The coach–athlete relationship: a motivational model

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The aim of this paper is to present a motivational model of the coach–athlete relationship that describes how coaches may influence athletes' motivation. In line with cognitive evaluation theory (Deci and Ryan, 1980, 1985) and the hierarchical model of intrinsic and extrinsic motivation (Vallerand, 1997, 2000), a motivational sequence is proposed where coaches' personal orientation towards coaching, the context within which they operate, and their perceptions of their athletes' behaviour and motivation influence coaches' behaviours. Also, coaches' behaviours in the form of autonomy-supportive behaviours, provision of structure and involvement have a beneficial impact on athletes' needs for autonomy, competence and relatedness, which, in turn, nurture athletes' intrinsic motivation and self-determined types of extrinsic motivation. Here, we first review coaches' autonomy-supportive behaviours. We then describe the psychological processes through which coaching behaviours have a positive influence on athletes' intrinsic and self-determined extrinsic motivation. Finally, we identify social and personality processes that determine coaching behaviours.

Keywords: autonomy-supportive behaviours, interpersonal style, intrinsic motivation, self-determined extrinsic motivation.

Introduction

Few domains are more befitting than sport to induce interest, enjoyment and excitement in its participants. Anyone who regularly engages in sport knows how it feels to be completely immersed in the activity, to bask in the moment and to let intrinsic enjoyment guide one's actions. Many elite athletes have emphasized their love for their sport and the intense sensations they feel when they engage in their activity. Besides the obvious affective consequences of intrinsic motivation, being engaged in sports out of enjoyment and fun has been shown to be an important determinant of sport persistence and performance (Vallerand and Rousseau, 2001).

Silken Laumann, a famous Canadian rower, loved the special combination of grace and power of her sport. To her, the movement of her boat through water felt like flying (Laumann, 2001). Clearly, Laumann was intrinsically motivated towards rowing. However, she also endorsed the values of her sport and believed in the importance of what rowing represented. It is Laumann's dedication to the sport she loved that caught the imagination of people around the world in the 1992 Olympics. Faced with a terrible injury 10 weeks before

the Olympics, she underwent five operations and was back in her rowing shell within a month. She won the bronze medal in Barcelona and became a symbol of courage and determination. Laumann valued what rowing brought to her life: 'What you remember', she said, 'is the process – what you learn about yourself by challenging yourself this way … the honesty that the training demands. It builds character' (Jones, 1996).

Laumann was intrinsically motivated towards rowing but she also had a strong self-determined extrinsic motivation. Deci and Ryan (1985, 2000) proposed that extrinsic motivation can either be self-determined or non-self-determined. To the extent that the extrinsic reasons for doing the activity are internalized and accepted by the person, extrinsic motivation will be self-determined. In such circumstances, the person fully endorses the values underlying his or her sport and volitionally engages in the activity. Conversely, non-self-determined extrinsic motivation occurs when the person feels pressured and obligated to engage in the activity by either external (e.g. one's coach) or internal (e.g. one's feelings of guilt) forces. Research has shown that, like intrinsic motivation, self-determined types of extrinsic motivation are also important determinants of sport persistence and performance (Vallerand and Rousseau, 2001). Not surprisingly, the importance of

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both intrinsic motivation and self-determined extrinsic motivation has been emphasized by sport psychologists (e.g. McAuley and Tammen, 1989; Goudas *et al.*, 1995; Vallerand, 2001). Many have investigated how one can nurture these motivations in athletes (e.g. Ryan *et al.*, 1984; Dwyer, 1995; Beauchamp *et al.*, 1996; Vallerand and Losier, 1999).

Although many factors may impact athletes' intrinsic and self-determined extrinsic motivation, the coach–athlete relationship is one of the most important influences on athletes' motivation and subsequent performance. Laumann and the Canadian rowing team witnessed the tremendous difference coaches can make. After disappointing results in the Seoul Olympics in 1988, Rowing Canada hired British-born rowing coach Mike Spracklen. Spracklen established a new and demanding programme where he made his athletes his central focus and used their feedback to adjust his programme (Wickens, 1999). 'In the '80s (...)', said Worthington, a Canadian rower, 'some rowers were forced to scull and coaches battled each other for athletes. In '92 ... the boats selected themselves. I had never seen anything so fair' (Wickens, 1999). Spracklen was viewed as a mentor who not only taught athletes technical skills, but who also nurtured the person as a whole. Laumann has said of him that he was 'the most selfless man [she has] ever known' (Wickens, 1999), with a rare mix of gentleness and toughness (Blatchford, 1992). He not only 'knows everything about this one thing (rowing) [but] ... his joy is to see his athletes realize a dream' (Wickens, 1999). Four years later in the Barcelona Olympics, Canada's top rowers excelled, bringing home four golds to go with Laumann's celebrated bronze. Andy Higgins, the director of the National

Coaching Institute, saw Spracklen's success as a measure of what a master coach can accomplish: 'Amateur and Olympic coaches bring a vision of personal excellence [and] ... create intrinsic motivation' (Jones, 2002). It is thus not surprising that several authors such as Jowett (2000) have stressed the importance of building an effective coach–athlete relationship, as the quality of this relationship is a crucial determinant of athletes' satisfaction, motivation and improved performance.

The aim of this paper is to present a motivational model of the coach–athlete relationship (see Fig. 1) that describes how coaches may influence their athletes' intrinsic motivation and self-determined types of extrinsic motivation. We first present an overview of the proposed model and then provide a brief review of research on athletes' intrinsic and extrinsic motivation. We then present the various autonomy-supportive behaviours (see Table 1) that have been shown to have an impact on athletes' motivation. Next, we describe the psychological processes through which coaching behaviours influence athletes' motivation, and we identify personality and social processes that determine such behaviours. Finally, we discuss the theoretical and practical implications of the proposed model.

The motivational model of the coach–athlete relationship in a nutshell

We propose a motivational model of the coach–athlete relationship (see Fig. 1) that extends Vallerand and Pelletier's (1985; see also Vallerand *et al.*, 1987) previous motivational model. In line with cognitive
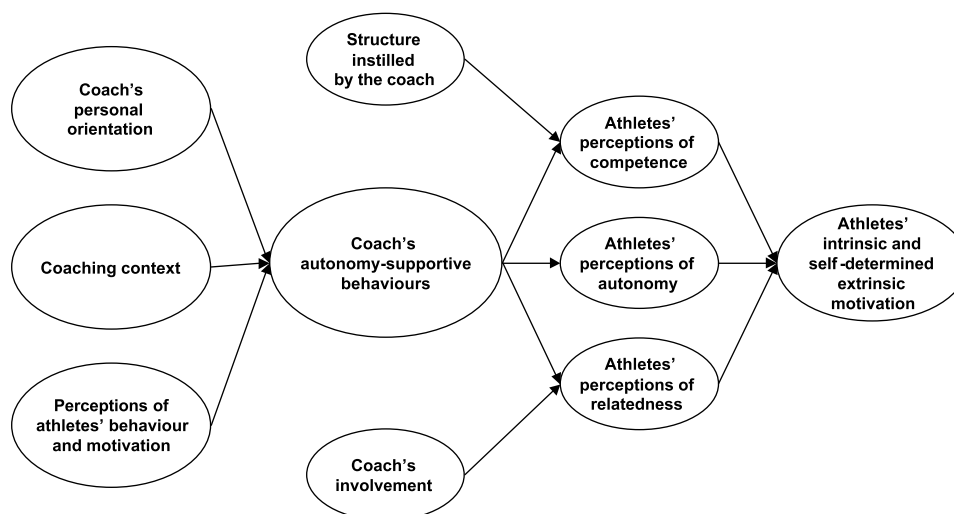

Fig. 1. The motivational model of the coach–athlete relationship.

evaluation theory (Deci and Ryan, 1980, 1985) and the hierarchical model of intrinsic and extrinsic motivation (Vallerand, 1997, 2000, 2001), we propose a motivational sequence where coaches' personal orientation towards coaching, the context within which they operate, and their perceptions of their athletes' behaviour and motivation influence their coaching behaviours. In turn, coaches' behaviours in the form of autonomy-supportive behaviours, provision of structure and involvement have a beneficial impact on athletes' needs for autonomy, competence and relatedness. Finally, the satisfaction of these three psychological needs determines athletes' intrinsic and self-determined extrinsic motivation.

