7-point Likert scale (1 = not at all true, 7 = very true).

Motivation. One item asked athletes to evaluate the following statement, “I was motivated for today’s training session on a 7-point Likert scale (1 = not at all true, 7 = very true). Five items were also adapted from the initial questionnaire to measure athletes’ reasons for training. Answers were on a 7-point Likert scale (1 = does not correspond at all, 7 = corresponds completely) and included one intrinsic item (“Purely for the interest and enjoyment in doing it”), one integrated item (“Interesting or not, I feel it expressed my deepest values”), one identified item (“Because I felt it was an important and interesting activity to do”), one introjected item (“Because I made myself do it to avoid anxiety or guilt”), and one external item (“Because something about my external situation forced me to do it”). Finally, one item addressed overall daily motivation to train by evaluating the extent to which the statement, “I was motivated for today’s training session(s)” was true.

Measures in Post-Study Questionnaire

After the four-week daily diary period, athletes were asked to complete a short post-study questionnaire, which contained the following follow-up questions: a) The extent to which receiving workouts in advance (or not) impacted motivation to train (1 = Not at all, 7 = Completely), b) How often the athletes would prefer to receive workout/training plans in advance, c) How far in advance the athletes would prefer to receive details of workouts, d) The extent to which workout plans in advance would be

useful, e) The extent to which receiving workouts in advance is perceived as stressful, f) The extent to which receiving workouts in advance affects how the athletes' plan the rest of their day, g) The extent to which receiving workouts in advance affects how the athletes prepare for daily training, h) The extent to which receiving workouts in advance impacts confidence in their coach, and i) The extent to which receiving workouts in advance impacts athletes' confidence in their training program.

Results

Descriptives

Prior to beginning the daily diary study, the athletes reported that they rarely or sometimes received workout details in advance from their coach, and gained knowledge of such workout details a few hours or less in advance of practice. However, on a 7-point Likert scale, the athletes reported a high degree of confidence in their coach's knowledge ($M = 6$) and a good degree of clarity regarding their coach's workout explanations ($M = 5.36$). Furthermore, the athletes reported a mean of 5.27 in how often they would prefer to receive workouts in advance (1 = Not at all, 7 = All the time), and a mean of 4.82 in their perceived usefulness of receiving workout plans in advance (1=not at all useful, 7=extremely useful), and a mean of 3.55 for predicted stress level related to receiving workouts in advance (1 = Not at all stressful, 7 = Extremely stressful).

Other measures completed prior to the daily diary included sport satisfaction, perceived coach behaviors, and the self-determined motivation index. The means, standard deviations, skewness, and kurtosis of the variables used in the pre-study questionnaire are presented in Table 2.

Table 2

Study 2 descriptive statistics of the measured variables in the pre-study questionnaire (N = 11)

Variable	Mean	SD	Range
<u>Athlete Variables</u>			
Age	21.45	2.84	18/28
Years competing	10.82	4.49	5/20
Hours train per week	16.00	3.90	11/21
Competitions per year	17.55	4.74	7/22
Time with present coach	3.82	2.48	1/7
Sport satisfaction	29.00	5.53	5/42
Self-determined motivation	17.39	8.42	-48/48
<u>Planning Variables</u>			
Plan own workouts	3.45	1.13	1/7
Preference of workouts in advance	5.27	1.19	1/7
Usefulness of workouts in advance	4.82	1.25	1/7
Predicted stress of workouts in advance	3.55	1.37	1/7
<u>Coach Variables</u>			
Caring	20.20	4.16	4/28
Autonomy supportive	17.30	2.45	4/28
Competence supportive	23.00	4.29	4/28
Coach clarity of training explanations	5.36	.67	1/7
Confidence in coach knowledge	6.00	.77	1/7
Provision of training plans in advance	2.36	.50	1/5

Paired-Samples T-Tests

One of the goals of Study 2 was to determine any significant differences in athlete planning, feelings toward training, and motivation over two two-week time periods while working with the same coach. In NTPA the athletes did not receive any details of their training prior to arriving at practice, in TPA athletes were given the details of their training for the entire two-week period.

Before proceeding with the analyses, preliminary analyses were performed to screen for errors and to assess departures from basic assumptions such as normality. All values showed a normal distribution, and did not exceed the accepted range of ± 1 (Muthen & Kaplan, 1985). For our analysis, we were primarily interested in examining relations between variables from Time 1 to Time 2. However, we also examined comparisons between the pre-study questionnaire with each time period as well as comparing some pre- and post-study variables.

Time-Level Analyses

Paired-samples t-tests were conducted to evaluate the impact of not receiving training plans in advance (NTPA) and receiving training plans in advance (TPA). Table 3 presents the t-test results for all comparisons in the time-level analysis. First, we looked at the athlete variables. Although there was an increase in aggregated positive feeling scores from NPTA ($M = 295.55, SD = 31.73$) to TPA ($M = 310.64, SD = 44.42$), the difference was not significantly different. However, the extent to which obstacles interfered with training (e.g. improved planning) did significantly decrease from NTPA ($M = 20.15, SD = 5.62$) to TPA ($M = 16.48, SD = 5.13$), $t(10) = 3.97, p < .05$, while the extent to which the athlete felt prepared for training showed an increasing trend from NTPA ($M = 176.91, SD = 23.83$) to TPA ($M = 196.10, SD = 27.38$), $t(10) = -2.03, p < .07$. There was also an increasing trend in the reported number of hours the athletes spend training daily from NPTA ($M = 1.94, SD = .53$) to TPA ($M = 2.26, SD = .58$), $t(10) = 2.04, p < .07$.

Next, we compared the averaged athlete perceptions of the coach on a daily basis. Perceptions of coach autonomy support displayed an increasing trend from NTPA ($M =$

23.91, $SD = .7.19$) to TPA ($M = 30.36$, $SD = .7.86$), $t(10) = -2.13.$, $p < .06$, as did perceptions of coach care from NTPA ($M = 24.27$, $SD = 6.25$) to TPA ($M = 29.45$, $SD = .6.62$), $t(10) = -1.81.$, $p < .10$.

Finally we compared athlete motivation. Although there were no changes in average levels of intrinsic, integrated, or identified motivation for daily training, introjected motivation decreased significantly from NPTA ($M = 4.14$, $SD = 1.64$) to TPA ($M = 3.32$, $SD = 1.79$), $t(10) = 2.36.$, $p < .04$, while external regulation for training increased significantly from NTPA ($M = 3.08$, $SD = 1.81$) to TPA ($M = 3.89$, $SD = 1.66$), $t(10) = -2.06.$, $p < .06$. However, in answering the extent to which the statement, "I was motivated for today's training session(s)" was true, there was a significant increase from NTPA ($M = 27.00$, $SD = 6.25$) to TPA ($M = 30.64$, $SD = .5.37$), $t(10) = -2.60.$, $p < .03$.

Table 3

Means and standard deviations (SD) of variables during No Training Plans in Advance (NTPA) and Training Plans in Advance (TPA, t-values and non-significant (NS) or significant changes (N = 11).

Variable	NTPA		TPA		t-value	Sig. Change
	Mean	SD	Mean	SD		
<u>Athlete Variables</u>						
Daily Training Hours	1.94	.53	2.26	.58	2.04	.07
Obstacles to training	20.15	5.62	16.48	5.13	3.97	.00
Preparation for training	176.91	23.83	196.10	27.38	-2.03	.07
Feelings/Mood in training	295.55	31.73	310.64	44.42	-1.10	NS
<u>Coach Variables</u>						
Coach autonomy	23.91	7.19	30.36	7.86	-2.13	.06
Coach care	24.27	6.25	29.45	6.62	-1.81	.10
<u>Motivation</u>						
Motivated for today's training	27.00	6.25	30.64	5.37	-2.60	.03
Intrinsic motivation	4.29	1.36	4.44	1.31	-.75	NS
Integration	5.05	1.75	4.94	1.80	.56	NS
Identification	6.41	.80	6.17	.85	1.37	NS
Introjected regulation	4.14	1.64	3.32	1.79	2.36	.04
External regulation	3.08	1.81	3.89	1.66	-2.06	.06

Initial pre-study motivation levels were also compared across NTPA and TPA conditions and are presented in Table 4 and Table 5. Interestingly, the only significant differences found when comparing pre-study motivation scores were an increase in identified regulation between pre-study ($M = 4.20$, $SD = 1.30$) and NTPA ($M = 6.41$, $SD = .80$), $t(10) = -4.20$, $p < .01$, as well as between pre-study and TPA ($M = 4.20$, $SD = 1.30$) to Time 2 ($M = 6.17$, $SD = .85$), $t(10) = -3.42$, $p < .01$.

Table 4

Means, and Standard Deviations (SD) of Daily Motivation Variables in Pre-Study and Time 1, T-values and Non-Significant (NS) or Significant Changes.

Variable	Pre-Study		Time 1 (no plans)		t-value	Sig. Change
	Mean	SD	Mean	SD		
Intrinsic motivation	4.63	1.06	4.29	1.36	1.29	NS
Integration	5.41	1.11	5.05	1.75	.59	NS
Identification	4.20	1.30	6.41	.80	-4.20	.01
Introjected regulation	3.36	.92	4.14	1.64	-1.63	.NS
External regulation	3.11	1.01	3.08	1.81	.06	NS

Table 5

Means, and Standard Deviations (SD) of Daily Motivation Variables in Pre-Study and Time 2, T-values and Non-Significant (NS) or significant changes

Variable	Pre-Study		Time 2 (plans)		t-value	Sig. Change
	Mean	SD	Mean	SD		
Intrinsic motivation	4.63	1.06	4.44	1.31	.71	NS
Integration	5.41	1.11	4.94	1.80	.76	NS
Identification	4.20	1.30	6.17	.85	-3.42	.01
Introjected regulation	3.36	.92	3.32	1.79	.08	.NS
External regulation	3.11	1.01	3.89	1.66	-1.40	NS

Pre-Post-Study Analyses

Interestingly, some significant pre- and post- study differences were found in what was initially reported and the athletes' post-study preferences as presented in Table 6. For example, a significant difference in how often the athletes reported to be receiving training plans in advance prior to the study ($M = 2.4$; rarely-sometimes), to how often the athletes reported they would prefer to receive workouts in advance after the study ($M = 3.7$; sometimes-often), $t(10) = 3.28$, $p < .01$. Secondly, the athletes reported an increasing trend in preference to receive workouts farther in advance ($M = 3.3$; 1 day to 1 week or

or more) than the amount of time in advance the coach was reported to be providing workouts pre-study ($M = 2.2$; a few hours or less to 1 day), $t(10) = 1.88$, $p < .10$.

However, although there was a slight increase in the extent athletes reported they would find receiving training plans in advance useful pre ($M = 5.00$, $SD = 1.25$), and post ($M = 5.3$, $SD = 1.06$) study, as well as the extent to which athletes reported they would find receiving training plans in advance stressful pre- ($M = 3.4$, $SD = 1.37$), and post- ($M = 3.6$, $SD = 1.51$) study, neither differences were significant. Finally on a 7-point Likert scale (1 = Not at all, 7 = Completely) the athletes reported the extent they felt receiving training plans in advance impacted: a) how they plan the rest of their day ($M = 5.4$, $SD = 1.07$), b) their preparation for training ($M = 5.5$, $SD = 0.97$), c) their confidence in their coach ($M = 4.0$, $SD = 2.0$) and d) their confidence in their training program ($M = 4.7$, $SD = 1.64$). In other words, receiving training plans in advance was rated as somewhat helpful in helping athletes plan their day around training, in improving their preparation for training, and in increasing coach confidence and training plan confidence.

Table 6

Pre- and Post-Study Comparisons (n = 11)

<u>Variable</u>	<u>Pre-Study</u>		<u>Post-Preference</u>		<u>t-value</u>	<u>Sig.</u>
	<u>Mean</u>	<u>SD</u>	<u>Mean</u>	<u>SD</u>		
Frequency of training in advance	2.4	.52	3.7	.82	-.328	.01
How far in advance	2.2	1.03	3.3	1.16	-1.88	.10
Usefulness	4.8	1.15	5.3	1.06	.67	NS
Stressful	3.4	1.35	3.6	1.31	-.51	NS

Discussion

The goal of Study 2 was to more clearly determine how the specific coach behavior of providing training plans in advance of practice (or not) impacted the same group of athletes in the areas of dealing with daily distractions (planning), overall preparation for training, moods and feelings around training, coach perceptions, and motivation towards training.

The diary study method provides the advantage of gathering data at a time close to when people experience targeted events and are therefore less subject to memory biases. However, the disadvantage to this technique was the increased time and operating costs, and the difficulty of getting long-term commitment from the research participants.

The results of this study nicely demonstrate the value of using a diary methodology. When aggregating daily-level data over two-week periods, the results suggest that the reception of training plans in advance may be associated with allowing athletes to better prepare for training, to plan in such a manner that less daily hassles interfere with training, to have a more positive feelings during practice, perceive coach autonomy support support as higher, and greater daily motivation to train.

However, Study 2 has some limitations. Although we obtained significant differences between time 1 and time 2, we cannot say whether the reception of training plans in advance definitively *caused* thes differences. For example, does the communication of training plans in advance affect the way a coach is perceived, and in turn, how athletes feel and are motivated? Or is the communication of training plans in advance directly related to athlete motivation. There are many other factors that may have influenced the change in scores such as the passage of time, a lighter schedule, or any

other events that may have influenced the athletes' attitudes toward training.