Several reasons urged us to propose the present updated model. First, a more complete understanding of coaches' behaviours must go beyond the dichotomy of controlling versus autonomy-supportive behaviours presented in Vallerand and Pelletier's (1985) previous model. Here, we articulate the meaning of being autonomy supportive and identify the behaviours associated with this type of interpersonal style (see Table 1). Second, we propose that the impact of coaches' behaviours on athletes' intrinsic and self-determined extrinsic motivation is mediated not only by athletes' perceptions of competence, as Vallerand and Pelletier's (1985) model suggested, but also by their perceptions of autonomy and relatedness (Deci and Ryan, 2000). Finally, research conducted in the fields of education and parenting further supports the importance of autonomy-supportive behaviours for the motivation of subordinates (i.e. students and children) and sheds light on possible factors that influence people's autonomy-supportive behaviours. The present review thus integrates this literature. Hence, the present coach–athlete motivational model clarifies the construct of autonomy support, underlines the importance of autonomy, competence and relatedness needs for intrinsic motivation and self-determined extrinsic motivation, and offers additional research avenues, thereby extending significantly Vallerand and Pelletier's (1985) previous motivational model.

Athletes' intrinsic and extrinsic motivation

Intrinsic motivation refers to doing an activity for the pleasure and satisfaction derived from engaging in the activity (Lepper *et al.*, 1973; Deci, 1975; Deci and Ryan, 1985). Because the activity is pleasant, intrinsically motivated athletes will engage in sport with a strong sense of volition. In contrast, extrinsic motivation implies that athletes engage in their sport not out of pleasure but for external outcomes that will result from activity participation. Deci and Ryan, (1980, 1985) proposed a multidimensional perspective of extrinsic motivation, where they differentiated self-determined from non-self-determined types of extrinsic motivation (see Vallerand, 2001, for a review in sport settings). * When extrinsically motivated, the underlying reasons for participation vary greatly in the extent to which they are integrated within the person's value system and sense of self (Deci and Ryan, 2000). Extrinsic motives can either be imposed and coercive or they can be fully endorsed by the individual. As extrinsic reasons become internalized, they become coherent with the person's self and thus become self-determined. The internalization process thus distinguishes between self-determined and non-self-determined types of motivation (Deci and Ryan, 2000), evoking the distinction between internalization and compliance (Kelman, 1961).

Self-determined types of motivation refer to behaviours that are coherent with one's value system (Deci and Ryan, 2000). When experiencing self-determined extrinsic motivation, one volitionally decides to engage in the activity because the activity is important and concordant with one's values (Sheldon and Elliot, 1999). For example, athletes might not find weight training very exciting but volitionally choose to engage in muscular training because they value its marked benefits for improved performance. Conversely, non-self-determined types of motivation refer to behaviours that are imposed on the self by others, the situation or by one's sense of obligation. When non-self-determined, one feels pressured to engage in the activity because the underlying reasons for participation have not been integrated into one's value system and sense of

*Deci and Ryan (1985, 2000) proposed four types of extrinsic motivation, two of which are self-determined in nature. Although we focus on the more global distinction between self-determined and non-self-determined extrinsic motivation, the four types of extrinsic motivation are briefly presented here. *External regulation* refers to behaviours that are not self-determined because they are regulated through external means, such as rewards and external constraints. *Introjected regulation* refers to behaviours that are partly internalized by the person but that remain non-self-determined because contingencies from external control sources have been internalized without having been endorsed by the individual. For example, individuals can behave to rid themselves of their guilt, to lessen their anxiety or to maintain a positive image of themselves. *Identified regulation* refers to behaviours that are performed by choice because the individual judges them as important. They are self-determined because the person has fully endorsed the values underlying these behaviours. Finally, *integrated regulation* refers to behaviours that are so integrated in a person's life that they are part of the person's self and value system. They are highly self-determined because they are concordant with the person's self.

self. Rather, they have been dictated by external or internal forces, such as others' expectations, monetary incentives or one's sense of guilt or obligation. Although the person behaves as prescribed, he or she does not value the emitted behaviours. For example, athletes who fail to see the benefits of weight training may engage in muscular training because they want to avoid any argument with their coach. Such athletes would not endorse the value and importance of their coach's instructions and would not be self-determined in their extrinsic motivation.

Research shows that both intrinsic motivation and self-determined types of extrinsic motivation, as opposed to non-self-determined extrinsic motivation, are necessary ingredients for athletes' optimal functioning (see Vallerand and Rousseau, 2001, for a review). Because being involved in sports entails much training and discipline that are not always enjoyable, athletes cannot rely solely on intrinsic motivation and must, at times, turn to extrinsic forms of motivation to pursue their training. It is thus important for athletes to endorse the value and importance of their training for skill development. In fact, research shows that self-determined extrinsic motivation, as opposed to non-self-determined extrinsic motivation, is related to positive cognitive, affective and behavioural consequences very similar to the ones associated with intrinsic motivation (Vallerand, 1997). More specifically, research has shown that athletes who are intrinsically motivated and self-determined in their behaviours invest more effort (Pelletier *et al*., 1995; Williams and Gill, 1995; Fortier and Grenier, 1999; Li, 1999), report higher levels of concentration (Brière *et al*., 1995; Pelletier *et al*., 1995), are more persistent (Fortier and Grenier, 1999; Pelletier *et al*., 2001, 2003; Sarrazin *et al*., 2001) and perform better (Beauchamp *et al*., 1996; Pelletier *et al*., 2003) than athletes who rely on non-self-determined types of motivation. Consistent findings have also been reported in other domains such as school, work and leisure (see Vallerand, 1997, for a review).

In the context of the coach–athlete relationship, it is thus in athletes' best interest that coaches nurture their athletes' intrinsic motivation and self-determined types of extrinsic motivation. From a developmental perspective, coaches should want to transmit their sport's values and not merely induce behaviours. In line with a large body of empirical evidence, the present theoretical model proposes that autonomy-supportive behaviours, structure and involvement from coaches play a major role in the development of athletes' intrinsic motivation and self-determined types of extrinsic motivation. The next section articulates the meaning of autonomy support (see Table 1) and reviews empirical evidence of the beneficial impact of autonomy-supportive beha-

viours, structure and involvement from coaches on athletes' intrinsic and self-determined extrinsic motivation.

The influence of the coach's behaviours on athletes' motivation: the role of autonomy support, structure and involvement

On autonomy support

Cognitive evaluation theory underscores the importance of autonomy support for intrinsic and self-determined extrinsic motivation (Deci and Ryan, 1980, 1985). Being autonomy supportive (Deci and Ryan, 1985) means that 'an individual in a position of authority (e.g., an instructor [or a coach]) takes the other's (e.g., a student's [or an athlete's]) perspective, acknowledges the other's feelings, and provides the other with pertinent information and opportunities for choice, while minimizing the use of pressures and demands' (Black and Deci, 2000, p. 742). Grolnick and Ryan (1989) further defined autonomy support as parents (or coaches) placing value on self-initiation as well as encouraging choice, independent problem solving and participation in decision making. Autonomy support thus implies that athletes are regarded as individuals deserving self-determination, and not mere pawns that should be controlled to obtain a certain outcome (deCharms, 1968). Conversely, controlling behaviours are defined as pressures to think, feel or behave in specified ways, thereby ignoring the person's needs and feelings (Deci and Ryan, 1985). Controlling behaviours can be seen as placing value on control and employing power-assertive techniques that pressure others to comply (Grolnick and Ryan, 1989). Although research has typically operationalized autonomy-supportive behaviours as providing choice (e.g. Zuckerman *et al*., 1978), the above definition of the construct suggests a more complex set of behaviours. Table 1 presents these behaviours together with supportive evidence. Briefly, autonomy-supportive individuals: (1) provide as much choice as possible within specific limits and rules; (2) provide a rationale for tasks, limits and rules; (3) inquire about and acknowledge others' feelings; (4) allow opportunities to take initiatives and do independent work; (5) provide non-controlling competence feedback; (6) avoid overt control, guilt-inducing criticisms, controlling statements and tangible rewards; and (7) prevent ego-involvement from taking place. These behaviours together represent the autonomy-supportive interpersonal style.

Decades of research now support Deci and Ryan's (1980, 1985) claim that autonomy-supportive behaviours relative to controlling behaviours enhance intrinsic motivation and self-determined extrinsic mo-

tivation (see Deci and Ryan, 2002). All the autonomy-supportive behaviours presented in the present review have been linked repeatedly to enhanced intrinsic and self-determined extrinsic motivation, although typically empirical work has focused on a limited subset of these behaviours concurrently. Supportive evidence for each behaviour listed in Table 1 is now presented in turn.

Providing choice within specific rules and limits

Many studies have hightlighted the importance of choice for athletes' intrinsic motivation. The beneficial impact of choice was first demonstrated in the laboratory by Zuckerman *et al.* (1978). In this prototypical study, college students were asked to engage in an interesting task where they solved SOMA puzzles under one of two experimental conditions: a 'choice' and a 'no-choice' condition. In the 'choice' condition, participants could choose which three of six puzzles they would work on and how much time they would allocate to each one. In the 'no-choice' condition,

participants were simply asked to do the activity. As expected, participants in the 'choice' condition were more intrinsically motivated on behavioural and self-report measures than participants in the 'no-choice' condition. Similar results were found in another study with young children who were led to believe they had a choice about which activity they would engage in (Swann and Pittman, 1977). [In the different studies reviewed in this paper, intrinsic motivation was either assessed using a self-report measure or a behavioural measure (i.e. the free-choice measure; Deci, 1971). This behavioural measure is operationalized as the amount of time spent on the activity during a free-time period, when the experiment is supposedly over.]