Furthermore, this study is limited in power because of the small number of participants.

Perhaps a future study with a greater number of participants would show similar and more significant findings.

Limitations aside, Study 2 has some implications for coaching and the communication of training plans to athletes. Whether a coach communicates training plan information in advance to athletes, and thus imparts knowledge to athletes, can be a specific context where coaches can support athlete autonomy by providing choice, and listening to their concerns. Providing training plans in advance can enhance an autonomy supportive coaching style and have other direct benefits in terms of how the athlete feels in training, prepares for training, manages obstacles, and is motivated to train on a daily basis.

General Discussion

In the present article we have gained some insight into real-world relationships between coaches and athletes in terms of training plan communication as well as to some understanding of how the provision of training plans to athletes may be a specific coach behavior with positive consequences for athletes. The main goal was to come closer to determining if providing training plans in advance to athletes is a specific behavior of an autonomy-supportive coach who would also be characterized by providing choices in training, encouraging athletes to take initiative in training, and being open to feedback and discussions from the athlete (Reeve, 1998; Ryan, 1993).

Training Plans and Autonomy Support

In Study 1, we certainly found some descriptions equating to an autonomy supportive coach from the athletes who received training plans in advance. For example these athletes talked about providing necessary feedback to the coach, making necessary adjustments to daily training sessions, such as the number of intervals, total time or intensity, and were encouraged to make daily training modifications based on feeling, heart rates, or lactate levels. Furthermore, receiving training plans in advance was associated with an athlete's confidence in his or her coach. On the other hand, some coaches who did not provide training plans in advance showed some signs of controlling behaviors, as described by the athletes.

Study 2 also suggested that training plans in advance may be associated with positive coach behaviors, and as autonomy support significantly increased in Time 2 when training plans were given in advance.

Training Plans and Preparation and Planning

Both studies provided some evidence that the reception of training plans in advance can allow athletes to prepare for how he or she wants to execute a training session (e.g., setting practice goals), and how to effectively manage other weekly tasks in order to maximize the energy and focus available for specific training sessions. For examples, results in Study 2 suggested training plans in advance contributed to better preparation on the part of the athlete as averaged total scores related to goal setting, visualization, mental preparation, focus, nutritional preparation, recovery, and energy levels were significantly higher in Time 2 when training plans were given in advance. Secondly, the athletes in Study 2 reported significantly less obstacles such as lack of sleep, social distractions, other responsibilities, relationship concerns, health, conditions,

and stress interfering with training when they received training plans in advance suggesting training plans in advance may also be associated with better planning.

The above is also illustrated in Study 1 where the main advantages of receiving training plans in advance were motivation enhancement, confidence building, time-management, goal setting in advance, mental preparation (imagery), nutritional planning, and having a learning tool for improving their training. Such responses support the benefits of developing implementation intentions by specifying the actions required to reach training goals (Gollwitzer, 1999). Benefits of training plans also include the time to practice mental simulations, the cognitive construction of hypothetical scenarios and the reconstruction of real ones (Taylor, & Pham, 1996).

Training Plans and Motivation

In terms of the relationship between reception of training plans and motivation, the only clear difference found was a significant increase in whether athletes “felt motivated for today’s training session(s)” during Time 2 in Study 2 when training plans were given in advance. However in Study 1, some interview responses regarding athlete preferences towards the reception of training plans seemed to reflect a more external regulation. For example, two athletes who did not receive training plans in advance stated “If you know that the Wednesday morning practice is going to be a really hard set then you’re just not going to go to that practice.” (Athlete 3) and “If I knew everything in advance I wouldn’t show up sometimes (laughs). ...you can be like totally man I don’t want to do this tonight.” (Athlete 4), while two athletes who did receive training plans in advance stated quite the contrary: “Sometimes I wish that I had more of a clear outline and a clear plan” (Athlete 5) and “I’d like about a month and then I can have more time

to look ahead and say this is giving me a problem here. It's a lot easier to talk to my coach about something if it's farther ahead" (Athlete 13).

Study 1 also provided some examples illustrating that the provision of training plans in advance may be less common in some sports and in turn influence athlete preferences and motivational orientation. Secondly, some coaches may respond to the personality and motivation orientation of the athlete. Furthermore, athlete motivation is influenced by the behavior those in positions of authority other than a coach, which can also include a parent, "My dad...he's a main reason why I run (Athlete 10), and "My mom would set up goals for me and external rewards. I remember I won a race and she got me some sunglasses" (Athlete 11). However, good coaching, like good parenting, has the potential to lead to higher self-determination in the athlete as the relationship develops as illustrated in the analogy given by Athlete 12.

I think that is probably the biggest complaint that the younger athletes have, is that they him (the coach) to take more control. And it's almost like parenting. At a younger age, kids need a lot more attention, they need to be walked to school, someone to hold their hand and that is the stage that these athletes are in they want a coach to hold their hand. But a certain point a teenager doesn't want their parent to hold their hand, they want a bit more freedom, and at a certain age definitely not. When they get older they want almost complete independence and maybe someone to talk to now and then when things are going right so they call their parents on the phone. So I think it is the same way with a coach.

This is also in agreement with the argument that individuals are naturally inclined to progress from external forms of regulation to more self-determined forms of regulation (Ryan, 1995).

Implications for Coaches

While some athletes may become more self-determined and independent over time (e.g. planning their own training) they still rely on their coach for

feedback, knowledge of training strategies, and relatedness. Giving an athlete a training plan can also enhance the athlete's intrinsic sense of accomplishment with having a training plan, "When I have a plan ahead of me and I accomplish it I feel that I can check off one step towards a big goal" (Athlete 8).

It is also important to recognize that regardless of their current coaching situation, six out of the thirteen athletes in Study 1 stated a preference to have more knowledge of training plans in advance. For example, Athlete 10 wanted to know more details of the workout, "Sometimes when I get to the workouts I would like to know more details ahead of time like the number or the distance of intervals instead of just knowing that we're going to do a speed workout", while Athlete 13 wished to know the training plan details even farther in advance, "I'd like about a month and then I can have more time to look ahead and say this is giving me a problem here. It's a lot easier to talk to my coach about something if it's farther ahead". In Study 2, post-study preferences of the athletes also indicated a desire to receive training plans in advance significantly more often and significantly farther in advance than was their current situation in the pre-study.

Finally, while there appear to be many benefits to providing training plans in advance, coaches should be aware of some possible disadvantages as mentioned by the athletes in Study 1. For example, the possibility of following a training plan too strictly and not listening to your body, getting distracted by thinking about the difficulty of an upcoming workout, not being prepared to deal with the unknowns of race day since there are usually no unknowns in training, the possibility of overanalyzing the training, and holding back in training because of a workout that follows the next day. Awareness of any disadvantages of providing training plans in advance may be equated with knowing

the motivation orientation of the athletes being coached as illustrated by quotes from Athlete 9: “It could make your day miserable if you didn’t really want to do the workout. You could spend the whole day dreading it” Athlete 11, “I’d think about it constantly and worry about whether I could make the sets”, and Athlete 12, “I think some athletes are happy just showing up at practice and doing the workout and then leaving and doing no more mental interaction with what they’re doing” (Athlete 12)

Limitations and Future Research

It appears important to recognize that both studies are limited by small sample sizes, and represent only four different sports in total. The interviews are limited by athlete biases toward their coach, possible interviewee biases, low generalizability and no opportunities for follow-up questions. The daily diary findings are limited because any changes from time 1 to time 2 may not have been caused by the provision of training plans (or not). A future study with greater numbers and a wider number of sports is needed to confirm more direct links between coach communication of training plans in advance, with perceptions of coaches’ autonomy support, competence support and relatedness, and in turn self-determined motivation and greater feelings of competence in the athlete, and other positive consequences.

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CHAPTER 3 – Article 2

The Association between the Communication of Training in Advance, Clarity of
Communication, Coaches' Interpersonal Behaviors,
and Athletes' Self-Determined Motivation

Abstract

Several studies have found direct links between coach behaviors and the motivation of athletes (e.g., Vallerand & Losier, 1999). More specifically, Pelletier et al. (1995) observed that coaching behaviours that support autonomy, and that provide clear structure and competence feedback are related to higher self-determined motivation in athletes. However, no studies have yet to investigate the possible direct link between coach communication of training plans and athlete self-determination. In accordance with Cognitive Evaluation Theory (Deci & Ryan, 1985, 1991, 2000), it is predicted that the coach provision of training plan information to athletes is a specific interpersonal behavior, which is perceived as informational and autonomy supportive by the athletes, thereby increasing their level of self-determined motivation. In contrast, coaching environments in which little or no training information is communicated to the athletes are likely to be perceived as controlling or pressuring, in turn decreasing athletes' self-determined motivation. The purpose of this article was to investigate the impact of advanced communication and clear explanation of training plans on athlete intrinsic and self-determined motivation. Using a correlational model, clear coach communication of training plans to athletes in advance of training times was shown to be positively associated with coach interpersonal behaviors, which were in turn, positively related to athlete self-determined motivation. Motivation was subsequently positively associated with mastery-approach goals and negatively related to avoidance goals. Furthermore, athlete self-determination significantly correlated with positive sport variables (sport satisfaction, well-being) and positive training variables (concentration, positive mood,

perceptions of competence and choice, feelings of progress, and training vitality).

Implications for coaching are discussed.

Introduction

One of the most important psychological variables in the practice of sport is the motivation level of the athlete. If sufficient motivation to train is not present, an athlete may grow to dislike his or her sport and eventually drop out (Sarrazin, Vallerand, Guillet, Pelletier, & Cury, 2001). Further research on what variables impact athletic motivation is essential in order to help gain a better understanding of how participating in sport can be associated with various positive or negative psychological consequences for the athlete (Pelletier, Fortier, Vallerand, & Brière, 2001; Pelletier, Fortier, Vallerand, Tuson, Brière, & Blais, 1995; Sarrazin, et al., 2001).

According to a well-developed theory of motivation, self-determination theory (SDT: Deci & Ryan, 1985, 1991, 2000a), human beings can display various types of motivation based on different reasons or goals that give rise to action. These different motives vary according to their level of autonomy and can thus be ranked on a self-determination continuum. Intrinsic motivation represents the highest form of self-determined motivation on this continuum. If athletes are intrinsically motivated, they participate in their sport out of genuine interest and enjoyment, for the personal challenge and opportunities to learn and grow (Deci & Ryan, 1985; Ryan & Deci, 2000a). Next on the motivation continuum are two self-determined forms of extrinsic motivation (SDEM); (1) integrated motivation, participating in sport because it is in line with one's personal values, and (2) identified motivation, recognizing that training hard is necessary for successful performances in competition. Non self-determined extrinsic motivation (Non-SDEM) consists of introjected motivation, training for sport out of guilt, and external

motivation, training for sport out of obligation and coercion. Finally, a complete lack of motivation or interest in an activity is termed amotivation.

Many previous studies have demonstrated that motivational consequences are better as one progresses from non self-determined forms of regulation to highly self-determined forms of self-regulation. Research in leisure, sport and exercise, as well as in several other life domains, has found that the more self-determined forms of motivation lead to enhanced learning, greater interest, greater effort, better performance, higher self-esteem, increased life satisfaction, persistence, and enhanced health. Conversely, the less self-determined forms of regulation were negatively related to those desirable outcomes (Deci, Betley, Kahle, Abrams, & Porac, 1981; Deci & Ryan, 2000b; Frederick, & Ryan, 1995; Pelletier, Vallerand, Green-Demers, Blais, & Brière, 1996; Reeve & Deci, 1996; Ryan, Frederick, Lepas, Rubio, & Sheldon, 1997; Vallerand, 1997).

Furthermore, individuals are argued to be naturally inclined to progress from external forms of regulation to more self-determined forms of regulation. The concept of internalization proposed by self-determination theory refers to this active assimilation and reconstitution of behavioral regulations that are originally alien or external to the self (Ryan, 1995). Internalizing the regulation of behaviors is thought to be an innate positive process that is important to an individual's socialization and well-being. One such contributing factor to motivation is what people consider responsible for initiating and regulating their behaviors, that is, their locus of causality (deCharms, 1968). If one's locus of causality is mainly external, intrinsic motivation will be undermined whereas if one's locus of causality is internal, intrinsic motivation will be enhanced. The perception

of choice in the initiation and regulation of particular behaviors is considered to reflect an internal locus of causality (Deci & Ryan, 1985).

According to SDT, environmental factors, namely the social context, can facilitate or impede intrinsic functioning as clearly demonstrated in a sub-theory of SDT called cognitive evaluation theory (CET: Deci & Ryan, 1985, 1991, 2000). For example, intrinsic motivation has been found to increase when communication in one's social contexts is free from pressure, when feedback is interpreted as high in information about competence and when one's needs for relatedness are met (Deci & Ryan, 2000b). Furthermore, the internalization (the process of transforming external regulation into internal regulation) of activities that may not be inherently interesting has been shown to be facilitated by three contextual factors: (1) providing a rationale for the activity; (2) acknowledging the feelings of the one behaving, and; (3) conveying choice to promote the internalization of behaviors and self-determined motivation (Deci, Eghrari, Patrick, & Leone, 1994). For instance, in a recent study, a verbal explanation of why putting forth effort might be a useful thing to do for learning an uninteresting task, resulted in students with significantly greater identified regulation, greater interest regulation, greater engagement, and greater learning than those students who were not provided with a rationale for the same task (Reeve, Jang, Hardre, & Omura, 2002). Thus, in the athletic domain, coaches can play a large role in helping to facilitate the internalized motivation for training for sport.

Following a review of behaviors consistent with an autonomy supportive coaching climate, Mageau and Vallerand (2003) proposed four guiding principles to facilitate intrinsic motivation and self-determined motivation in the context of sport and

physical activity. According to these authors, coaches should display: (1) behaviors that acknowledge and respect and athlete's perspective and feelings; (2) they should provide opportunities for athletes to choose; (3) they should limit use of controlling behaviors; and (4) they should value initiative, independent problem solving and involvement in decision making in preference to controlling athletes to think, feel, and behave in a certain way.

In agreement with Mageau and Vallerand (2003), we are proposing that one of the most influential roles a coach can have is through the communication of information through the administration of a training program for his or her athletes. In accordance with CET, we are proposing that the communication of information on the training program should have a direct impact on the athlete's intrinsic and self-determined motivation. More specifically, these behaviors should be useful in; (1) helping athletes to understand the purpose behind each training session (e.g. what goals each training session will accomplish); (2) aiding athletes in developing self-determined motivation and instilling a source of being an active agent in the achievement of important goals, and; (3) helping athletes to plan for the specific phases of their training program, and more specifically for specific workouts. As a result, athletes should feel more competent toward the practice of their sport, they should be more concentrated and energized, and they should develop goals that are more consistent with the content of the training program (e.g., mastery oriented goals) as opposed to goals that reflects uncertainty or avoidance of negative outcomes.

Previous studies have found variables such as training and instruction, information, and feedback, to be directly related to athlete satisfaction and motivation

(Allen & Howe, 1998; Black & Weiss, 1992). It has also been found that coaches who give cognitive-behavioural types of instructions (i.e., proper technique, psychological skills, stress management, goal setting, and self-monitoring) have athletes who experience more intrinsic motivation than athletes who only receive physical skills instructions (for example, Beauchamp, Halliwell, Fournier, & Koestner, 1996).

Furthermore, Voight (2002) has suggested that to improve the quality of training, one of the most important areas that coaches and athletes should address is the utilization of quality preparation prior to training, which involves helping athletes to come up with individual standards and goals for upcoming practices, and to develop a clear understanding of their objectives, the standards to which they will be held, and the methods they can use to meet the standards and accomplish their goals. If quality preparation is undertaken, it is proposed that the athletes will have a more motivated and productive attitude and be better prepared for the practice session. Conversely, when athletes are not given explicit directions and standards, and as a result go into practice with little or no understanding of their objectives, they are predicted to be more likely to simply go through the motions without taking the time to formulate personal goals. However, no studies to date have yet examined: (1) the most effective strategies for planning and communicating workouts to athletes and (2) how such strategies could impact athletes' feelings of autonomy, competence and self-determination toward their sport.

Overview of Study

In the context of the present study, we proposed that the advance communication of training plans by a coach to an athlete should be associated with perceptions of

coaches' autonomy support, competence support and relatedness. In turn these behaviors should favor a more self-determined motivation in the athlete.

It was hypothesized that the reception of training plans in advance and the clarity of coach explanations of training would be positively associated to athletes' perceptions of coach interpersonal behavior. These behaviors were subsequently expected to be positively related to athletes' self-determined motivation. In turn, motivation was predicted to be linked positively to mastery-approach goals and negatively to performance-avoidance goals. Associations between motivation and other variables related to the practice of sport (e.g., feelings of progress in training, vitality, and sport satisfaction) were also assessed. In sum, the central purpose of this study was to determine the degree to which the role of advanced communication and clear explanation of training plays a role in the already well-documented relationship between coach interpersonal behaviors and athlete self-determined motivation. Overall, we aimed to more clearly identify the relationships between the advance reception of training plans, the clarity of coach explanations of training, coach interpersonal behaviors, and the athlete variables of motivation, goals, sport satisfaction, vitality, and well-being.

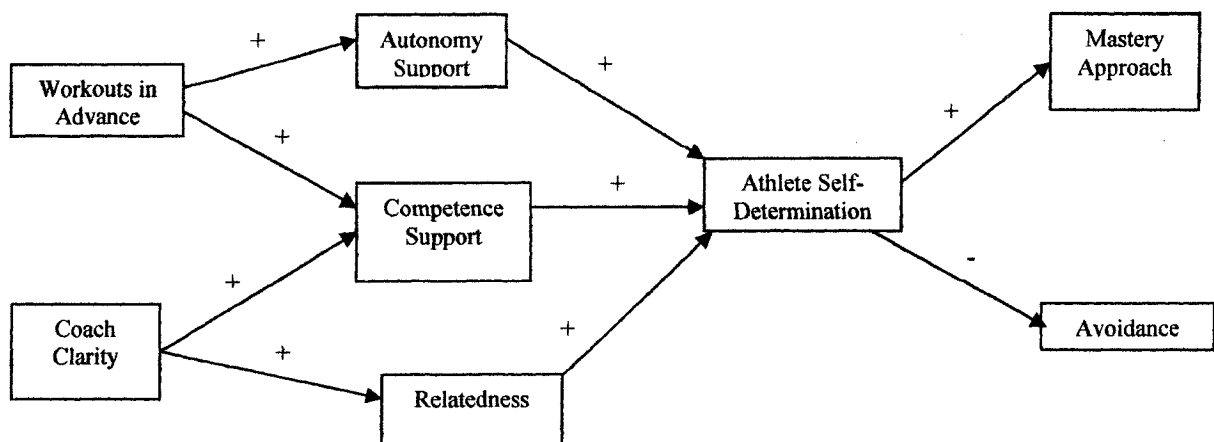


Figure 1. Hypothesized Model.

Method

Participants

A total of 133 competitive athletes from the provinces of Ontario, Quebec, and British Columbia participated in this study. The athletes represented fourteen different sports, comprising nine individual sports (gymnastics, trampoline, triathlon, swimming, karate, cross-country skiing, alpine skiing, cycling, and running) and five team sports (ice hockey, basketball, volleyball, rugby, and cheerleading). Concerning competitive level, the sample included 14 recreational athletes, 10 regional athletes, 29 provincial athletes, 57 intervarsity athletes, 18 national athletes and 4 international-level athletes. Six athletes reported training five hours or less per week, 27 between six and ten hours per week, 67 between eleven and fifteen hours per week, 27 between sixteen and twenty hours per week, and 6 reported training more than twenty hours per week. The athlete's ages ranged between 16 and 56 years old with a mean of 23.77 years ($SD = 7.68$) and a median of 21 years. The sample included 93 females and 40 males. Finally, 55 athletes reported

working with their present coach for one year or less, 64 for 2-4 years, 11 for 5-9 years, and 2 athletes reported having been working with their present coach for 10 years or more.

Procedures

The athletes were first recruited for the present study by contacting coaches. Once permission to approach the athletes was granted by the coach, a suitable time to distribute the questionnaires to the athletes was decided upon. Certain coaches preferred to distribute the questionnaires themselves during a practice, while others preferred that the researcher distribute the questionnaires directly to the athletes. All the athletes received the same instructions for how to respond to the questionnaire: The participants were informed of the goals of the study and told that their participation would be anonymous and remain confidential. They were also told to carefully read all instructions, to respond to all the questions, even if they seemed redundant, and to answer the questions as honestly as possible to the best of their knowledge. Once completed, the questionnaires were returned to the researcher.

Measures

General Information. The first section asked for general information on the athlete: sport, age, gender, number of years practicing his or her sport, competitive level of the majority of his or her competitions, average number of competitions per year, number of training hours per week, and the number of years the athlete has been working with his or her present coach.

Items on planning. The second section of the questionnaire included questions regarding the planning processes of the coach and the athlete's reaction to these planning

factors. The athletes responded to questions about the planning of their training (“How often do you receive your workouts in advance?”, and how far in advance the workouts were received (“How far in advance do you learn what your workout(s) will be?”). The athletes also responded to questions concerning perceptions of their coach. For example, “How confident are you in your coach’s knowledge of the principles of training for your sport?” and “How clearly do you feel your coach explains workouts?”

Interpersonal Behavior Scale (Otis, & Pelletier, 2002). The Interpersonal Behavior Scale was used to evaluate athletes’ perceptions of coaches’ autonomy support (“My coach provides me with lots of opportunities to make personal decisions in what I do”), coaches’ competence support (“The feedback I get from my coach makes me feel uncertain about my capabilities”), and coaches’ relatedness (“I feel that my coach sincerely cares about me”). The scale consists of 12 items to evaluate according to a 7-point Likert scale (1 = Never, 7 = Always).

Sport Motivation Scale (Pelletier et al., 1995). The Sport Motivation Scale was used to determine the athletes’ level of self-determined motivation toward their sport. The athletes responded by deciding to which extent each item corresponded to the reason why they practice their sport. Twenty-eight items were used to represent 6 different subscales on the motivation continuum: intrinsic motivation (“For the pleasure it gives me to know more about the sport that I practice”), integrated motivation (“Because practicing sports reflects the essence of who I am”), identified motivation (“Because, in my opinion, it is one of the best ways to meet people”), introjected motivation (“Because I must do sports to feel good about myself”), external motivation (“For the prestige of being an athlete”), and amotivation (“It is not clear to me anymore; I don’t really think

my place is in sport”). A 7-point Likert scale was used to calculate the degree of correspondence to each item (1 = Does not correspond at all, 7 = Corresponds completely). The self-determination index is composed from the sum of all the subscales on the motivation continuum, calculated in such a way as to give greater significance to more self-determined motives (Green-Demers, Pelletier & Menard, 1997; Vallerand, 1997). The SDI index allows for the calculation of an individual level of self-determination, and possesses high levels of validity and reliability (e.g. Blais, Sabourin, Boucher, & Vallerand, 1990; Grolnick & Ryan, 1987; Vallerand & Bissonette, 1992). The index is calculated using the following formula: $SDI = 3 (IM) + 2 (INTEG) + (IDEN) - (INTRO) - 2 (ER) - 3 (AMO)$.

Achievement Goal Scale (Elliot & McGregor, 2001). The third section of the questionnaire contained a scale to measure types of achievement goals. Four types of achievement goals were identified: performance-approach (“It is important for me to perform better than other athletes”), mastery-approach (“I want to learn as many skills as possible”), performance-avoidance (“I just want to avoid not performing well in my sport”) and mastery-avoidance (“I worry that I may not reach my full potential in sport”).

Sport Satisfaction Scale. This scale consists of six items to measure the athletes’ level of satisfaction in their sport (e.g., “The conditions of my sport life are excellent”). The scale was adapted by Pelletier et al. (1995) from the Life Satisfaction Scale (Diener, Emmons, Larsen, & Griffin, 1985). The athlete evaluates the extent to which they agree to each item on a 7-point Likert scale (1 = strongly disagree, 7 = strongly agree). The sport satisfaction index is calculated by adding the six items together.

Attitudes Toward Training. The attitudes toward training scale, developed by Pelletier et al. (1995) was adapted for the needs of the present study aiming to explore athletes attitudes during training. The items were divided into 6 sub-sections: perception of competence (“At practice when I must express myself, words come to me easily”), of autonomy (“I experience a lot of freedom while training”), of tension (“During training I’m usually tense”), of concentration (“While training for my sport, I’m absorbed with what I’m doing”), and positive mood (“I’m generally in a good mood at practice”). A 7-point Likert scale was used (1 = Strongly disagree, 2 = Strongly agree).

Well-Being Scale (Ryff & Keyes, 1995). The well-being scale was developed in order to measure the general psychological well-being of an individual. The version used for the present study consists of 18 items divided into 6 sub-sections: Autonomy (“I have confidence in my opinions, even if they are contrary to the general consensus”), positive relationships with others (“People would describe me as a giving person, willing to share my time with others”), personal growth (“For me, life has been a continuous process of learning, changing and growth”), environmental mastery (“I am quite good at managing the many responsibilities of my daily life”), purpose in life (“Some people wander aimlessly through life, but I am not one of them”), and self-acceptance (“I like most aspects of my personality”). Each item was evaluated on a 6-point Likert scale (1 = Strongly disagree, 7 = Strongly agree). The psychological well-being index was obtained by compiling the results of all the scale items together.

Vitality Scale (Ryan & Frederick, 1997). The last section of the questionnaire contained a scale, which aims to measure vitality in a) life in general and b) during training for sport. Each scale consists of 10 items (5 positive and 5 negative statements).

The athletes were instructed to evaluate, in their life and in their training, the ten items following the introductory statement: “In general in my life...” according to a 7-point Likert scale (1 = Not at all true, 7 = Very true). Example items were: “I feel alive and vital”, “I am preoccupied with other thoughts” and “I look forward to each new day”. The same was procedure was followed after the introductory phrase “In general in my training...” The vitality index was obtained by compiling the results of the items from the two scales.