These results were replicated in the physical activity context. In one study, female adults enrolled in aerobic dance sessions were randomly assigned to either a 'choice' or a 'no-choice' condition (Dwyer, 1995). In the 'choice' condition, participants were asked about their musical preferences and were then led to believe that the music played during sessions represented their

Table 1. Coaches' autonomy-supportive behaviours

Autonomy-supportive behaviours	Supporting references
● Provide choice within specific rules and limits	Swann and Pittman (1977), Zuckerman *et al.* (1978), Thompson and Wankel (1980), Martin and Dubbert (1982), Oldridge and Jones (1983), Dwyer (1995), Goudas *et al.* (1995), Cordova and Lepper (1996)
● Provide a rationale for tasks and limits	Baumrind (1967), Koestner *et al.* (1984), Freedman and Phillips (1985), Newby (1991), Deci *et al.* (1994), Grusec and Goodnow (1994), Cordova and Lepper (1996)
● Acknowledge the other person's feelings and perspectives	Koestner *et al* (1984), Deci *et al.* (1989, 1994)
● Provide athletes with opportunities for initiative taking and independent work	Grolnick *et al.* (1984), Brawley and Vallerand (1985), Deci *et al.* (1989), Boggiano *et al.* (1993), Boggiano (1998)
● Provide non-controlling competence feedback	Fisher (1978), Pittman (1980), Ryan *et al.* (1983), Vallerand (1983), Vallerand and Reid (1984), Kast and Connor (1988), Deci *et al.* (1999)
● Avoid controlling behaviours – avoid overt control	Hoffman (1970), Lepper and Greene (1975), Pittman *et al.* (1980), Brustad (1988)
– avoid criticisms and controlling statements	Scanlan and Lewthwaite (1986), Deci *et al.* (1993), Barber (1996), Reeve and Deci (1996), Noels *et al.* (1999)
– avoid tangible rewards for interesting tasks	Halliwell (1977), Orlick and Mosher (1978), Thomas and Tennant (1978), McGraw and McCullers (1979), Pittman *et al.* (1982), Amabile *et al.* (1986), Deci *et al.* (1999)
● Prevent ego-involvement in athletes	Ryan (1982), Plant and Ryan (1985), Grolnick and Ryan (1987), Koestner *et al.* (1987), Beauchamp *et al.* (1996)

previous choices. In the 'no-choice' condition, participants listened to the same music but were not asked about their musical preferences. The results showed that, compared with the participants in the 'no-choice' condition, the participants in the 'choice' condition reported greater intrinsic motivation. Furthermore, in a physical education setting, Goudas *et al.* (1995) examined the impact of two different teaching methods, which were alternated over a 10 week period. One method, the differentiated method, allowed students to make a number of choices about their activities (i.e. hurdle, throw, relay, jump). In the other, the direct method, most decisions were made by the teacher. Results using a within-subject design showed that the differentiated teaching method was associated with greater intrinsic motivation than the direct method, thus supporting the beneficial impact of choice on intrinsic motivation. Thus, overall, both laboratory and field studies have confirmed the importance of providing choice for athletes' intrinsic motivation. More research is needed to determine if these findings can be replicated with self-determined extrinsic motivation as the dependent variable.

Providing a rationale for tasks and limits

Along with providing choice, research reveals that to support athletes' autonomy, coaches need to provide a rationale for requested tasks as well as for limits and rules. Such a rationale facilitates the internalization of the underlying reasons for activity engagement. Indeed, when a task seems meaningful, its underlying values are more easily integrated and accepted. For instance, Freedman and Phillips (1985) showed that, when asked to proof-read documents, undergraduate business students who were told that the proof-reading was being done to help book publishers, and were asked to give their opinion on each story, reported higher intrinsic motivation than participants who were told nothing. These studies support the beneficial impact of offering a rationale for a requested task on intrinsic motivation. Similar findings have been obtained in the educational context (Newby, 1991; Cordova and Lepper, 1996). Further research is needed to replicate these experimental findings in a sport setting in those specific circumstances in which the requested training is not intuitively meaningful to athletes.

Research has further suggested that when setting limits and rules, offering a rationale for these regulations protects people's motivation by facilitating their endorsement of these rules (Koestner *et al.*, 1984). Kelman (1961) also suggested that, unlike mere compliance, internalization of values can only occur when the influencing agent possesses credibility. Only when statements are considered truthful and valid will

they be worthy of serious consideration and internalization. In contrast, compliance only requires the influencing agent to be in a position to supply or withhold desired or undesired things (e.g. rewards and punishment). Thus, Baumrind (1967) observed that parents who provided reasons for directives and who encouraged verbal give and take maintained discipline without stimulating rebellion or passivity. Finally, Grusec and Goodnow (1994) advocated that internalization is encouraged when children appraise their parental discipline techniques as appropriate and congruent with their actions rather than excessive or unfair. Experimental studies have shown that, when setting limits, adults who provide a rationale for their regulations do not jeopardize subordinates' intrinsic motivation (Koestner *et al.*, 1984; Deci *et al.*, 1994).

Acknowledging the other person's feelings and perspective

Together with providing a rationale, autonomy-supportive coaches inquire about and acknowledge athletes' feelings about the tasks and rules. This acknowledgement requires perspective taking on the coach's part and shows that athletes are perceived by their coach as individuals with specific needs and feelings, and not mere pawns that should be directed (deCharms, 1968). Two experimental studies have specifically investigated the impact of acknowledging people's feelings along with providing a rationale on their intrinsic motivation in situations of limits setting. In the first study involving a painting task (Koestner *et al.*, 1984), children were given clear guidelines about how to use the paint and how to keep the material clean. These instructions were given in an autonomy-supportive way, a controlling way or they were not mentioned at all (no limits). In the 'autonomy-supportive' condition, the experimenter (1) reflected the children's possible resentment towards these rules and (2) explained the importance of respecting the material (i.e. other kids would use it). Children's feelings were thus acknowledged and reasons for the rules were provided. In the 'controlling' condition, children were told that they had to keep the material clean and were shown how to do so. The results showed significant differences between the 'controlling' condition and the other two conditions, with children in the 'controlling' condition exhibiting less intrinsic motivation. However, no difference was found on intrinsic motivation between the 'no-limit' and the 'autonomy-supportive' conditions. Thus, by providing a rationale for regulations and relating the requested regulations to the kids' inner experiences, the experimenter was able to set rules and limits without jeopardizing intrinsic motivation.

In a second experimental study, Deci *et al.* (1994) replicated the above results. These authors examined

the impact of the three autonomy-supportive behaviours described thus far on motivation during a boring perception task. Participants were asked to detect a light dot on a computer screen under conditions where one, two or three autonomy-supportive behaviours were present. Specifically, the experimenter provided choice about pursuing participation, provided a rationale (i.e. he or she explained how the task could be meaningful for improved acute perception) and acknowledged participants' possible boredom towards the task. The results showed that the more autonomy-supportive behaviours were present, the more people were self-determined in their extrinsic motivation. Although these results should be systematically replicated in the sport setting, they suggest that reasoning and discussion with athletes should accompany rules setting and task requests. Specifically, coaches need to explain their general strategy as well as acknowledge athletes' possible resentment towards certain rules or demands to foster their athletes' intrinsic and self-determined extrinsic motivation.

Providing athletes with opportunities for initiative taking and independent work

Even with the best intentions in mind, coaches who provide support when it is not needed and who coerce their athletes into obeying their instructions are perceived to be controlling. They jeopardize their athletes' motivation by restricting their opportunities to take initiatives and to be creative. This type of behaviour can be termed 'controlling support'. Autonomy-supportive coaches, instead, provide their athletes with opportunities for initiative taking and independent work. Research in the educational domain has documented the importance of allowing people opportunities for initiative taking within a supportive relationship. For instance, Boggiano (1998) showed the beneficial impact of opportunities for self-initiated behaviours on intrinsic motivation in the classroom. Specifically, children who felt that they could decide to some extent what to do in class, how to use their extra time and how to go about doing their work, reported higher intrinsic motivation towards learning than children who felt that their teacher was making all the decisions. These results were also extended in a laboratory study in which participants were asked to solve analytic reasoning problems in either an 'autonomy-supportive' or a 'controlling' condition (Boggiano *et al.*, 1993). In the 'autonomy-supportive' condition, the teacher suggested strategies that would be useful to solve the problems but the students were encouraged to use the strategy of their choice. In the 'controlling' condition, the teacher told students that the strategies they learned would ensure better performance and that

they should use them. The results showed that students in the 'autonomy-supportive' condition performed better on the analytic problems than students who were in the 'controlling' condition. The detrimental effect of controlling support on motivation has also been demonstrated during parent–child interactions (e.g. Grolnick *et al.*, 1984).