Results

Descriptives

Complete data were available for 130 participants, 93 of whom were female and 40 of whom were male. The athletes participating in the study had a mean age of 23.77 years ($SD = 7.68$) and had been participating in their sport for a mean of 4.95 years ($SD = 1.03$). The athletes reported spending a significant amount of time committed to their sport with 75% of the participants training 11 hours/week or more, and 62% of the participants competing in 16 or more competitions per year. Athletes reported competing recreationally and internationally with a majority (65%) competing at the provincial or intervarsity level.

Before proceeding with the multiple regression as the main analysis of this study, preliminary analyses were performed to assess departures from basic assumptions such as normality, linearity, homoscedasticity, absence of multicollinearity and singularity. The means, standard deviations, skewness, and kurtosis of all variables used in the study are presented in Table 7. Three extreme scores for, “mastery approach”, “positive mood”, “feelings of progress”, were removed, so that all the values of the variables were within

the acceptable range for a normal distribution, possessing relatively low skewness ($M = -0.41$) and kurtosis ($M = 0.22$) values, and did not exceed the accepted range of ± 1 (Muthen & Kaplan, 1985).

Table 7

Descriptive Statistics of the Measured Variables Involved in the Prediction between Planning and Athlete Motivation

Variable	Mean	SD	Skewness	Kurtosis	Range
Training plans in advance	2.66	1.52	.18	-1.53	1/5
Coach clarity of training explanations	5.77	1.03	-.81	.18	1/7
<u>Coach behaviors:</u>					
Autonomy supportive	20.03	4.25	-.30	-.06	4/28
Competence supportive	24.36	3.34	-1.04	1.08	4/28
Relatedness	22.56	4.04	-.54	-.67	4/28
Self-determination index	20.05	8.59	-0.00	0.11	-48/48
<u>Goals for training and competition:</u>					
Mastery-Approach	18.10	2.50	-.91	1.23	3/21
Avoidance	23.55	8.73	.10	-.71	6/42
Sport Satisfaction	30.83	6.06	-.82	.64	6/42
<u>Attitudes toward training:</u>					
Positive mood	11.72	1.50	-.58	.42	2/14
Concentration	14.22	3.55	-.24	-.34	3/21
Perception of choice by athlete	20.29	4.04	-.05	-.60	4/28
Perception of competence by athlete	24.65	3.82	.30	1.60	6/42
Progress	18.40	1.98	-.35	-.63	3/21
Training vitality	54.25	8.65	-.15	-.50	10/70
Psychological well-being	72.04	13.38	.98	-.15	18/108

Correlations

The first correlational analysis examined correlations between the model variables and sport practice variables not included in the model (see Table 8). The sport practice variables not included in the model were sport satisfaction, positive mood, concentration, perception of choice, feelings of progress, and vitality while training. Finally, general well-being was included due to its established link with high levels of self-determination in sport and exercise (Ryan et al., 1997; Reeve & Deci, 1996; Frederick, & Ryan, 1995; Deci, et al., 1981).

While the reception of workouts in advance only correlated significantly with perception of choice in training, coach clarity of training explanations correlated significantly with sport satisfaction, positive mood in training, concentration while training, perception of choice while training, feelings of progress while training, and vitality while training. All the coach interpersonal variables correlated significantly with all the sport practice variables but not with general well-being. However, self-determination correlated significantly with all the sport practice variables as well as general well being. Finally mastery-approach goal orientation correlated significantly with positive mood, concentration, perception of choice, and feelings of progress, while a performance-avoidance goal orientation was negatively correlated with perceptions of choice, and training vitality.

Table 8

Correlations between Model Variables and Sport Practice Variables not Included in the Model.

Variable	Training Plans in Advance	Coach Clarity	Coach Auto Support	Coach Comp. Support	Coach Relatedness	SDI	M-A Goals	Avoid Goals
Sport Satisfaction	-.02	.30**	.36**	.41**	.51**	.43**	.10	-.33**
Positive mood	.12	.28**	.30**	.42**	.28**	.48**	.22*	-.33**
Concentration	-.05	.35**	.30**	.36**	.40**	.52**	.25**	-.29**
Choice	.21*	.35**	.48**	.49**	.43**	.44**	.18*	-.36**
Progress	.03	.36**	.31**	.42**	.43**	.47**	.29**	-.15
Well-being	.09	-.03	.13	.02	.01	.25**	.04	-.07
Training vitality	.12	.34**	.39**	.40**	.44**	.46**	.15	-.39**

* $p < .05$. ** $p < .01$

The second correlational analysis examined interrelations between the indicator variables used in the predicted model. Results are presented in Table 9. The reception of workouts in advance correlated with coach autonomy support, while coach clarity of training explanations correlated positively with all coach behaviors (autonomy support, competence support, and relatedness), and with athlete self-determination and mastery-approach goal orientation. Athlete self-determination was clearly linked to all coach behaviors as well: autonomy support, competence support, and relatedness, as well as a mastery-approach goal orientation. Finally, a mastery-approach goal orientation was positively linked to all coach interpersonal behaviors (autonomy support, competence support, and relatedness) as well as avoidance goals. In turn, avoidance goals were negatively linked to coach competence support and the self-determination index.

Table 9

Pearson Correlations Among the Variables Included in the Proposed Model

Variable	1	2	3	4	5	6	7	8
1. Workouts in advance	-							
2. Coach clarity	-.07	-						
3. Coach autonomy support	.21*	.33**	-					
4. Coach competence support	.09	.44**	.54**	-				
5. Coach relatedness	.07	.40**	.64**	.58**	-			
6. Athlete self-determination index	.05	.30**	.31**	.40**	.34**	-		
7. Mastery-approach goals	.16	.29**	.28**	.23**	.29**	.39**	-	
8. Avoidance goals	.05	-.11	-.15	-.27**	-.16	-.24**	.21*	-

* $p < .05$. ** $p < .01$ *Multiple Regressions*

Linear regressions were performed to test our predicted model involving athlete reception of workouts in advance, coach clarity, perceived interpersonal coach behaviors, athlete motivation, and athlete goals. Results are reported in Figure 2. On the first step, coach clarity and reception of training were entered simultaneously and tested as predictor variables for each of the three coach interpersonal behaviors: autonomy support, competence support and relatedness respectively. Training plans in advance significantly predicted coach autonomy support ($F(2, 130) = 15.13, p < .01, r^2\Delta = 0.05$). Coach clarity significantly predicted coach autonomy support, coach competence support and coach relatedness ($F(2, 130) = 23.76, p < .01, r^2\Delta = 0.16$).

The second step confirmed the established relationship of the three coach interpersonal behaviors as significant individual predictors of self-determination: coach autonomy support $F(1, 125) = 14.02, p < .01, r^2\Delta = 0.10$, competence support, $F(1, 125)$

autonomy support $F(1, 125) = 14.02, p < .01, r^2\Delta = 0.10$, competence support, $F(1, 125) = 22.05, p < .01, r^2\Delta = 0.15$ and coach relatedness, $F(1, 124) = 14.13, p < .01, r^2\Delta = 0.10$. Finally, athlete self-determination significantly relates positively to mastery-approach goals, $F(1, 125) = 25.21, p < .01, r^2\Delta = 0.16$, and negatively to avoidance goals, $F(1, 125) = 7.94, p < .01, r^2\Delta = 0.06$.

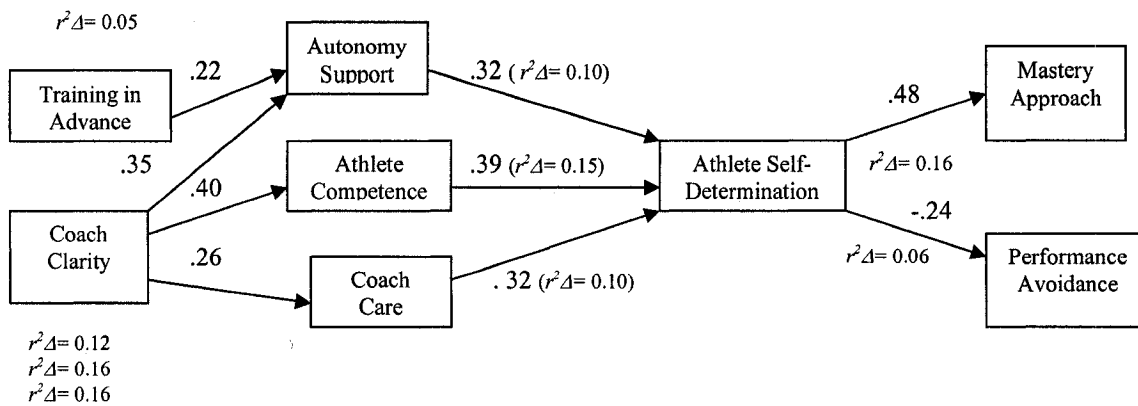


Figure 2. Final Model

Discussion

The present study had the goal of testing a model that assessed relationships between providing training plans in advance, clarity of information from coach, coach interpersonal behaviors, athlete motivation, and training goals. Our results show that providing training plans in advance was positively related to athlete perceptions of an autonomy supportive coach, while a coach who clearly explains training is associated with all three psychological needs: autonomy support, competence support and relatedness. In turn, these interpersonal coach behaviors were all moderately linked to self-determined motivation. The links between coach behaviors and self-determined motivation provide further support to extant empirical evidence obtained in previous

studies for these variables (Vallerand & Losier, 1999; Pelletier et al., 2001; Otis & Pelletier, 2002).

Furthermore, self-determined motivation was positively related to athletes' mastery-approach oriented goals and negatively linked to avoidance goals, framed at avoiding failure. Finally, the self-determination index was also found to correlate positively with positive sport variables (sport satisfaction, well-being) and positive training variables (concentration, positive mood, perceptions of competence and choice, feelings of progress, and training vitality), supporting CET conceptual assertions pertaining to positive consequences (Deci & Ryan, 2001, 2002; Pelletier et al., 1995).

Therefore, it appears that the provision of workouts in advance to athletes and the clear communication of training plans are two important factors associated to positive perceptions of coach interpersonal behaviors. This study therefore provides a better understanding of specific coach behaviors than can enhance positive athlete perceptions of coach behaviors, and in turn higher levels of self-determination in athletes. Finally, such coach behaviors are also correlated to many important variables that are associated to success in sport, such as sport satisfaction, mastery-approach goals, positive moods, and well-being, concentration, vitality and perceptions of choice and progress in one's sport.

Theoretical Implications

In agreement with previous studies on coach behaviors supporting athlete self-determination (Sarrazin, et al., 2001; Vallerand & Loisier, 1999; Pelletier, et al., 1995), this study suggests that certain specific coach behaviors, namely the advance notice and clear communication of training plans to athletes, can positively influence athlete

motivation through their influence on perceptions of autonomy, competence, and relatedness. Such findings support the environmental influence a coach can provide in order to increase athletes' perceptions of the satisfaction of his or her three fundamental psychological needs in the context of sport (Ryan & Deci, 1985).

While the domain of competitive sport embraces a focus on performance outcomes and winning, which can undermine self-determination, research has shown that highly self-determined motivation is linked to several important factors related to success in sport. For example, studies have shown that people with higher levels of self-determination (compared to people with lower self-determination), perform at a higher level (Amiot, Gaudreau, & Blanchard, 2004), persist longer (Pelletier et al., 2001), use positive coping skills under stress (Amiot et al., 2004), and invest more effort (Pelletier et al., 1995). Therefore, this lends further support to the important impact coach behaviors have on athlete motivation. These results could have some interesting implications for coach development, and contribute to persistence and performance potential of athletes. For example, Schinke and da Costa (2000) recognized that formative interactions with earlier coaches influence the athletic expectations of sport performers. Therefore, athletes' perceptions and responses to their present coach are likely based on their past experiences and interactions. Thus, it is essential for coaches with beginning athletes to foster the interpersonal dynamics that best promote athlete self-determination.

Results of the present study suggest that coach communication, specifically the clear explanation of workouts, is a key behavior that is related to behaviors that foster the satisfaction of all three psychological needs: autonomy, competence, and relatedness. Furthermore it appears that how clearly a coach communicates with their athletes

regarding training is a factor in developing motivated athletes. Providing training plans in advance as well as explaining the workouts clearly, and may be some specific coach behaviors that help to enhance an athlete's perceptions of their coach and, in turn, self-determined motivation.

Limitations and Directions for Future Research

It is important to note that this study is limited by its correlational design. Although this study suggests that there is a relationship between the coach behaviors of providing training plans in advance, clearly explaining the training, coach interpersonal behaviors, athlete motivation, and athlete's goals, it would be important to examine whether the provision of training plans, clear communication, and positive interpersonal coach behaviors, can lead to changes in athlete self-determination over time. For example, it would be important to determine whether athlete self-determination determines what types of coaching athletes seek out or whether changes in coaching behaviors can account for changes in athlete self-determination levels over time.

Since the athlete participants in this study represent several different regions, sports, and competitive levels, a larger future study could examine factors such as athlete age, sport, and career stage independently. It would also be interesting to evaluate if the clear and advance communication of training plans carries any long term effects on athlete motivation, perceptions of competence, autonomy, and attrition. More research is also necessary to determine what coach behaviors are most effective at directly enhancing athlete self-determination for different levels of athlete development, where self-determination is defined "the need to experience choice in the initiation and regulation of

behavior (training), reflecting the desire to have one's choices rather than choices being determined by the environment (coach)" (Deci & Ryan, 2000b).

Finally, it would also be important to verify whether the communication of training by coaches favors better planning and training efforts on the athletes' part. The knowledge of training plans in advance can allow an athlete to better prepare for each workout session and set specific goals for the training session. Any such interactive engagement with training plans can lead to greater self-determination in the athlete. Although the present study presents a specific behavior in the domain of sport, the results may also have repercussions in several life domains. Any context that involves leaders or supervisor-subordinate relationships, such as in business or education could benefit from the results of this study. Clear communication and advance planning are activities used in various areas of daily life, and the implications are far reaching. If the clear explanations and knowledge of training in advance by athletes can aid in increasing their self-determined motivation, advance communication of planning could also contribute to self-determined motivation of people in a wide array of life domains.

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CHAPTER 4 – Elaborated Discussion

The primary purpose of this chapter is to provide a link between each chapter's findings and to summarize and conclude the overall dissertation findings. In addition, this chapter includes sections on the strengths and limitations of the project, how the project advances the knowledge base in the area, implications of the findings, and finally, suggestions for future research directions.

Summary and Conclusion of Findings

The findings from this research were separated and discussed in the two previous chapters. In Study 1 of chapter 2, athlete interviews shed light on the various ways coaches communicate training plans to athletes, as well as athlete perceptions the advantages and disadvantages of receiving training plans in advance. Study 2 focused on differences over time with a single group of athletes as a function of receiving training plans in advance or not. Chapter 3 used a greater number of athletes to examine and propose more direct links between coach communication of training plans in advance, with perceptions of coaches' autonomy support, competence support and relatedness, as well as self-determined motivation, and other positive sport variables. At this point it is necessary to summarize the main findings from chapters 2 and 3, and link these findings together in order to develop a global conclusion of the results from this dissertation.

By returning to the research questions posed at the outset (chapter one), it is possible to evaluate what was originally hypothesized and what was ultimately discovered. In the following section, the research questions are described along with the hypotheses that were put forth. In addition, a brief overview of the findings and whether the hypotheses were supported is also provided.

Research Questions Revisited

1) How do athletes who receive training plan in advance (or not) perceive their coach? What are the advantages and disadvantages? What are their preferences? It was predicted that athletes working with a coach who provided training plans in advance would indicate more self-determined reasons for pursuing their sport goals, as well as a greater autonomy and understanding of their progress and development as an athlete in comparison to athletes working with a coach who did not receive training plans in advance. I also anticipated that most athletes would prefer their present coaching situation due to familiarity.

Study 1 presents the themes that came out of interviews with 13 athletes each working with 13 separate coaches in the sports of cycling, swimming, and running. All athletes verbalized a combination of self-determined and non self-determined motives for pursuing their sport, as well as an even mixture of mastery and performance outcome related goals. Although there were no clear goal differences between responses of the athletes receiving training plans in advance and those who were not, this was not surprising given the competitive culture of sport where much emphasis is placed on performance outcomes and the external rewards that accompany a winning performance. However, it was made apparent by a few athletes that focusing on process goals can lead to better performance outcomes.

In terms of autonomy, some athletes responses suggested that those who received training plans in advance experienced a greater degree of autonomy in training demonstrated by the daily feedback they were responsible to give their coaches as well as by the greater amount of flexibility and degree of choice in training on a daily basis. A few athletes who received training plans in advance touched on how their sense of

autonomy increased over time while working with the same coach. The interviews suggest that increased athlete autonomy may be the result of increased self-knowledge about training, due in part to learning how to use training information from their coach. This is in agreement with research showing that supporting one's sense of self-determination through providing choice enhances motivation over time (Amorose & Horn, 2001; Thompson & Wandel, 1980)

While it was anticipated that most athletes interviewed would prefer the current means of communication they had with their coach regarding training, seven of the athletes' preferred the way they currently communicated with their coach about training plans. Three of these athletes received workout plans in advance, while four of them did not. Of the remaining six athletes, three who received workouts in advance and three who did not, all six expressed a desire to be given more details and greater information on their training in advance. Perhaps this gives evidence to the possibility that, more often than not, athletes enjoy and benefit from receiving as much information about training as possible from a coach. Furthermore, in the eyes of all the athletes, advantages for receiving training plans in advance included motivation enhancement, confidence building, better time management, the ability to set goals in advance of practice and mentally preparation (imagery), nutritional planning, and having a learning tool for improving their training.

Eleven of the thirteen athletes could foresee some disadvantages to receiving training plans in advance which included such things as not listening to your body because of following training plan too strictly, getting distracted by thinking about the difficulty of an upcoming workout, not being prepared to deal with the unknowns of race

day if there are no unknowns in training, the possibility of overanalyzing your training, and possibility holding back in training because of knowing what workout will follow the next day.

Finally, the athletes in the interview study mentioned various factors that may influence coach-athlete communication of training plans, such as coaching tradition in a sport (e.g. the perception that swim coaches traditionally have a more autocratic style of coaching), and the influence of athlete motivation and personality. For example research has suggested that leaders, such as coaches, may be more likely to appeal to external motivators to “instill” motivation in others when it is not apparent (Courneya & McAuley, 1991). Furthermore administrative pressures on a coach may influence how much choice a coach provides an athlete in training as research has shown that pressures from above may influence people in positions of authority to behave in a more controlling way towards their subordinates (e.g. Pelletier et al., 2002; Deci, et al., 1982). Finally the developmental stage of the athlete in his or her sport regardless of age or maturity may impact how much information a coach provides to his or her athletes regarding training.

Overall, the interviews provided some evidence as to what types of coaching behaviors can facilitate self-determination in a developing athlete, namely explaining and teaching the purpose behind training, being open to athletes’ questions, and encouraging athlete personal responsibility and accountability in training.

2) Will athletes experience any significant changes over time in motivation, perceptions of coach, feelings in training, mood, planning and preparation as a function of receiving training plans in advance (or not)?

It was hypothesized that for the two weeks during which athletes received training plans in advance they would experience higher motivation, better planning and preparation for training, and feel a higher degree of autonomy and positive mood around training in comparison to the two-week period in which they did not receive any training plans in advance. Furthermore, it was anticipated that athletes would have a stronger preference to receive training plans in advance after experiencing both scenarios.

Study 2 examined the impact of training plan communication on athlete planning, practice preparation, and motivation over time with 11 track athletes using a diary methodology. Athletes in the diary study reported that prior to participating in the study they rarely or sometimes received training plans in advance from their coach, and that the times when they did learn any workout details it was only few hours or less in advance of practice. However, the athletes reported a mean of 5.27 in how often they would prefer to receive workouts in advance (1=not at all, 7=all the time).

As hypothesized, analyses using paired samples t-tests indicated that the participants had significantly less obstacles get in the way of their preparation for training during the two-week time period during which they were given training plan details in advance. There was also a trend towards better preparation, higher training hours, greater perceptions of coach autonomy support and relatedness when training plans were given in advance.

However, there were no significant differences in regulation scores on the self-determination continuum during the two time periods. Consequently, changes in self-determined motivation may take longer than the two-week time period used for this study. Athletes did report, feeling significantly more “motivated for today’s training

session” while receiving training plans in advance. Finally, following the study manipulation, athletes reported a significantly higher preference for how often they would like to receive training plans in advance in comparison to the pre-study reports of how often they received training plans in advance. There was also a trend towards a preference for receiving training plans farther in advance than the actual reports of how far in advance training plans were received prior to the study. As in Study 2 of Chapter 2, these results tentatively suggest that athletes in general have a preference for more training information in advance, and that positive consequences related to training may accompany such information in advance such as better planning, preparation, and possibly motivation.

3) Is there a sequential relationship between how a coach communicates training plans, athlete perceptions of coach behaviors, athlete self-determined motivation, and athlete goal-orientation? It was hypothesized that the reception of training plans in advance and the clarity of coach explanations of training would be positively associated to athletes’ perceptions of coach interpersonal behavior. These behaviors were subsequently expected to be positively related to athletes’ self-determined motivation. In turn, motivation was predicted to be linked positively to mastery-approach goals and negatively to performance-avoidance goals. Associations between motivation and other variables related to the practice of sport (e.g., feelings of progress in training, vitality, and sport satisfaction) were also assessed.

In Study 3, a correlational design was employed with 130 athletes from 14 different sports to assess the relationships between coach behaviors (training plan communication, training plan communication), athlete perceptions of coaches’

interpersonal style (autonomy supportive, competence supportive, and relatedness), athlete self-determined motivation, and athlete goal orientations.

Initial correlations revealed training plans in advance to be significantly related to athlete perceptions of choice in training. Other variables such as coach clarity of communication, perceptions of coach interpersonal behaviors, and athlete self-determined motivation were all positively related to the athlete variables of sport satisfaction, mood, concentration while training, choice, feelings of progress, and training vitality.

Regression analyses revealed the third hypothesis to be best supported: the direct relation between the communication of training plans and coach interpersonal behaviors such as the support of autonomy, and the indirect relationship between the communication of training plans and athlete self-determination. Analyses revealed that the reception of training plans in advance was linked to athlete perceptions of coach autonomy, while coach clarity of training explanations was strongly linked to all three coach interpersonal behaviors: autonomy supportive, competence support, and relatedness. This indicates that how clearly a coach explains a training program may play as important a role in the promotion of athlete self-determination as the sole provision of training information in advance. In turn, the three interpersonal coach behaviors of being autonomy supportive, providing competence feedback and relatedness, were all strongly linked to self-determined motivation as shown in previous studies (Vallerand & Losier, 1999; Pelletier et al., 2001; Otis & Pelletier, 2001).

Finally, self-determined motivation was positively linked to athletes' mastery-approach oriented goals and negatively linked to athlete goals which are framed at avoiding failure. Furthermore, the self-determination index correlated positively with

sport variables (sport satisfaction, well-being) and favorable training variables (concentration, positive mood, perceptions of competence and choice, feelings of progress, and training vitality).

Linking the Research Questions

Collectively, the findings from these three studies do provide preliminary support for the clear and advance communication by coaches of training plans in advance to their athletes. Referring back to Deci and Ryan's (1980) cognitive evaluation theory, it appears that the coach behavior of providing and explaining training plans in advance to athletes, could be a specific contextual factor in the social environment between a coach and athlete, which can be clearly perceived as informational rather than controlling by the athletes. Study 2 of Article 1 and Article 2 provided evidence to support that athletes would prefer more training information in advance of practice and that the reception of training plans in advance is possibly linked to many positive outcomes for athletes. For example, in Article 2, receiving training plan information in advance appears to be linked to several positive practice variables such as increased perception of choice, better planning and preparation for training, higher moods and vitality while training, higher sport satisfaction, higher self-determination, and higher mastery goal orientation versus performance outcome goal orientations.

Strengths and Limitations

Strengths

The current program of research has a number of strengths that merit mentioning. Overall, this dissertation has successfully expanded the research on coach behaviors and motivation. The most noteworthy strength lies in the fact that the study operated within a

strong theoretical framework. Working from Deci and Ryan's (1985, 2000) self-determination theory and its subset, cognitive evaluation theory (1985), allowed for greater insight into why providing training plan information in advance may be a highly effective coaching technique in facilitating self-determined athlete motivation, and better self-regulated planning and preparation on the part of athletes. The current project identified a specific behavior of that is directly tied to constructive coach interpersonal behaviors that are liable to foster psychological needs satisfaction and self-determined athlete motivation..

Additional strengths have to do with the experimental design. Through the use of both qualitative and quantitative components the current study added scope and breadth to the findings (Greene, et al., 1989). The use of qualitative interviewing to assess athletes in their natural environments provided useful insight into how athletes currently communicate with their coaches regarding training. The interviews acted as a base from which to form further hypotheses for the study. Second the length of the intervention in the diary study spanned twenty-eight days, which is longer than most diary studies. Two time-periods of two-weeks in length were evaluated as an acceptable time period for athletes to adapt to each intervention while also keeping attrition rates for the study as low as possible. Both the interview study and diary took place in a naturalistic, real-life setting allowing for higher external validity of the results.

Finally, a larger correlational design allowed for the development of a model to link the many variables measured: training plan communication, athlete perceptions of coach interpersonal behaviors, athlete self-determination, and other sport variables such as sport satisfaction, goal orientation, planning, preparation, and training vitality.

Limitations

As with any study, this research does have limitations that must be acknowledged. The main limitations of the study are the sample sizes that limited the statistical analyses that could be performed for the diary and correlational studies, as well as the degree to which the results can be generalized. The sample sizes limited extensively the nature of the statistical analyses that could be performed with the data. Additional participants would have allowed for more sophisticated statistical techniques for the diary study and causal modeling for the correlational study. Furthermore, as the development of more self-determined motivation towards a behavior may take several months, the comparison of athletes receiving and not receiving training plans over a two two-week periods may not be sufficient enough to see changes in motivation over time.

Contributions to the Knowledge

This doctoral dissertation adds to our knowledge by examining a specific coach behavior that can have many positive consequences for athletes in training. First, this research presented a more comprehensive picture of the complex factors involved in the communication of training between a coach and an athlete. For example, sport coaching traditions, coach pressures from above, athlete personality and motivation, degree of athlete-coach contact, and an athletes developmental stage in a sport all play a role in how a coach and athlete communication about training plan information. Second, by using Deci and Ryan's (1985, 2000) self-determination theory, this research provided insight into the understanding of how the coach behavior of clearly communicating training plans in advance to athletes can directly increase positive perceptions of coaches, and facilitate increase self-determined motivation.