The detrimental impact of controlling support on people's motivation was successfully replicated in an exercise setting. Brawley and Vallerand (1985) assessed the impact of fitness leaders' controlling support on college students' intrinsic motivation. After an initial contact with their new fitness programme, participants were assigned to either an autonomy-supportive or controlling leader. Autonomy-supportive behaviours were operationalized as providing opportunities for choice and initiatives, while controlling behaviours were operationalized as telling participants what exercises to do, as well as how and when to do them. The results showed that after four sessions with their respective leader, participants who interacted with the autonomy-supportive leader reported higher intrinsic motivation and expressed stronger intentions of continuing the programme than participants who interacted with a controlling leader.

Taken as a whole, these results suggest that when authority figures (e.g. coaches) coerce their subordinates (e.g. athletes) into following their instructions, their controlling behaviour restricts their subordinates' opportunity to be autonomous and, in turn, undermines their subordinates' intrinsic motivation. Although additional research should replicate these findings with self-determined extrinsic motivation as a dependent variable, the aforementioned results suggest that within a coach–athlete supportive relationship, athletes should be allowed opportunities for self-initiated behaviour.

Providing non-controlling competence feedback

Positive competence feedback is also an important determinant of athletes' intrinsic motivation. Indeed, positive feedback relative to no feedback has a positive impact on the intrinsic motivation of young adults as indicated by both self-report and free-choice measures (Vallerand, 1983; Vallerand and Reid, 1984; Deci *et al.*, 1999). However, research suggests that providing verbal feedback is a more complex endeavour than it might appear (Henderlong and Lepper, 2002). Indeed, the way verbal feedback is presented is an important moderator of its impact on intrinsic motivation. It has been argued that positive feedback has two functional aspects: an informational and a controlling aspect (Ryan, 1982). While the informational aspect provides the person with information about his or her compe-

tence, the controlling aspect incites the person into re-emitting the behaviour. Research shows that when the informational aspect is salient and the controlling aspect is relatively non-salient (Fisher, 1978), positive feedback enhances people's perceptions of competence, which, in turn, has a positive impact on their intrinsic motivation (Vallerand and Reid, 1984). However, when the controlling aspect is salient, positive feedback will undermine intrinsic motivation. Studies using positive but controlling locutions like 'You did very well on this puzzle, just as you should' (Ryan *et al.*, 1983), 'If you keep it up I'll be able to use your data' (Pittman *et al.*, 1980) and 'Keep it up. I would like you to do even better on the next game' (Kast and Connor, 1988), all led to a decrease in intrinsic motivation. These locutions clearly conveyed the experimenters' expectations and desires about participants' behaviour. Positive feedback was thus used as a form of control and consequently undermined intrinsic motivation. In a review on the impact of praise, Henderlong and Lepper (2002) further suggested that positive feedback may have a negative impact on intrinsic motivation inasmuch as it targets uncontrollable features of performance or conveys low or unrealistic expectations. Overall, research suggests that positive feedback may hinder or facilitate athletes' intrinsic motivation but to be beneficial it needs to (1) promote perceptions of autonomy and competence, (2) target behaviours that are under the athletes' control and (3) convey high but realistic expectations.

Avoiding controlling behaviours

As it is the case for competence feedback, many behaviours can be controlling and restrain athletes' autonomy. As stated previously, controlling behaviours are pressures to think and behave in a certain way (Deci and Ryan, 1985). These constraints induce a change in the perceived locus of causality, from internal to external, reducing the person's sense of self-determination (Ryan, 1982; Deci and Ryan, 1985). Controlling behaviours create situations in which failure to behave in a certain way represents a significant threat to, for example, the coach–athlete relationship or the athlete's self-esteem (Ryan, 1982). In such a controlling environment, the stake of not emitting requested behaviours becomes so high that athletes can no longer choose to behave otherwise. Controlling behaviours can take many forms, such as overt control, controlling statements and guilt-inducing criticisms, tangible rewards and encouragement of athletes' ego-involvement. Controlling behaviours, which should be avoided, are now reviewed.

Overt physical control undermines athletes' autonomy, which, in turn, has a negative effect on intrinsic and self-determined extrinsic motivation. Power-assertive techniques such as the use and threat of physical power as well as allocation and withdrawal of material resources or privileges have been related to external forms of self-regulation, where compliance is obtained but without internalization of underlying values (Hoffman, 1970). Surveillance has also been shown to undermine intrinsic motivation (Lepper and Greene, 1975). Pittman *et al.* (1980) reported a linear decrease in participants' interest as surveillance increased. These results have been replicated in the sport context. In one study, Brustad (1988) found that young basketball players who experienced greater amounts of parental pressure also reported less enjoyment, supporting the detrimental impact of overt pressure on intrinsic motivation.

Psychological control in the form of guilt-inducing criticisms and controlling statements is also quite controlling. Psychological control makes love and acceptance contingent on athletes' thoughts and behaviours. When coaches rely on psychological control, athletes' genuine thoughts and feelings become a threat to the emotional bond within the coach–athlete relationship such that athletes must ignore their own values and relinquish their autonomy on behalf of the relationship. In the parenting literature, any form of manipulation and exploitation of the parent–child bond (e.g. love-withdrawal and guilt induction), as well as negative, affect-laden criticisms, have been found to be detrimental for children's well-being (Barber, 1996). Because it represents an insidious form of control, psychological control inhibits and intrudes upon psychological development, jeopardizing intrinsic and self-determined extrinsic motivation.

The negative impact of psychological control was tested in an experimental study in which mothers and their 6- or 7-year-old child were invited to the laboratory and asked to play with Legos and Lincoln Logs (Deci *et al.*, 1993). Mothers' controlling vocalizations were coded, which included orders, statements containing the words 'should' or 'have to', criticisms, interruptions directing the child's attention, and other comparable vocalizations. The results showed that controlling vocalizations were negatively related to the children's intrinsic motivation. Noels *et al.* (1999) replicated these findings in the educational context. Finally, one study involving young male wrestlers showed that these findings also apply to the sport context (Scanlan and Lewthwaite, 1986). Athletes who reported low intrinsic motivation also perceived their coaches to be less supportive and more controlling, which was operationalized as the coach getting upset and making them nervous. Overall, these results thus support the negative impact of psychological control on intrinsic motivation.

Although it is generally accepted that overt control, controlling statements and guilt-inducing criticisms will undermine autonomy and intrinsic motivation, there is much more debate regarding the impact of tangible rewards on intrinsic motivation (Eisenberger and Cameron, 1996; Deci *et al.*, 1999). Although rewards were once highly recommended and widely used (e.g. Smith and Smoll, 1996), research has shown that rewards as reinforcements do not necessarily have positive outcomes on intrinsic motivation. In fact, an extensive meta-analysis involving more than 100 studies has shown that under certain conditions rewards can have a negative impact on intrinsic motivation (Deci *et al.*, 1999). It has been argued that tangible rewards, just like verbal feedback, have an informational aspect in the form of competence feedback and a controlling aspect. For tangible rewards, the competence feedback needs to be highly salient (Fisher, 1978) for them to enhance people's intrinsic motivation (Ryan *et al.*, 1983; Harackiewicz *et al.*, 1984). Still, Deci and co-workers' (1999) meta-analysis shows that, in general, tangible rewards undermine intrinsic motivation towards an interesting task. Specifically, rewards decrease intrinsic motivation when provided for engaging and completing a task, as well as for reaching performance standards. Detrimental effects of expected rewards for task engagement were especially apparent for children. Finally, although unexpected rewards did not undermine or increase intrinsic motivation, their utility appears doubtful at best, since this type of reward could in time become expected and thereupon undermine intrinsic motivation when it is granted (Deci *et al.*, 1999).

Although many studies included in Deci and co-workers' (1999) meta-analysis were conducted in non-sport settings, research in the sport domain yielded concordant results. For instance, Orlick and Mosher (1978) showed that children who received a trophy for engagement in a balancing task (the stabilometer) displayed less intrinsic motivation from pre- to post-test compared with children who received no reward. Other research conducted in sports settings obtained similar results (Halliwell, 1977; Thomas and Tennant, 1978). It has been argued that offering rewards for task engagement sends the message that the task is not interesting in itself and thus focuses people on extrinsic reasons for activity engagement (Lepper *et al.*, 1973, 1982). Furthermore, rewards limit people's focus on those specific behaviours required to obtain the reward (Pittman *et al.*, 1982). When focused on external aspects of the task, people lose their holistic approach to the activity and the flexibility necessary to be creative (Amabile *et al.*, 1986) and to make optimal choices in a given set of circumstances (McGraw and McCullers, 1979). In the sport context, rewards being difficult to

avoid, coaches need to maximize rewards' informational aspect in terms of personal achievement and team growth. By the same token, maximizing the informational aspect of rewards will minimize ego-involvement in athletes, which can also be detrimental to intrinsic motivation (Ryan, 1982). We now turn to this issue as a final controlling behaviour.

In ego-oriented environments, athletes' self-esteem is constantly on the line, driving people to try to self-enhance (Ryan, 1982). Behavioural outcomes become so important for people's integrity that they are no longer free to choose a goal that differs from the one dictated by the coach or the situation. As a result, people's sense of self-determination is greatly reduced. Several studies have investigated the detrimental impact of ego-involvement on intrinsic motivation. In these studies, ego-involvement was typically induced by presenting the experimental task as a test of intelligence or abilities where people had to prove themselves as opposed to a game. Results from these studies showed that ego-involvement undermined intrinsic motivation as indicated by both self-reports and behavioural measures (Ryan, 1982; Plant and Ryan, 1985; Koestner *et al.*, 1987). As was demonstrated with tangible rewards, ego-involvement narrows people's focus on the outcome and limits their behaviours to those leading directly to this outcome (Grolnick and Ryan, 1987), thereby interfering with a more global approach (McGraw, 1978).

Research conducted in the sport domain has supported the negative impact of ego-involvement on intrinsic motivation. In line with other research (e.g. Nicholls, 1989), ego-involvement has been defined as athletes' tendency to evaluate their performance by comparing themselves with others as opposed to self-referenced standards. Duda *et al.* (1995) showed that athletes who reported being ego-involved in their sport also reported lower intrinsic motivation. Beauchamp *et al.* (1996) corroborated these findings in a study in which they examined the impact of different types of instructions on the motivation of novice golfers in a 14 week golf programme. A first condition emphasized self-set goals rather than imposed goals, focusing on self-improvement rather than on peer comparisons. The other condition made no attempt to minimize ego-involvement in participants, focusing solely on physical skills. The results showed that participants in the first condition reported higher intrinsic motivation and performed better than participants in the second condition who only received physical skill training. These findings suggest the potential benefits of minimizing ego-involvement for athletes' performance.

In summary, being autonomy supportive entails a complex set of behaviours that goes beyond simply

providing choice. Autonomy-supportive coaches provide choice, but also a rationale for requested tasks, rules and limits, acknowledge athletes' feelings and perspective, provide opportunities for initiative taking and transmit non-controlling competence feedback. Finally, autonomy-supportive coaches avoid controlling behaviours in the form of physical and psychological control, tangible rewards and ego-involvement induction. These autonomy-supportive behaviours, in turn, have been shown repeatedly to facilitate athletes' motivation. Taken as a whole, this body of research strongly suggests that autonomy-supportive behaviours are essential for the nurturing of athletes' intrinsic and self-determined extrinsic motivation, hence supporting this aspect of the present motivational model of the coach–athlete relationship.

Perceptions of relatedness, competence and autonomy as mediators of the impact of autonomy-supportive behaviours on intrinsic and self-determined extrinsic motivation

In line with previous theoretical frameworks (Deci and Ryan, 1985, 2000; Vallerand, 1997, 2000, 2001), the present motivational model of the coach–athlete relationship further proposes that coaches' behaviours influence athletes' motivation through their direct impact on athletes' three basic psychological needs (Deci and Ryan, 1985, 2000). To achieve an optimal psychological functioning, we as human beings need to feel connected to our social environment (Harlow, 1958; Bowlby, 1988; Baumeister and Leary, 1995), competent in what we undertake (White, 1959; Harter, 1978; Connell and Wellborn, 1991) and autonomous in our actions (deCharms, 1968). In this context, the perception of autonomy is meant as the perception that one's action is in accordance with one's values as opposed to being controlled by external forces or internal pressures (Shapiro, 1981; Deci and Ryan, 1987). Being autonomous does not equate with being independent, since it is possible for someone to depend on a provider and still be autonomous in one's actions (Memmi, 1984). For example, athletes who value their coach's competence and experience highly can choose to let the coach make the strategic decisions and still feel self-determined in the process. It is proposed that social factors such as coaches' behaviours affect athletes' motivation through their impact on perceptions of autonomy, competence and relatedness (Deci and Ryan, 1985, 2000; Vallerand, 1997, 2000). It should be noted that, in line with Smith and Smoll's (1996) propositions, the ultimate effect of coaching behaviours will depend on how athletes interpret these behaviours. Hence, to the extent that athletes perceive

that their coach allows them to feel competent, connected with others and autonomous in their behaviours, they will experience heightened intrinsic motivation because their basic psychological needs will be satisfied.

Much research now supports the importance of the three basic human needs for intrinsic and self-determined extrinsic motivation. In the sport setting, the results of many studies support the direct effect of perceived autonomy (Hellstedt, 1990), competence (Roberts *et al.*, 1981; Vallerand, 1983; Vallerand and Reid, 1984, 1988; Scanlan and Lewthwaite, 1986; Vallerand and Blais, 1986) and relatedness (Losier and Vallerand, 1995) on intrinsic motivation. Furthermore, experimental studies have shown that perceived competence and autonomy mediate the impact of social agents on motivation. In one experimental study of physical activity, perceived competence was shown to mediate the impact of performance feedback on intrinsic motivation (Vallerand and Reid, 1984). Participants engaged in a balancing task (the stabilometer) and were randomly assigned to positive, negative or no-performance feedback conditions. After receiving feedback, the participants were asked to engage in the activity for a second time. Intrinsic motivation and perceived competence were assessed between the pre-test and the feedback and again following the post-test. The results showed that positive performance feedback increased intrinsic motivation from pre- to post-test and that perceived competence mediated this effect. The reverse effect was found for negative feedback. These results were replicated in another laboratory study involving a physical activity (Vallerand and Reid, 1988). More recently, Reeve and Deci (1996) showed that not only perceptions of competence but also those of autonomy mediate the impact of the interpersonal context of competition on intrinsic motivation. Finally, field studies conducted in the educational domain have reported similar findings for both perceived autonomy (Boggiano *et al.*, 1992) and competence (Deci *et al.*, 1981a).

Such research has successfully been applied to the sport setting. For instance, Blanchard and Vallerand (1996) observed the mediating effect of perceived need satisfaction on the relationship between coaches' behaviours and athletes' motivation. Using self-reports, these researchers examined if basketball players' perceptions of relatedness, competence and autonomy mediated the impact of their coach's interpersonal style and their team cohesion on their motivation towards basketball. Path analyses showed that the impact of both the coach's style and team cohesion on athletes' motivation was mediated by perceptions of the three fundamental needs. Specifically, the more athletes perceived their coach to be autonomy supportive and

their team cohesive, the more they felt competent, autonomous and connected with their team-mates and, in turn, the more they played basketball out of intrinsic and self-determined extrinsic motivation.

Taken together, these results suggest that social agents' autonomy-supportive behaviours have a positive impact on perceived autonomy, competence and relatedness. Although the impact of autonomy-supportive behaviours on perceived autonomy is intuitive, the impact on perceived competence and relatedness does not appear to be straightforward. Yet, being autonomy supportive, by definition, implies that athletes are encouraged to make choices and take initiatives, while criticisms, pressure and control are minimized. These behaviours convey a message of trust in athletes' abilities, thus influencing athletes' perceptions of competence. Perceptions of competence are also influenced directly by the non-controlling competence feedback provided by autonomy-supportive coaches. In addition, autonomy-supportive coaches consider athletes' perspective and feelings and underscore the importance of requested tasks, rules and limits. By doing so, coaches communicate their involvement as well as their respect for their athletes, thus influencing athletes' perceptions of relatedness.

On structure and involvement

We have shown thus far that autonomy-supportive behaviours have a direct influence on perceptions of the three basic human needs, which, in turn, impact intrinsic and self-determined extrinsic motivation. Indeed, autonomy-supportive behaviours encourage self-initiated behaviours as well as convey messages of trust and respect, which facilitate needs of competence and relatedness. In line with Deci and Ryan (1985; see also Grolnick and Ryan, 1989; Connell and Wellborn, 1991), we further propose that coaching behaviours that provide structure and show involvement in athletes' welfare represent important determinants of athletes' perceptions of competence and relatedness. Without coaches' instructions and structure, athletes lack the necessary information and experience to progress in their discipline. Without their coach's support and involvement, athletes cannot feel connected. When all three psychological needs are considered simultaneously, it becomes apparent that autonomy-supportive behaviours can only be beneficial for people's motivation when they accompany structure and support. In fact, during an experimental study, Anderson et al. (1976) showed that adults' lack of involvement was worse than adults' controlling behaviours for children's intrinsic motivation. As such, an autonomy-supportive style cannot be confused with a permissive or *laissez-faire* interpersonal style. Parents

with a permissive interpersonal style have been described as not being demanding of their children, not requiring them to exhibit mature behaviour, allowing total self-regulation and avoiding confrontation (Baumrind, 1991). In contrast, having an autonomy-supportive style is more akin to an authoritative style of parenting (Baumrind, 1991), characterized by parents who monitor and set clear limits for their children's conduct (i.e. they provide structure). These parents are assertive and highly involved (i.e. they provide support), but not intrusive or restrictive (i.e. they are non-controlling).