Implications

The findings from the present study have implications for a variety of relationships that involve overseeing other people. From a practical point of view, individuals who are supervisors, teachers, trainers, managers, as well as coaches, would benefit from the knowledge brought about by these findings. These types of occupations all involve planning and the communication of tasks for subordinates to undertake. It is already apparent that providing choice in an autonomy supportive environment can increase intrinsic motivation (e.g. Koestner et al., 1984; Swann & Pittman, 1977; Zuckerman et al., 1978). The research findings, however, show that providing a clear explanation of tasks (e.g. training plans) in advance is a specific behavior that can facilitate an environment that is supportive of psychological needs for autonomy, competence and relatedness as well as many other positive consequences for athletes (e.g., training vitality, a mastery-approach goal orientation, feelings of progress, sport satisfaction). Leaders in educational and occupational domains could benefit as much as coaches by taking the time to effectively plan and communicate plans in advance to students and staff. When people know what to expect in their environments they can better plan, and prepare for each day, and therefore experience a greater sense of well-being and feel more in control.

Future Research Directions

As it will be illustrated in this section, there exist many exciting areas for future research in many different contexts and with a variety of populations. The samples in the current study consisted primarily of individual sport athletes between the ages of 18 and 25 years. It would be interesting to replicate these findings with much larger sample sizes

and to investigate whether receiving practice plans in advance would have an equally positive (or even greater positive) impact in team sport settings, or at different stages of sport development, whether biological or chronological stages. The communication of training plans in advance in an autonomy supportive environment versus a controlling environment could also be investigated to explore possible links over time such as improvement and persistence in a sport as well as attrition rates.

The amount of information communicated to athletes could be further investigated such as how much information, (e.g., daily details versus loose monthly plans) and to which extent the timing of information (e.g., one day, one week, or one month of more) is helpful for providing an autonomy supportive environment for athletes. More specifically, the motivational impact of different types of information communicated to athletes, such as only the training plans details, or with the addition of overall training goals, and the physiological rationale for specific workouts could be further explored.

A deeper examination of communication traditions within specific sports such as swimming may also reveal the most effective ways to communicate training plans and motivate athletes in a particular sport. For example, amount of coach-athlete contact, training environment, administrative pressures on the coach, and the number of athletes working with a coach are a few factors that could possibly interfere with positive coach-athlete communication of training plans. A closer look at the impact of the athlete's personality and motivational profile in the communication of training plans is also merited. For example, a better understanding could be gained of what characterizes athletes who do not prefer to receive training plans in advance by examining factors such

as athlete motivational profiles, developmental stage, exposure to autocratic versus democratic coaching styles, sport culture and traditions. This could help determine why some athletes perceive the reception of workouts in advance as informational while others perceive it as stressful. Furthermore, the question of whether intrinsically self-determined athletes tend to seek out and prefer more autonomy supportive, democratic coaches, while externally motivated athletes tend to seek out and prefer more controlling, autocratic coaches, could be more closely examined. Future research may also be interested in examining the advance communication of tasks and plans in other relationships such as parent-child, teacher-student, physiotherapist-patient, or manager-staff.

In conclusion, it appears that Cognitive Evaluation Theory within the scope of Self-Determination Theory (Deci & Ryan, 1980, 2000) is an effective framework from which to investigate communication of training plans in the coach-athlete relationship. This dissertation has examined how and why the effective and advance communication of training plans is a valuable coaching behavior. As with most research, this dissertation not only attempted to answer the pre-determined questions, but in doing so many research directions for future research have also emerged.

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Appendix A

Contributions of Collaborators

Dr. Luc Pelletier and I met on several occasions to solidify the purpose of the study, the methodology, and the proposed data analyses. I began writing the thesis proposal and submitted drafts to Dr. Pelletier who made comments, suggestions and revisions. After the completion of the thesis proposal, minor changes were made to the literature review upon suggestions from the thesis committee members, Dr. Celine Blanchard, Dr. Michelle Fortier and Dr. Green-Demers.

I collected and entered all data. Dr. Pelletier and I met or communicated on several occasions to discuss and determine the appropriate analyses for the qualitative and quantitative data. Afterwards, I conducted the data analyses and then interpreted the results. The interpretation was also discussed with Dr. Pelletier. I wrote all sections of the thesis, however, after completing each section of the thesis, they were read and edited by Dr. Pelletier.

Finally, a complete draft of the thesis document was circulated to the thesis committee members and changes/revisions were made to the document as requested by the thesis committee before the submission of the thesis to the Faculty of Graduate and Post Doctoral Studies.

Any information or complaints about the ethical conduct of the project may be addressed to the Protocol Officer for Ethics in Research: Room 159A, Tabaret Hall, (613) 562-5387.

There are two copies of the consent form, one of which you may keep.

If you have any questions, you may contact the researcher or her supervisor:

Researcher's signature: _____

Date: _____

Research Participant's signature: _____

Date: _____

If you wish to receive a summary of the findings of this research project, which will be available in fall, 2005 please write your address below:

Appendix D

Interview Guide

Preliminary stages: (a) introductory comments, i.e. tape recording and information sheet.
 (b) establishing rapport
 (c) record age, gender, sport, and years of experience in sport
 (d) administration of sport motivation scale

Warm-up question: Tell me how you first got involved in your sport?

- Q1. Can you describe as many reasons as possible for why you practice or compete in your sport?
 probe for: *intrinsic reasons*
extrinsic reasons....any pressure or expectations from others?
if didn't practice sport would feel? ... (i.e., how would life be different for you?).
- Q2. What are your future goals in your sport?
 probe for: *short term goals*
long term goals
any foreseeable barriers to these goals
how long would like to stay competitive in sport
- Q3. How did you end up working with your present coach?
 probe for: *number of other coaches in career?*
available choice of alternative coaching at present?
how does present coach compare to others? (if applicable)
positives about working with present coach?
negatives about working with present coach?
number of athletes coached by same coach?
- Q3. How would you describe your relationship with your coach?
 probe for: *communication (frequency/week)?*
personality fit/approachability of coach?
Attention received (contact with coach, types of contact...phone, e-mail, one-on-one instruction)?
Type of feedback received (positive/encouraging vs. negative criticisms)
- Q4. Has your relationship with your coach changed at all since you first began working together?
 probe for: *amount of contact/supervision*
how workouts communicated
amount of structure to workouts (i.e., details given to athlete)
workload given
coaching methods: Has coached changed his/her style at all? Are you adapting to him/her or is he/she adapting to you?
- Q5. How does your coach communicate training plans to you?
 probe for: *How workouts received: how far ahead, how detailed etc?*
How often do you receive workouts in advance?
What is your preference for how to receive workouts: i.e., prefer knowing only long term plan (years), only short term plan (days or weeks or both)
How do you like workouts set up (i.e., a lot of flexibility to make decisions to a lot of structure, every detail laid out so don't have to think)

Possibility of preferring to self-coach?

- Q6. What is your perception of other athletes' preferences with the same coach?
*Probe for: Do they prefer workouts in advance?
How often do they receive workouts in advance?
What do they prefer?
What advantages/disadvantages do you see to knowing workouts in advance (for yourself as well as other athletes)?*
- Q7. How do you feel when you know (or do not know) in advance what you will be doing in a workout?
*Probe for: Evaluation or preparation strategies?
How do you feel during workout and after? (i.e., mood, energy, level of stress)
Do you feel like you are progressing towards goals? How so?
To what extent do you understand why you do the training that you do?
Sense of structure felt from knowing or not knowing workouts in advance?
Impact on your motivation?*
- Q8. How much do you feel you depend on your coach for training?
*probe for: for feedback on workouts
for how to train (how often, technical aspects)
how lost would feel training without coach?
degree of independence from coach*
- Q9. If any, what sorts of obstacles do you encounter when trying to fit in your training on a weekly basis?
*probe for: Other important goals in life?
Other time commitments/responsibilities
Environmental conditions (i.e., weather)¹²
Relationship concerns or other stresses
Health (i.e., injuries, sickness)
Motivation*
- Q10. Do you feel you can deal effectively with any obstacles that come along?
*probe for: If no why not?
What areas could you improve?
If yes, how and what strategies do you use?
Any role coach plays in helping to overcome obstacles
Any progression in ability to overcome mentioned obstacles*

Wrap-up question: Is there anything that we didn't cover that you would like to add?

Debriefing: (a) discuss impressions of the interview session

Appendix E

Pre-Study Questionnaire for Study 2

A. GENERAL INFORMATION

NAME (please print): _____

SPORT: _____

GENDER (circle one): Female Male **AGE:** _____

1. How many years have you been competing in your sport? _____
2. In an average week, how many hours do you spend training for your sport? _____
3. On average, how many competitions do you compete in during 1 year? _____
4. At what level at the majority of your competitions?

- Regional _____
- Provincial _____
- Intersarsity _____
- National _____
- International _____

5. How long have you been working with your present coach? _____ year(s) and _____ months.

For each of the following items, circle the number or check the answer that best represents you or your situation.

1. During an average week of training, to what extent do you plan your own workouts?

Not at all	Sometimes	All the time
-------------------	------------------	---------------------

- 1 2 3 4 5 6 7

2. How often do you receive workout/training plans in advance?

- Never _____ Often _____
- Rarely _____ All the time _____
- Sometimes _____

3. *How far in advance* do you learn from your coach what your workout(s) will be?

- Not at all in advance _____
- A few hours or less _____
- 1 day _____
- 1-3 weeks _____
- 1 month or more _____

4. How confident are you in your coach's knowledge of the principles of training for your sport?

Not at all confident		Somewhat confident			100% Confident	
1	2	3	4	5	6	7

5. How clearly do you feel your coach explains workouts?

Not at all clearly		Somewhat clearly			Perfectly clearly	
1	2	3	4	5	6	7

6. To what extent do you feel you could follow a workout without your coach being present?

Not at all		With some difficulty			Perfectly	
1	2	3	4	5	6	7

7. To what extent would you prefer to receive workout plans in advance from your coach?

Not at all		Sometimes			All the time	
1	2	3	4	5	6	7

8. To what extent is or would receiving workout plans in advance from your coach useful to you?

Not at all useful		Somewhat useful			Extremely useful	
1	2	3	4	5	6	7

9. To what extent do you or would you find receiving workouts in advance to be stressful?

Not at all stressful		Somewhat stressful			Extremely stressful	
1	2	3	4	5	6	7

B. SPORT SATISFACTION

Below are five statements with which you may agree or disagree. Using the scale below, indicate your agreement with each item

Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6	7

1. In most ways my life in sport is close to my ideal.

1	2	3	4	5	6	7
---	---	---	---	---	---	---
2. The conditions of my sport life are excellent.

1	2	3	4	5	6	7
---	---	---	---	---	---	---
3. I am satisfied with my sport life.

1	2	3	4	5	6	7
---	---	---	---	---	---	---
4. So far I have got the important things I want from my sport.

1	2	3	4	5	6	7
---	---	---	---	---	---	---
5. If I could live my sport experiences over, I would change almost nothing.

1	2	3	4	5	6	7
---	---	---	---	---	---	---
6. I have achieved success in my sport.

1	2	3	4	5	6	7
---	---	---	---	---	---	---

C. ACHIEVEMENT GOAL QUESTIONNAIRE

Below are 12 statements describing possible goals you wish to accomplish through participating in your sport. Using the 1-7 scale below, ranging from 1 (not at all true of me) to 7 (very true of me), indicate the extent to which you think each statement is true of your goals.

Not at all true of me		Somewhat true of me			Very true of me	
1	2	3	4	5	6	7

1. It is important for me to perform better than other athletes. 1 2 3 4 5 6 7
2. It is important for me to do well compared to other athletes at my level. 1 2 3 4 5 6 7
3. My goal in sport is to have better performances than most of the other athletes. 1 2 3 4 5 6 7
4. I worry that I may not accomplish all I possibly could in sport. 1 2 3 4 5 6 7
5. Sometimes I am afraid that I may not be able to perform as well as I'd like. 1 2 3 4 5 6 7
6. I am often concerned that I may not learn all the necessary skills for my sport. 1 2 3 4 5 6 7
7. I want to learn as many skills as possible through practicing my sport. 1 2 3 4 5 6 7
8. It is important for me to understand the aspects of my sport as thoroughly as possible. 1 2 3 4 5 6 7
9. I desire to completely master my sport. 1 2 3 4 5 6 7
10. I just want to avoid not doing well in my sport. 1 2 3 4 5 6 7
11. My goal in participating in my sport is to avoid performing poorly. 1 2 3 4 5 6 7
12. My fear of not being able to do my sport well is often what motivates me. 1 2 3 4 5 6 7

D. COACH BEHAVIORS

Using the scale below, indicate the frequency at which your coach, in workouts, emits the behaviors presented in the items below.

Never	Almost never	Rarely	Sometimes	Often	Almost always	Always
1	2	3	4	5	6	7

During my workouts.....

- | | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. I feel that my coach sincerely cares about me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. My coach doesn't care if I succeed or fail. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. When I ask my coach to help me with a problem, he/she asks me what I think before giving me his/her opinion. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. The feedback I get from my coach makes me feel uncertain about my capacities. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. My coach encourages me to be myself. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. I feel that my coach honestly enjoys spending time with me. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. The feedback I get from my coach takes the form of useless criticisms. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. My coach seems to be genuinely interested in what I do. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. My coach only tells me about my faults. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. My coach provides me with lots of opportunities to make personal decisions in what I do. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. My coach sends me the message that I'm inadequate. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. My coach openly acknowledges my thoughts and feelings although they may be different from his/hers. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

E. MOTIVATION

WHY DO YOU PRACTICE YOUR SPORT?