Empirical evidence obtained in the educational domain supports the importance of providing structure to foster people's need for competence. It has been argued that setting limits and guidelines allows children to interact competently with their environment (Grolnick and Ryan, 1989). In structured interviews using home visit sequence analysis (Bishop, 1951), Baumrind (1967) observed that children of self-effacing parents who asked little of their children were lacking in self-control and self-reliance. Finally, an experimental study showed that providing choice has more beneficial consequences when people have the necessary competence to adequately make a decision (Iyengar and Lepper, 2000). Although these findings should be replicated in the sport domain, they nevertheless suggest that structure is essential to sustain athletes' perceptions of competence. In light of these results, autonomy-supportive coaches also need to provide structure to their athletes to foster athletes' need for competence.

The importance of involvement for intrinsic motivation was demonstrated empirically in the sport domain. In a study conducted with young male wrestlers, Scanlan and Lewthwaite (1986) found that favourable adult involvement patterns predicted athletes' high levels of enjoyment. Similar results were found with high-school girls (Brown et al., 1989), where parents' encouragement and support predicted girls' participation in sports and physical activity. Similarly, Ommundsen and Vaglum (1991) found that coaches' and parents' positive emotional involvement was significantly related to enjoyment for adolescent Norwegian soccer players. Finally, using a correlational design, Pelletier et al. (1995) showed that the more athletes perceived their coaches to be caring and involved, the more they were self-determined in their motivation towards their sport. Other research has replicated these findings in sports (Woolger and Power, 1993; Power and Woolger, 1994; Weiss and Hayashi, 1995; Gaumond and Fortier, 2000) as well as in educational settings (e.g. Schaefer, 1959; Becker, 1964; Grolnick and Ryan, 1989; Ryan et al., 1994; Kochanska and Aksan, 1995).

Taken together, these results highlight the importance of structure and involvement for athletes' intrinsic motivation and self-determined extrinsic motivation. Thus, coaches who are highly involved and who provide structure along with autonomy support, facilitate their athletes' intrinsic motivation and self-determined extrinsic motivation. Further research is needed to demonstrate specifically the mediating role of athletes' perceived competence and relatedness on the impact of structure and involvement on athletes' motivation.

Personality, contextual and social influences on coaching behaviours

The empirical evidence reviewed thus far has shown that coaches can nurture athletes' intrinsic and self-determined extrinsic motivation by being autonomy supportive while providing structure and being involved. Although empirical evidence supports the beneficial impact of autonomy-supportive behaviours on intrinsic motivation, controlling behaviours can readily be emitted by well-intentioned coaches. Even coaches who have their athletes' best interests at heart often become controlling, ironically jeopardizing the very motivation they wish to increase. In the present motivational model of the coach–athlete relationship, three determinants of autonomy-supportive coaching behaviours are proposed: the coach's personal orientation, the coaching context and athletes' behaviours and motivation. These determinants are now discussed in turn.

The coach's personal orientation: when coaching behaviours become internalized

As the present review suggests, autonomy-supportive behaviours are manifold and, as a set, represent what is implied by an autonomy-supportive interpersonal style. Researchers who investigated autonomy support at a personality level have defined the autonomy-supportive style as an attitudinal standpoint where subordinates' (e.g. athletes') need for autonomy is respected and valued (Reeve *et al.*, 1999). Autonomy-supportive coaches favour an athlete-centred approach. Conversely, a controlling style is usually defined as using control and valuing respect of authority (Reeve *et al.*, 1999). Controlling coaches target a way of thinking and behaving and offer extrinsic incentives and rewards for any progress towards this goal. From this perspective, controlling coaches favour a coach-centred approach.

In studies conducted at the personality level, researchers have differentiated people's personal orientation as either autonomy supportive or controlling and have subsequently investigated the relationships be-

tween these different interpersonal styles and others' intrinsic and self-determined extrinsic motivation. In the educational domain, teachers' interpersonal styles have usually been identified through their opinions and reactions to different hypothetical scenarios using the Problems in Schools Questionnaire (Deci *et al.*, 1981a,b). It has been hypothesized that beliefs about how one should respond to different situations reflect which behaviours are internalized and, by the same token, which interpersonal style the person relies on. In one study using the Problems in Schools Questionnaire, Deci *et al.* (1981b) asked teachers to rate the acceptability of teachers' reactions to different vignettes where a child faced problem-solving situations. Teachers' reactions varied across vignettes in the amount of autonomy that was granted to the child. The results showed that the more teachers had an orientation where they encouraged children to take initiatives and try to solve problems on their own in the classroom, the more their students were intrinsically motivated and perceived themselves to be cognitively competent. Thus, teachers who valued an autonomy-supportive style had a positive impact on their students' intrinsic motivation and perceptions of competence. This effect was found to occur within the first couple of months and it remained stable over the course of the academic year (Deci *et al.*, 1981b).

In an effort to verify the validity of the Problems in Schools Questionnaire, Reeve *et al.* (1999) first identified teachers who either had an autonomy-supportive or a controlling style. A condition-blind observer then coded these teachers' classroom behaviours. In line with previous findings and the present review, the results showed that teachers with an autonomy-supportive style solicited students' opinion more, spent more time listening to their students, emitted more perspective-taking statements, were less inclined to give solutions and, finally, gave less directives and commands than teachers with a controlling style. In short, teachers with an autonomy-supportive style provided opportunities for choice and independent work, inquired about and acknowledged people's feelings, and avoided controlling behaviours.

A similar line of research has supported the positive impact of an autonomy-supportive style on athletes' intrinsic and self-determined extrinsic motivation in the sport domain. These studies differentiated controlling from autonomy-supportive coaches through athletes' perceptions of their coach's interpersonal style. In one such study, Pelletier and Vallerand (1989) presented teenage swimmers with descriptions of three hypothetical swimming coaches. These descriptions differed in the amount of autonomy-supportive behaviours that were described. Swimmers were then asked what their own motivation would be if they had each of these

coaches. As expected, participants believed that they would be most intrinsically motivated if their coach had an autonomy-supportive style as opposed to a controlling style. Using self-reports, three additional studies showed that the more athletes perceived their own coach to be autonomy supportive, the more they were intrinsically motivated and self-determined in their extrinsic motivation towards their sport (Pelletier *et al.*, 1995, 2001; Gaumond and Fortier, 2000). These results have also been replicated in educational (Black and Deci, 2000) and health (Williams *et al.*, 1996) settings.

Taken as a whole, the present review shows that an autonomy-supportive style is beneficial for people's intrinsic and self-determined extrinsic motivation. The results are also highly consistent across domains. It is thus alarming to observe that so many teachers and coaches persist in emitting controlling behaviours. In the educational domain, research has shown that: (1) teachers use more controlling motivational strategies (e.g. rewards and punishment) than autonomy-supportive ones (e.g. emphasizing relevance of the task; Newby, 1991); (2) teachers find autonomy-supportive strategies to be largely new and unfamiliar (Skinner and Belmont, 1993); (3) parents, teachers and undergraduates alike view incentives and rewards as optimal motivational strategies (Boggiano *et al.*, 1987; Boggiano, 1998); and (4) many adults believe that the larger the reward, the more efficient it will be as a motivational strategy (Boggiano *et al.*, 1987). Furthermore, these beliefs have also been shown to be highly resistant to conflicting evidence in an experimental setting (Boggiano *et al.*, 1987).

Although these results are alarming, they are not surprising given that our culture expects authority figures to behave in a strong and influential way (Reeve, 2002). In fact, Boggiano *et al.* (1993) found that controlling teachers were perceived by participants to be more competent than autonomy-supportive teachers. This was true in spite of the fact that students who were taught by autonomy-supportive teachers performed better than students who were taught by controlling teachers. The results of another study revealed that controlling teachers were also perceived to be more interested, enthusiastic and competent by their students (Flink *et al.*, 1990). It is highly probable that these misconceptions about the usefulness of controlling behaviours also prevail in the sport domain, leading well-intentioned coaches to become controlling and undermine the very motivation they wish to foster in athletes.

Although an autonomy-supportive style has been shown repeatedly to foster athletes' intrinsic and self-determined extrinsic motivation, Western culture still promotes a controlling style of teaching and coaching.