Using the scale below, please indicate to what extent each of the following items corresponds to one of the reasons for which you are presently practicing your sport.

Does not Correspond at all 1	Corresponds Very little 2	Corresponds a little 3	Corresponds Moderately 4	Corresponds Quite a bit 5	Corresponds Quite a lot 6	Corresponds Completely 7
---------------------------------------	---------------------------------	------------------------------	--------------------------------	---------------------------------	---------------------------------	--------------------------------

1. For the pleasure I feel in living exciting experiences. 1 2 3 4 5 6 7
2. For the pleasure it gives me to know more about the sport that I practice. 1 2 3 4 5 6 7
3. I used to have good reasons for doing sports, but now I am asking myself if I should continue doing it. 1 2 3 4 5 6 7
4. Because practicing sports reflects the essence of who I am. 1 2 3 4 5 6 7
5. For the pleasure of discovering new training techniques. 1 2 3 4 5 6 7
6. I don't know anymore; I have the impression that I am incapable of succeeding in this sport. 1 2 3 4 5 6 7
7. Because it allows me to be well regarded by people that I know. 1 2 3 4 5 6 7
8. Because, in my opinion, it is one of the best ways to meet people. 1 2 3 4 5 6 7
9. Because I feel a lot of personal satisfaction while mastering certain difficult training techniques. 1 2 3 4 5 6 7
10. Because its part of the way I've chosen to live my life. 1 2 3 4 5 6 7
11. Because it is absolutely necessary to do sports if one wants to be in shape. 1 2 3 4 5 6 7
12. For the prestige of being an athlete. 1 2 3 4 5 6 7
13. Because it is one of the best ways I have chosen to develop other aspects of myself. 1 2 3 4 5 6 7
14. For the pleasure I feel while improving some of my weak points. 1 2 3 4 5 6 7
15. For the excitement I feel when I am really involved in the activity. 1 2 3 4 5 6 7
16. Because it has become a fundamental part of who I am. 1 2 3 4 5 6 7
17. Because I must do sports to feel good about myself. 1 2 3 4 5 6 7

WHY DO YOU PRACTICE YOUR SPORT?

Does not Correspond at all 1	Corresponds Very little 2	Corresponds a little 3	Corresponds Moderately 4	Corresponds Quite a bit 5	Corresponds Quite a lot 6	Corresponds Completely 7
---------------------------------------	---------------------------------	------------------------------	--------------------------------	---------------------------------	---------------------------------	--------------------------------

- 18. For the satisfaction I experience while I am perfecting my abilities. 1 2 3 4 5 6 7
- 19. Because people around me think it is important to be in shape. 1 2 3 4 5 6 7
- 20. Because participating in sport is an integral part of my life. 1 2 3 4 5 6 7
- 21. Because it is a good way to learn lots of things which could be useful to me in other areas of my life. 1 2 3 4 5 6 7
- 22. For the intense emotions that I feel while I am doing a sport that I like. 1 2 3 4 5 6 7
- 23. It is not clear to me anymore; I don't really think my place is in sport. 1 2 3 4 5 6 7
- 24. For the pleasure that I feel while executing certain difficult movements. 1 2 3 4 5 6 7
- 25. Because I would feel bad if I was not taking the time to do it. 1 2 3 4 5 6 7
- 26. Because through sport, I am living in line with my deepest principles. 1 2 3 4 5 6 7
- 27. To show others how good I am at my sport. 1 2 3 4 5 6 7
- 28. For the pleasure I feel while learning training techniques that I have never tried before. 1 2 3 4 5 6 7
- 29. Because it is one of the best ways to maintain good relationships with my friends. 1 2 3 4 5 6 7
- 30. Because the sport I am practicing is an extension of me. 1 2 3 4 5 6 7
- 31. Because I like the feeling of being totally immersed in the activity. 1 2 3 4 5 6 7
- 32. Because I must do sports regularly. 1 2 3 4 5 6 7
- 33. For the pleasure of discovering new performance strategies. 1 2 3 4 5 6 7
- 34. Because by doing it I am fully expressing my deepest values. 1 2 3 4 5 6 7
- 35. I often ask myself; I can't seem to achieve the goals that I set for myself. 1 2 3 4 5 6 7

THANK-YOU FOR YOUR PARICIPATION!!

B. FEELINGS ABOUT TODAY'S TRAINING

DIRECTIONS: Please indicate to what extent each statement was true for you **TODAY** in relation to your training...

Not at all true		Somewhat true					Very true	
1	2	3	4	5	6	7		

- | | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. I set one or more goals for practice | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. I visualized how I wanted to execute my training | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. I was mentally prepared for the intensity level of training | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. I was able to focus 100% during training and block out any distractions. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I was able to eat and drink properly for the energy requirements of training | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. My energy level matched the energy needed for training | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. I felt adequately rested/recovered for today's training | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. I felt confident in my training progression | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. My coach helped me choose my own direction for training today | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. I did not feel very competent. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. Today's training was enjoyable | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. I felt a sense of accomplishment after training. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. My coach took my feelings into consideration for today's workout | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. I was preoccupied with other thoughts while training | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. I was feeling drained | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 16. I was in a good mood | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 17. I was frustrated during training | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 18. I was worried/anxious about the difficulty of today's training | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 19. I looked forward to the workout(s) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 20. I was motivated for today's training session(s) | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Activities TODAY

DIRECTIONS: Indicate to what extent each of the following statements corresponds to the reasons why you did the two activities at which you spent the most time (**excluding sleep and training**).

Does not Correspond at all 1	Corresponds Very little 2	Corresponds a little 3	Corresponds Moderately 4	Corresponds Quite a bit 5	Corresponds Quite a lot 6	Corresponds Completely 7
---------------------------------------	---------------------------------	------------------------------	--------------------------------	---------------------------------	---------------------------------	--------------------------------

FIRST ACTIVITY: _____ I DID THIS ACTIVITY
TODAY...

- | | | | | | | | |
|--|---|---|---|---|---|---|---|
| 1. ... purely for the interest and enjoyment in doing it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. ... because something about my external situation forced me to do it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. ... because I made myself do it, to avoid anxiety or guilt. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. ... interesting or not, I felt that it expressed my true values. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. ... because I felt it was an important and useful activity to do. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

SECOND ACTIVITY: _____ I DID THIS ACTIVITY
TODAY...

- | | | | | | | | |
|--|---|---|---|---|---|---|---|
| 1. ... purely for the interest and enjoyment in doing it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. ... because something about my external situation forced me to do it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. ... because I made myself do it, to avoid anxiety or guilt. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. ... interesting or not, I felt that it expressed my true values. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. ... because I felt it was an important and useful activity to do. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Indicate to what extent each of the following statements corresponds to the reasons why you trained for your sport today

I TRAINED TODAY.....

- | | | | | | | | |
|--|---|---|---|---|---|---|---|
| 1. ... purely for the interest and enjoyment in doing it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. ... because something about my external situation forced me to do it. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. ... because I made myself do it, to avoid anxiety or guilt. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. ... interesting or not, I felt that it expressed my true values. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. ... because I think it is important to maintain and improve my skills | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

Appendix G

Post-Study Questionnaire for Study 2

Participant Number: _____

1. In your opinion, does how you receive workouts from your coach (in advance or not) impact your motivation to train?

Not at all		Somewhat			Completely	
------------	--	----------	--	--	------------	--

1 2 3 4 5 6 7

2. How often would you prefer to receive workout/training plans in advance?

Never _____ Often _____
 Rarely _____ All the time _____
 Sometimes _____

3. *How far in advance* would you like to learn from your coach what the details of your workout(s) will be?

Not at all in advance _____
 A few hours or less _____
 1 day _____
 1-3 weeks _____
 1 month or more _____

4. To what extent is receiving workout plans in advance from your coach useful to you?

Not at all useful		Somewhat useful			Extremely useful	
-------------------	--	-----------------	--	--	------------------	--

1 2 3 4 5 6 7

5. To what extent do you find receiving workouts in advance to be stressful?

Not at all stressful		Somewhat stressful			Extremely stressful	
----------------------	--	--------------------	--	--	---------------------	--

1 2 3 4 5 6 7

6. To what extent does how you receive workouts (in advance or not) affect how you plan the rest of your day?

Not at all		Somewhat			Completely	
------------	--	----------	--	--	------------	--

1 2 3 4 5 6 7

7. To what extent does how you receive workouts (in advance or not) affect how you prepare for your daily training?

Not at all		Somewhat			Completely	
------------	--	----------	--	--	------------	--

1 2 3 4 5 6 7

8. To what extent does how you receive workouts (in advance or not) impact how confident you are in your coach?

Not at all		Somewhat			Completely	
------------	--	----------	--	--	------------	--

1 2 3 4 5 6 7

9. To what extent does how you receive workouts (in advance or not) impact how confident you are in your training program?

Not at all		Somewhat			Completely	
------------	--	----------	--	--	------------	--

1 2 3 4 5 6 7

***Please add any other comments/opinions you have regarding coach-athlete communication about workouts/training plans:**

Appendix H

Questionnaire for Study 3

A. GENERAL INFORMATION

Sport: _____ **Age:** _____ **Gender:** _____

DIRECTIONS: Please *check* the response for each item that best describes *you*.

1. For how many years have you been competing in your sport? 2. In an average week, how many hours do you spend training for your sport?

- | | | | |
|------------------|-------|------------|-------|
| 1 year or less | _____ | 5 or less | _____ |
| 2-4 years | _____ | 6-10 | _____ |
| 5-9 years | _____ | 11-15 | _____ |
| 10 years or more | _____ | 16-20 | _____ |
| | | 20 or more | _____ |

3. On average how many competitions do you compete in during 1 year? 4. At what level are the majority of your competitions?

- | | | | |
|------------|-------|---------------|-------|
| 5 or less | _____ | Regional | _____ |
| 6-10 | _____ | Provincial | _____ |
| 11-15 | _____ | Intervarsity | _____ |
| 16-20 | _____ | National | _____ |
| 20 or more | _____ | International | _____ |

6. If you are working with a coach, how long have you been with your present coach?

- | | |
|------------------|-------|
| 1 year or less | _____ |
| 2-4 years | _____ |
| 5-9 years | _____ |
| 10 years or more | _____ |

B. DIRECTIONS: For each of the following items, circle the number or check the answer that best represents you or your situation.

10. During an average week of training, to what extent do you plan your own workouts?

Not at all time	Sometimes	All the
----------------------------	------------------	----------------

1 2 3 4 5 6 7

11. How often do you receive your workouts in advance?

Never	_____	Often	_____
Rarely	_____	All the time	_____
Sometimes	_____		

12. How far in advance do you learn what your workout(s) will be?

Not at all in advance	_____
A few hours or less	_____
1 day	_____
1-3 weeks	_____
1 month or more	_____

13. How confident are you in your coach's knowledge of the principles of training for your sport?

Not at all confident		Somewhat confident			100% Confident	
1	2	3	4	5	6	7

14. How clearly do you feel your coach explains workouts?

Not at all clearly		Somewhat clearly			Perfectly clearly	
1	2	3	4	5	6	7

15. To what extent do you feel you could follow a workout without your coach being present?

Not at all		With some difficulty			Perfectly	
1	2	3	4	5	6	7

16. To what extent would or do you prefer to receive your workouts in advance?

Not at all		Sometimes			All the time	
1	2	3	4	5	6	7

17. When you have your workouts in advance, to what extent is receiving workouts ahead of time useful to you?

Not at all useful		Somewhat useful			Extremely useful	
1	2	3	4	5	6	7

18. When you know your workout ahead of time, to what extent does it determine whether you will attend practice that day?

Never		Sometimes			All the time	
1	2	3	4	5	6	7

19. To what extent do you find receiving workouts in advance to be stressful?

Not at all stressful		Somewhat stressful			Extremely stressful	
1	2	3	4	5	6	7

C. GOALS FOR TRAINING AND COMPETITION: Using the scale below, indicate to the extent to which the following items correspond to you.

Never	Almost never	Rarely	Sometimes	Often	Almost always	Always
1	2	3	4	5	6	7

- | | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1. I prepare daily training goals for myself..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. I prepare weekly training goals for myself..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. I prepare monthly training goals for myself..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I prepare yearly training goals for myself..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. My coach prepares daily training goals for me..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. My coach prepares weekly training goals for me..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. My coach prepares monthly training goals for me..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. My coach prepares yearly training goals for me..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. I prepare goals for each competition..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. I prepare goals for each competitive season..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 12. I prepare goals for several competitive seasons ahead..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 13. My coach prepares competition goals for me for each competition..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 14. My coach prepares competition goals for me for each competitive season..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 15. My coach prepares competition goals for me for several competitive seasons ahead..... | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

D. ACHIEVEMENT GOALS DURING WORKOUTS

Below are 12 statements describing possible goals you wish to accomplish during your workout. Using the 1-7 scale below, ranging from 1 (not at all true of me) to 7 (very true of me), indicate the extent to which you think each statement is true of your goals.

Not at all true of me		Somewhat true of me			Very true of me	
1	2	3	4	5	6	7

During workouts.....

- 13. It is important for me to perform better than other athletes. 1 2 3 4 5 6 7
- 14. It is important for me to perform well compared to other athletes at my level. 1 2 3 4 5 6 7
- 15. My goal is to have better performances than most of the other athletes. 1 2 3 4 5 6 7
- 16. I worry that I may not reach my full potential in sport. 1 2 3 4 5 6 7
- 17. Sometimes I am afraid that I may not be able to learn how to perform as well as I'd like. 1 2 3 4 5 6 7
- 18. I am often concerned that I may not acquire all the necessary skills for my sport. 1 2 3 4 5 6 7
- 19. I want to learn as many skills as possible. 1 2 3 4 5 6 7
- 20. It is important for me to practice as well as possible. 1 2 3 4 5 6 7
- 21. I desire to completely master my sport. 1 2 3 4 5 6 7
- 22. I just want to avoid not performing well in my sport. 1 2 3 4 5 6 7
- 23. My goal during the workout is to avoid performing poorly. 1 2 3 4 5 6 7
- 24. My fear of not being able to perform well is often what motivates me. 1 2 3 4 5 6 7

E. To what extent is each of the following factors important in determining how long you will continue to participate in your sport?

Not at all Important	Somewhat Important	Quite Important	Very Important
1	2	3	4

- | | | | | |
|---|---|---|---|---|
| 1. Receiving rewards (i.e., prizes, medals etc.)..... | 1 | 2 | 3 | 4 |
| 2. Enjoying practicing my sport..... | 1 | 2 | 3 | 4 |
| 3. Having family support..... | 1 | 2 | 3 | 4 |
| 4. Having an available coach..... | 1 | 2 | 3 | 4 |
| 5. The number of my friends who remain in the sport... | 1 | 2 | 3 | 4 |
| 6. Whether my financial situation allows me to continue.. | 1 | 2 | 3 | 4 |

F. SPORT SATISFACTION

Below are five statements with which you may agree or disagree. Using the scale below, indicate your agreement with each item

Strongly disagree	Disagree	Slightly disagree	Neither agree nor disagree	Slightly agree	Agree	Strongly agree
1	2	3	4	5	6	7

- | | | | | | | | |
|---|---|---|---|---|---|---|---|
| 7. In most ways my life in sport is close to my ideal. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. The conditions of my sport life are excellent. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. I am satisfied with my sport life. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. So far I have got the important things I want from my sport. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 11. If I could live my sport experiences over, I would change almost nothing. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. I have achieved success in my sport. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

G. WHY DO YOU PRACTICE YOUR SPORT?

Using the scale below, please indicate to what extent each of the following items corresponds to one of the reasons for which you are presently practicing your sport.

Does not correspond at all	Corresponds very little	Corresponds a little	Corresponds moderately	Corresponds quite a bit	Corresponds quite a lot	Corresponds completely
1	2	3	4	5	6	7

1. For the pleasure I feel in living exciting experiences. 1 2 3 4 5 6 7
2. For the pleasure it gives me to know more about the sport that I practice. 1 2 3 4 5 6 7
3. I used to have good reasons for doing sports, but now I am asking myself if I should continue. 1 2 3 4 5 6 7
4. Because practicing sports reflects the essence of who I am. 1 2 3 4 5 6 7
5. I don't know anymore; I have the impression that I am incapable of succeeding in this sport. 1 2 3 4 5 6 7
6. Because it allows me to be well regarded by people that I know. 1 2 3 4 5 6 7
7. Because, in my opinion, it is one of the best ways to meet people. 1 2 3 4 5 6 7
8. Because I feel a lot of personal satisfaction while mastering certain difficult training techniques. 1 2 3 4 5 6 7
9. Because its part of the way I've chosen to live my life. 1 2 3 4 5 6 7
10. Because it is absolutely necessary to do sports if one wants to be in shape. 1 2 3 4 5 6 7
11. For the prestige of being an athlete. 1 2 3 4 5 6 7
12. Because it is one of the best ways I have chosen to develop other aspects of myself. 1 2 3 4 5 6 7
13. Because it has become a fundamental part of who I am. 1 2 3 4 5 6 7
14. Because I must do sports to feel good about myself. 1 2 3 4 5 6 7
15. For the satisfaction I experience while I am perfecting my abilities. 1 2 3 4 5 6 7

WHY DO YOU PRACTICE YOUR SPORT?

Does not correspond at all 1	Corresponds very little 2	Corresponds a little 3	Corresponds moderately 4	Corresponds quite a bit 5	Corresponds quite a lot 6	Corresponds completely 7
---------------------------------	------------------------------	---------------------------	-----------------------------	------------------------------	------------------------------	-----------------------------

- 16. Because people around me think it is important to be in shape. 1 2 3 4 5 6 7
- 17. Because participating in sport is an integral part of my life. 1 2 3 4 5 6 7
- 18. Because it is a good way to learn lots of things which could be useful to me in other areas of my life. 1 2 3 4 5 6 7
- 19. It is not clear to me anymore; I don't really think my place is in sport. 1 2 3 4 5 6 7
- 20. Because I would feel bad if I was not taking the time to do it. 1 2 3 4 5 6 7
- 21. Because through sport, I am living in line with my deepest principles. 1 2 3 4 5 6 7
- 22. To show others how good I am at my sport. 1 2 3 4 5 6 7
- 23. Because it is one of the best ways to maintain good relationships with my friends. 1 2 3 4 5 6 7
- 24. Because the sport I am practicing is an extension of me. 1 2 3 4 5 6 7
- 25. Because I like the feeling of being totally immersed in the activity. 1 2 3 4 5 6 7
- 26. Because I must do sports regularly. 1 2 3 4 5 6 7
- 27. Because by doing it I am fully expressing my deepest values. 1 2 3 4 5 6 7
- 28. I often ask myself; I can't seem to achieve the goals that I set for myself. 1 2 3 4 5 6 7

H. COACH BEHAVIORS

Using the scale below, indicate the frequency at which your coach, in workouts, emits the behaviors presented in the items below.

Never 1	Almost never 2	Rarely 3	Sometimes 4	Often 5	Almost always 6	Always 7
------------	----------------------	-------------	----------------	------------	-----------------------	-------------

During my workouts.....

- 13. I feel that my coach sincerely cares about me. 1 2 3 4 5 6 7
- 14. My coach doesn't care if I succeed or fail. 1 2 3 4 5 6 7
- 15. When I ask my coach to help me with a problem, he/she asks me what I think before giving me his/her opinion. 1 2 3 4 5 6 7
- 16. The feedback I get from my coach makes me feel uncertain about my capacities. 1 2 3 4 5 6 7
- 17. My coach encourages me to be myself. 1 2 3 4 5 6 7
- 18. I feel that my coach honestly enjoys spending time with me. 1 2 3 4 5 6 7
- 19. The feedback I get from my coach takes the form of useless criticisms. 1 2 3 4 5 6 7
- 20. My coach seems to be genuinely interested in what I do. 1 2 3 4 5 6 7
- 21. My coach only tells me about my faults. 1 2 3 4 5 6 7
- 22. My coach provides me with lots of opportunities to make personal decisions in what I do. 1 2 3 4 5 6 7
- 23. My coach sends me the message that I'm inadequate. 1 2 3 4 5 6 7
- 24. My coach openly acknowledges my thoughts and feelings although they may be different from his/hers. 1 2 3 4 5 6 7

J. ATTITUDES TOWARD TRAINING

Below are statements, which deal with some aspects of your sport experience. Using the 1-7 scale below please indicate your agreement by circling the appropriate number to the right of the statement.

Strongly Disagree	Disagree	Slightly Disagree	Neither agree nor disagree	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

1. Before training, I'm usually tense 1 2 3 4 5 6 7
2. During training, I'm usually tense 1 2 3 4 5 6 7
3. I am distracted while training. 1 2 3 4 5 6 7
4. I'm generally happy while practicing my sport. 1 2 3 4 5 6 7
5. I'm generally an anxious athlete. 1 2 3 4 5 6 7
6. While training for my sport, I am absorbed with what I'm doing. 1 2 3 4 5 6 7
7. I consider myself a good athlete. 1 2 3 4 5 6 7
8. I experience some difficulties doing my training well. 1 2 3 4 5 6 7
9. I am generally relaxed while training. 1 2 3 4 5 6 7
10. I experience a lot of freedom while training. 1 2 3 4 5 6 7
11. I feel too controlled at practice. 1 2 3 4 5 6 7
12. I think that I am as capable at doing my sport as anyone else. 1 2 3 4 5 6 7
13. I feel that the things I work on at practice are the things I really want to do. 1 2 3 4 5 6 7
14. I am generally in a good mood at practice. 1 2 3 4 5 6 7
15. I feel that the various workouts that I do in training are imposed on me rather than chosen for me. 1 2 3 4 5 6 7
16. While training, I may sometimes think of something else. 1 2 3 4 5 6 7
17. At practice, when I must express myself, words come to me easily. 1 2 3 4 5 6 7
18. In training, I feel that I am accomplishing something. 1 2 3 4 5 6 7
19. I feel that I am working toward a goal that is meaningful to me. 1 2 3 4 5 6 7
20. In training I feel that I'm progressing. 1 2 3 4 5 6 7
21. In training I generally don't understand what I'm doing. 1 2 3 4 5 6 7
22. I don't really understand why I do different drills or sets in training. 1 2 3 4 5 6 7

K. WELL-BEING SCALE

The following set of questions deals with how you feel about yourself and your life. Please remember that there are no right or wrong answers. Circle the number that best describes your present agreement or disagreement with each statement.

Circle the number that best describes your present agreement or disagreement with each statement.	Strongly Disagree	Disagree Somewhat	Disagree Slightly	Agree Slightly	Agree Somewhat	Strongly Agree
1. I tend to be influenced by people with strong opinions.	1	2	3	4	5	6
2. In general, I feel I am in charge of the situation in which I live.	1	2	3	4	5	6
3. I think it is important to have new experiences that challenge how you think about yourself and the world.	1	2	3	4	5	6
4. Maintaining close relationships has been difficult and frustrating for me.	1	2	3	4	5	6
5. I live life one day at a time and don't really think about the future.	1	2	3	4	5	6
6. When I look at the story of my life, I am pleased with how things have turned out.	1	2	3	4	5	6
7. I have confidence in my opinions, even if they are contrary to the general consensus.	1	2	3	4	5	6
8. The demands of everyday life often get me down.	1	2	3	4	5	6
9. For me, life has been a continuous process of learning, changing, and growth.	1	2	3	4	5	6
10. People would describe me as a giving person, willing to share my time with others.	1	2	3	4	5	6
11. Some people wander aimlessly through life, but I am not one of them.	1	2	3	4	5	6
12. I like most aspects of my personality.	1	2	3	4	5	6
13. I judge myself by what I think is important, not by the values of what others think is important.	1	2	3	4	5	6
14. I am quite good at managing the many responsibilities of my daily life.	1	2	3	4	5	6
15. I gave up trying to make big improvements or changes in my life a long time ago.	1	2	3	4	5	6

Circle the number that best describes your present agreement of disagreement with each statement.	Strongly Disagree	Disagree Somewhat	Disagree Slightly	Agree Slightly	Agree Somewhat	Strongly Agree
16. I have not experienced many warm and trusting relationships with others.	1	2	3	4	5	6
17. I sometimes feel as if I've done all there is to do in life.	1	2	3	4	5	6
18. In many ways, I feel disappointed about my achievements in life.	1	2	3	4	5	6

L. VITALITY SCALE

Please respond to each of the following statements by indicating the degree to which the statement is true for you in general in your life. Use the following scale:

Not at all true			Somewhat true			Very true	
1	2	3	4	5	6	7	

In general in my life....

- 1. I feel alive and vital. 1 2 3 4 5 6 7
- 2. I don't feel very energetic. 1 2 3 4 5 6 7
- 3. I am preoccupied with other thoughts. 1 2 3 4 5 6 7
- 4. I have energy and spirit. 1 2 3 4 5 6 7
- 5. I feel alert and awake. 1 2 3 4 5 6 7
- 6. I am easily distracted. 1 2 3 4 5 6 7
- 7. I am drained. 1 2 3 4 5 6 7
- 8. I feel so alive I just want to burst. 1 2 3 4 5 6 7
- 9. I look forward to each new day. 1 2 3 4 5 6 7
- 10. I feel depleted of energy. 1 2 3 4 5 6 7

Please respond to each of the following statements by indicating the degree to which the statement is true for you in general in your training. Use the following scale:

Not at all true		Somewhat true			Very true	
1	2	3	4	5	6	7

In general during my *training*.....

- | | | | | | | | |
|--|---|---|---|---|---|---|---|
| 1. I feel alive and vital. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 2. I don't feel very energetic. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 3. I am preoccupied with other thoughts. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 4. I have energy and spirit. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 5. I feel alert and awake. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 6. I am easily distracted. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 7. I am drained. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 8. I feel so alive I just want to burst. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 9. I look forward to each new workout. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |
| 10. I feel depleted of energy. | 1 | 2 | 3 | 4 | 5 | 6 | 7 |

THANK-YOU VERY MUCH FOR TAKING THE TIME TO FILL OUT OUR QUESTIONNAIRE!!