It is fortunate, however, that research further suggests that the supervisors' interpersonal style is malleable with training and that an autonomy-supportive style can be taught (deCharms, 1976; Deci *et al.*, 1989; Williams and Deci, 1996; Reeve, 1998). In the sport domain, as part of a year-long multimodal intervention, Pelletier *et al.* (1986) elaborated and implemented autonomy-supportive workshops to help coaches of a swimming club in Quebec to be more autonomy supportive with their athletes. In the year after the intervention, swimmers' intrinsic motivation and dropout rates were compared with those for the previous year and with the motivation and dropout rates of a control group. The results showed a decrease of dropout rates in the intervention group from 36% to 5%, while dropout rates of the control group remained at 35%. Furthermore, swimmers in the intervention group were more intrinsically motivated than they were a year before. They also reported higher intrinsic motivation than the control group. Although these results should be replicated with a larger sample of athletes, they nevertheless suggest the impressive potential of similar interventions in the sport context.

The coaching context

Contextual factors can also influence coaching behaviours. Even if coaches strongly believe in autonomy-supportive behaviours, their actual behaviours are nevertheless shaped by the coaching context within which they operate. Sports settings are generally highly competitive and, like athletes, coaches feel the pressure of bringing a medal to their school, city or organization. Unfortunately, research has shown that when the immediate context (1) pressures people to perform or (2) creates high levels of stress, people are more likely to emit controlling behaviours. As such, the coaching context constitutes an important determinant of coaching behaviours.

Pressure to perform is especially apparent when coaches are told that their own interests are tied to their athletes' performance. More often than not, coaches' jobs are directly dependent on the team's performance and achievements. In such circumstances, people become ego-involved in their work and, in turn, emit controlling behaviours (Deci *et al.*, 1982). In the educational domain, Deci *et al.* (1982) examined the impact of performance pressure on teachers' controlling behaviours. In this experimental study, participants were asked to teach students how to solve different puzzles. Half of these teachers were told that it was their responsibility to ensure that their students performed up to standards. The other half did not receive any special instruction regarding performance standards. It was hypothesized that

teachers who felt responsible for their students' performance would feel pressured to perform and thus become more ego-involved. This state of high ego-involvement would then lead teachers to focus on the outcome, forget their students' inner experiences and become more controlling. During teacher–student interactions, teachers' controlling vocalizations were coded as indicated by words like 'should' and 'must', controlling directives, criticisms, deadline statements and leading statements. As predicted, teachers in the 'performance standards' condition were rated as providing more controlling verbalizations to their students than teachers in the 'no standard' condition. Flink *et al.* (1990) reported similar results with fourth-grade teachers. Importantly, in this field study, the children were also found to perform better when taught by teachers in the 'no standard' condition than by teachers in the 'performance standards' condition.

Deci *et al.* (1982) reported an additional interesting finding. No difference was found between pressured teachers and other teachers with respect to their own reported enjoyment, effectiveness, rated interest in the task and willingness to take part in a similar study. Furthermore, Flink *et al.* (1990) found that teachers in the 'pressure' condition were perceived by their students as not only more controlling, but also as more interested, enthusiastic and competent. These results suggest that although being pressured to perform leads teachers to be more controlling, this experience is not especially unpleasant for teachers. Grolnick and Apostoleris (2002) suggested that being controlling might actually alleviate the pressure one feels when ego-involved. By being controlling, ego-involved teachers (or parents) can transform the evaluation they feel into behaviours that are directed towards their students (or children). Unfortunately, because having a controlling interpersonal style is not irritating for oneself but only detrimental to others, it becomes much harder to monitor and impede one's controlling behaviours. Smith and Smoll (1996) showed that coaches have limited awareness of how frequently they engage in particular forms of behaviour, as indicated by low and non-significant correlations between coaches' self-reports and observers' ratings. In fact, children's ratings of their coach on these same measures were much more accurate, as indicated by higher positive correlations between childrens' and observers' ratings. It thus seems that behavioural change would first require an increased awareness of how one is currently behaving and a better knowledge of the circumstances under which one is likely to become controlling. Future research is needed to test these hypotheses in the sport context.

Stress is yet another type of pressure that insidiously leads to controlling behaviours, although its underlying processes differ from those of pressure to perform. While pressure to perform leads coaches to focus on the outcome, making them ignore their athletes' inner experiences, stress depletes people's psychological resources, leaving them little time and resources to take others' perspective into consideration and to be attuned to their athletes' thoughts and feelings. An experimental study supported the negative impact of stress on autonomy-supportive behaviours (Zussman, 1980). In this study, parents were asked to interact naturally with their children while they played. Parents were observed in two conditions: one in which no stress was present and another in which stress was induced by giving an additional task (i.e. solving anagrams) to parents while they watched their children. In the 'high stress' condition, parents were more critical, restrictive and punitive towards toddlers, supporting the negative impact of stress on autonomy-supportive behaviours. Another study using parental interviews assessed the impact of recent stressful events on parental control over their 13- to 18-year-old adolescents (Grolnick *et al.*, 1996). Grolnick and co-workers found that in highly stressful environments, more controlling and power-assertive parental techniques were used. Other studies examining parent–child interactions replicated these findings, with higher stress being related to a more controlling and intrusive parenting style (Piotrkowski and Katz, 1983; Conger *et al.*, 1984; Repetti, 1987, 1994; Daniels and Moos, 1988; Grossman *et al.*, 1988; Pianta and Egeland, 1990; Jennings *et al.*, 1991). These results support the negative impact of stressful environments on autonomy-supportive behaviours. Being autonomy supportive appears to require the use of psychological resources that might not be available under high stress. Although the negative effect of stress has been investigated mostly in the educational domain, there are no reasons to believe that these results would be different in the sport context.

Athletes' behaviour and motivation

A final source of influence on coaches' behaviours comes from athletes' behaviours and motivation. The coach–athlete relationship is a reciprocal process where both coach and athlete influence one another (Jowett and Ntoumanis, 2001). Coaches do not behave in the exact same way with all athletes. Instead, they react to each athlete's perceived and actual motivation and behaviours. Athletes' individual differences thus greatly influence coaches' behaviours.

Undeniably, some athletes are more difficult to deal with than others. From a very early age, individual differences in temperament can be observed (Breitmayer and Ricciuti, 1988). Empirical evidence in the developmental literature suggests that difficult children

have more controlling parents than easier offspring. One study investigated the impact of adolescents' temperament on their parents' autonomy-supportive behaviours (Grolnick *et al.*, 1996). The results showed that mothers who believed their teenagers to be more difficult were more controlling than mothers who thought their adolescents to be easier. Another study investigated mothers' different reactions towards conduct-disordered boys and normal boys, where each mother interacted with their own and with someone else's child (Anderson *et al.*, 1986). The results showed that conduct-disordered boys elicited more negative responses than their normal counterparts from their own mother as well as from mothers of normal boys. Finally, a study investigating toddlers with a difficult temperament showed that these 2-year-olds were more resistant to maternal attempts of managing their behaviours. In turn, toddlers' resistance was more likely to be met with coercive responses from their mother (Lee and Bates, 1985). Taken together, these findings suggest that temperaments differ across children and more difficult children are more likely to elicit controlling behaviours. Unfortunately, as the present review suggests, it is likely that these controlling reactions worsen any initial misconduct by hindering the child's need for autonomy, perpetuating an endless fight for control.

Although the impact of athletes' temperaments on coaches' behaviours has not been tested specifically in the sport setting, the impact of coaches' expectations and beliefs about athletes' behaviours on coaches' own behaviours has been investigated. The results showed that coaches' expectations about athletes' performance, independent of athletes' actual potential, are sufficient to lead coaches to behave differently with their athletes (Horn, 1984). This effect was also found in physical education classes (Martinek, 1981; Martinek and Karper, 1984). Coaches' expectations about their athletes are often confirmed because coaches act differently and according to their expectations towards athletes, thereby creating the very behaviour in athletes that they had initially perceived (Snyder, 1984). Research has shown that these pervasive effects can occur even if the initial perception is false (e.g. Snyder *et al.*, 1977; Rosenthal and Rubin, 1978; Snyder, 1984). For example, if coaches believe certain athletes will perform poorly, they are likely to send messages of mistrust, emphasize mistakes and ignore the successes of these athletes. These behaviours, in turn, will weaken athletes' confidence in their ability, thwarting their need for competence and, in turn, their motivation. Furthermore, athletes might become so preoccupied with their coaches' opinion that they will be distracted from the task. Distraction and lack of motivation may eventually lead athletes to perform poorly.

In light of these results, it should be expected that if coaches believe that their athletes cannot be trusted to behave appropriately, they might adopt a controlling interpersonal style, which, in turn, would lower athletes' intrinsic and self-determined extrinsic motivation. These controlling techniques would, ironically, foster compliance and discourage athletes to be more autonomous, thus confirming coaches' initial beliefs. Indeed, two experimental studies have shown that subordinates' motivations influence supervisors' subsequent behaviours (Pelletier and Vallerand, 1996). In both hypothetical (Study 1) and actual situations (Study 2), Pelletier and Vallerand (1996) showed that the more supervisors believed that their subordinates displayed intrinsic motivation, the more they became autonomy supportive. In contrast, the more supervisors believed that their subordinates were incapable of taking initiatives and putting in extra effort, the more they became controlling in an attempt to obtain the desirable behaviours.

Another study in the sport domain specifically supported Pelletier and Vallerand's (1996) findings (Courneya and McAuley, 1991). Using an experimental design, undergraduates were asked to rate the effectiveness of motivational strategies in enhancing children's interest in sports and physical activity. Participants were randomly assigned to one of two conditions. In the 'high interest' condition, participants were presented with hypothetical scenarios in which children were described as being initially interested in the activities. In the 'low interest' condition, children were depicted as initially not liking the activities. The results showed that controlling motivational strategies were believed to be more effective in maximizing children's interest when children exhibited low interest than when children were described as highly interested. Similar results were also obtained in the educational domain under actual conditions (Skinner and Belmont, 1993; Trouilloud and Sarrazin, 2001). Yet, people's tendency to become more controlling towards less intrinsically motivated people is self-defeating and counterproductive at best. Indeed, it has been shown that in a 'controlling' condition people who are not intrinsically motivated exhibit greater decrements in performance than their intrinsically motivated counterparts (Boggiano *et al.*, 1988, 1992). A vicious circle is thus observed where, on the one hand, coaches use controlling strategies that paradoxically lower the very motivation they wish to increase and, on the other hand, athletes emit behaviours that generate the very controlling strategies they wish to counter.

In summary, the present motivational model of the coach–athlete relationship proposes three determinants of coaching behaviours: coaches' personal orientation, the coaching context, and athletes' behaviour and

motivation. The more coaches have internalized a controlling orientation, the more their coaching context is controlling, and the more their athletes are difficult to manage and display non-self-determined types of motivation, the more coaches are inclined to rely on controlling behaviours, which undermine athletes' intrinsic and self-determined motivation.

Discussion

The motivational model of the coach–athlete relationship presented here entails a motivational sequence where coaches' behaviours influence athletes' intrinsic and self-determined extrinsic motivation through their impact on athletes' perceptions of autonomy, competence and relatedness (see Fig. 1). As such, the present model underscores the role of coaches in providing autonomy support, structure and involvement to athletes. An autonomy-supportive style implies that coaches provide opportunities for choices, emphasize task relevance, explain reasons underlying rules and limits, acknowledge athletes' feelings and perspective, give athletes opportunities to take initiatives, provide non-controlling competence feedback, avoid using controlling motivational strategies, and prevent ego-involvement in their athletes. In support of our motivational model of the coach–athlete relationship, the empirical evidence reviewed shows that coaches who support their athletes' autonomy, provide structure and are highly involved create an optimal environment for the satisfaction of their athletes' needs of autonomy, competence and relatedness. These three psychological needs, in turn, foster the development and maintenance of athletes' intrinsic and self-determined extrinsic motivation as well as adaptive outcomes.

Finally, the model presented here identifies three determinants of coaches' autonomy-supportive behaviours – namely, the coach's personal orientation, the coaching context, and athletes' behaviour and motivation. Although empirical findings clearly warn us against the use of controlling motivational strategies, many factors may lead coaches to use these self-defeating strategies. First, many coaches adopt a controlling interpersonal style because they believe, falsely, that it will bring about better results. Indeed, Western culture has been highly influenced by the behavioural approach to motivation, which advocates rewards and punishments as the most efficient motivational strategies. Second, research has shown that the coaching context can have a great impact on behavioural tendencies. Empirical studies mainly conducted in the educational domain have shown that when pressured towards a certain outcome and when highly stressed, people have a tendency to emit controlling behaviours. Third, research has shown that coaches may have a tendency to be more controlling with athletes who appear more difficult and non-self-determined in their motivation.

From a theoretical perspective, the present model offers at least four important contributions to the motivation literature. First, the present review extends cognitive evaluation theory (Deci and Ryan, 1985, 2000) and the hierarchical model of intrinsic and extrinsic motivation (Vallerand, 1997, 2000) in their effort to identify which behaviours are specifically implied by the autonomy-supportive interpersonal style (see Table 1). The present paper is the first attempt to document explicitly how different bodies of research have operationalized the autonomy-supportive style. By this endeavour, the theoretical construct of autonomy support is depicted as a more comprehensive and concrete construct and is thus more readily accessible for applied intervention and training.

Second, in line with cognitive evaluation theory (Deci and Ryan, 1985, 2000) and the hierarchical model of intrinsic and extrinsic motivation (Vallerand, 1997, 2000), the present model underscores the importance of the perceptions of all three psychological needs of autonomy, competence and relatedness for people's intrinsic motivation. By adopting a perspective where all three needs are considered, the autonomy-supportive style can no longer be confused with a permissive interpersonal style (Baumrind, 1991) because a permissive style thwarts both competence and relatedness needs. To feel competent, people need structure in the form of guidelines and rules. To feel connected, people need to feel that people in their social environment are involved and supportive. Coaches who would allow their athletes total freedom of behaviour without structure or involvement would display a permissive style of coaching, not an autonomy-supportive style. Such a permissive style would prevent athletes from benefiting from their coaches' experience and would send messages of indifference to athletes. Such athletes would feel autonomous but they would also suffer greatly in terms of competence and relatedness. As the present review suggests, to satisfy all three psychological needs, autonomy-supportive behaviours need to be conveyed within a specific structure and accompanied by high levels of involvement.

Third, the present paper constitutes an attempt to unite different determinants of the autonomy-supportive style (i.e. coaches' personal orientation, the coaching context, and athletes' behaviour and motivation). By doing so, we hope to facilitate the development of research programmes aimed at understanding how one can foster an autonomy-supportive style of coaching for the benefits of athletes.

Finally, although suggestions for future research have been offered throughout the paper, the present model offers the following additional research avenues. First, although results obtained in the educational domain strongly support the present motivational model, additional empirical evidence is still needed to further sustain some of the model's components in the context of sports. For example, the impact of the coaching context on coaches' autonomy-supportive behaviours has not yet been investigated in the sport domain. Second, the present motivational model has never been tested in its entirety. Research is thus needed to test all aspects of the model in a given study simultaneously. Third, the present review has identified important obstacles to adopting an autonomy-supportive style: (1) there are false beliefs about the efficiency of controlling motivational strategies; (2) controlling behaviours, although detrimental to others, are not unpleasant for the person emitting these behaviours; (3) people are not necessarily aware of their own controlling behaviours; and (4) athletes who are the most vulnerable to the detrimental effects of controlling behaviours (e.g. non-self-determined athletes) are also the ones who most likely elicit such coaching behaviours. These obstacles have never been explicitly investigated in the sport domain and thus constitute important research avenues for understanding better how people can persist in relying on a self-defeating controlling style of coaching.

From an applied perspective, the present review offers several potential intervention targets. Available research has already shown that the autonomy-supportive style can be taught (e.g. Pelletier *et al.*, 1986; Reeve, 1998). This review has identified the various autonomy-supportive coaching behaviours to be targeted in such intervention programmes. Furthermore, we have identified the needs of autonomy, competence and relatedness as important nutriments for athletes' motivation. As such, new directions are offered for the development of diagnostic tools aimed at evaluating athletes' intrinsic and self-determined extrinsic motivation. Indeed, by inquiring about athletes' perceptions of autonomy, competence and relatedness, one can recognize those athletes whose motivation is jeopardized. Finally, the present review underscores how the coaching context may influence coaching behaviours. Although the negative impact of a pressured and stressful context on people's interpersonal style has mostly been supported in the educational domain, this line of research strongly suggests that any interventions aimed at minimizing coaches' pressure and stress would, in turn, foster an autonomy-supportive coaching style and, ultimately, nurture athletes' intrinsic and self-determined extrinsic motivation.

Conclusion

The research reviewed here clearly shows that autonomy-supportive behaviours have a beneficial impact on athletes' intrinsic and self-determined extrinsic motivation, which are important determinants of performance and persistence. Paradoxically, it would appear that in Western culture athletes constantly adjust and thwart their need for autonomy to satisfy their coach's desires and expectations. Athletes have reached outstanding performance by sometimes adapting their behaviours to their coaches' needs. Yet, the present review highlights the potentials for enhanced motivation and improved performance if coaches would, instead, adapt their own behaviours to fulfil their athletes' needs of autonomy, competence and relatedness. It is hoped that the present review, and the model it proposes, will help coaches achieve this objective.

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