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An Integrative Analysis of Intrinsic and Extrinsic Motivation in Sport

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The purpose of this paper is to propose a motivational sequence that integrates much of the intrinsic and extrinsic motivation literature in sport. The proposed motivational sequence: "Social Factors → Psychological Mediators → Types of Motivation → Consequences" is in line with self-determination theory (Deci & Ryan, 1985, 1991) and the Hierarchical model of intrinsic and extrinsic motivation (Vallerand, 1997). Using the sequence, it is first shown that the motivational impact of social factors inherent in sport, such as competition/cooperation, success/failure, and coaches' behaviors toward athletes, takes place through their influence on athletes' perceptions of autonomy, competence, and relatedness (i.e., the psychological mediators). Second, recent results are provided with respect to a new multidimensional measure (i.e., the Sport Motivation Scale; Pelletier et al., 1995) to assess the different types of athletes' motives. Third, we review findings that suggest that such sport motives lead to various consequences for the athlete (e.g.,

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affect, persistence, and sportspersonship). Finally, the paper concludes with suggestions for future research.

Athletes face many great challenges in their quest for excellence in sport. Along the road toward peak performances, they face (among other things) numerous hours of training, rehabilitation from injuries, the stress and anxiety of competition, and the agony of defeat. Rising up to those challenges requires not only physical endurance and talent, but psychological strength as well. It is thus not surprising that elite athletes and coaches alike underscore the importance of motivation in sport (Gould, 1982). Research reveals that athletes may be motivated out of two main types of motivation (Vallerand, Deci, & Ryan, 1987). On the one hand, they may be intrinsically motivated—that is they may engage in sport activities out of pleasure and fun. On the other hand, they may display extrinsic motivation—that is they may partake in sport in order to derive tangible benefits such as material (e.g., trophies) or social (e.g., prestige) rewards or to avoid punishment. We propose that the type of motivation that underlies athletes' behavior is determined in part by various social factors present in the sport environment (Ryan, Vallerand, & Deci, 1984; Vallerand et al., 1987). Further, athletes' motivation has a profound impact on the type of experiences that they will derive from their sport engagement (Vallerand & Perreault, in press).

The purpose of this paper is to propose an integrative analysis of intrinsic and extrinsic motivation in sport. Based on self-determination theory (Deci & Ryan, 1985, 1991) and Vallerand's (1997) Hierarchical model of intrinsic and extrinsic motivation, we propose a motivational sequence that serves to integrate much of the literature on the determinants and consequences of intrinsic and extrinsic motivation in sport. First, it is seen that social factors such as success and failure represent potent determinants of sport motivation. It will be seen, however, that the effects of these variables are mediated by athletes' perceptions of competence, autonomy, and relatedness. Second, a multidimensional perspective on sport motives is presented along with results of a recent measure of athletes' motivation, namely the Sport Motivation Scale (Brière et al., 1995; Pelletier et al., 1995). Third, we present a review of research findings concerning certain motivational consequences in sport. Finally, we conclude the paper by suggesting future research avenues which should further our understanding on the role and implications of motivation for athletes. Before we begin reviewing these research developments, we briefly present self-determination theory (Deci & Ryan, 1985, 1991; Deci, Vallerand, Pelletier, & Ryan, 1991; Ryan, 1995) which serves as the theoretical framework underlying much of the empirical work to be reviewed below.

Motivation in Sport: The Self-Determination Paradigm

Because motivation refers to the why of behavior (McClelland, 1985; Weiner, 1992), the reasons for doing an activity are generally perceived

as indicative of the person's motivation toward a given activity. There may be different types of reasons for which athletes take part in sport, such as to seek new sensations, to attempt to master complex skills, or to conquer challenges, to name a few. In that respect, athletes are seeking certain goals (e.g., having fun, improving their performance, etc.) through their sport involvement. According to self-determination theory (Deci & Ryan, 1985, 1991), these goals are fueled by psychological needs. Three psychological needs are especially crucial in the energization of human action: the needs for autonomy, competence, and relatedness (Deci, 1992; Deci & Ryan, 1991; Ryan, 1995). The need for autonomy refers to the desire to be self-initiating in the regulation of one's actions (deCharms, 1968). On the other hand, the need for competence implies that individuals want to interact effectively with their environment (Harter, 1978; White, 1959). Finally, the need for relatedness pertains to the desire to feel connected with significant others (Richer & Vallerand, in press; Ryan, 1993).

The concept of needs, as intended here, refers to elements deemed necessary to facilitate the growth and actualization of human potentiality (Ryan, 1993). This approach to the concept of needs is useful on both conceptual and applied grounds (see Deci & Ryan, 1985, 1991; Deci et al., 1991). From a conceptual perspective, it is posited that since the needs of autonomy, competence, and relatedness are important for personal growth and actualization, individuals are intrinsically motivated to move toward situations and experiences that will satisfy these basic needs. Of applied interest is the fact that the theory allows researchers to identify the social conditions most likely to facilitate motivation. Indeed, conditions that are perceived by individuals as providing opportunities to satisfy their needs of autonomy, competence, and relatedness will also facilitate their motivation. An important literature has evolved from this perspective and supports propositions from the theory in sport settings (Frederick & Ryan, 1995; Ryan, Vallerand, & Deci, 1984; Vallerand, Deci, & Ryan, 1987; Vallerand & Reid, 1990).

According to self-determination theory (Deci & Ryan, 1985, 1991), the individual's perceptions of autonomy, competence, and relatedness represent psychological mediators of the impact of social events on his or her motivation. Thus, social factors that are generally perceived as supportive of one's feelings of autonomy, competence, and relatedness will have a positive impact on one's motivation. Similarly, events that bear negative influences on individuals' perceptions of autonomy, competence, and relatedness will likely undermine their motivation. Furthermore, because social conditions vary greatly, and also because individuals perceived them differently, people's reasons for doing an activity will vary accordingly. Consequently, as we will see in a later section of the paper, different types of motivation may emerge from one's experiences with a given activity and its social context.

Self-determination theory (Deci & Ryan, 1985) also proposes that the resulting types of motivation will subsequently lead to various positive

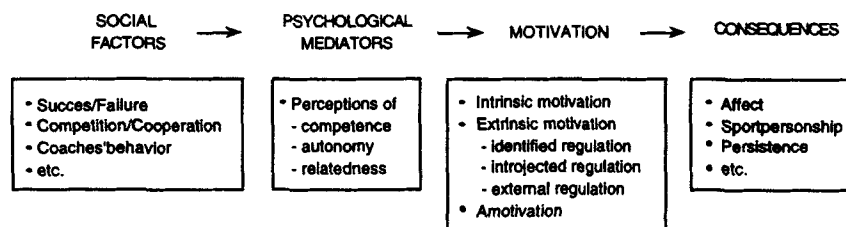


Figure 1. The proposed motivational sequence involving social factors, psychological mediators, motivation, and consequences.

or negative consequences for the person, depending on the nature of his or her involvement in the activity. To the extent that the reasons for taking part in the activity are intrinsic, or at least express one's choice, positive consequences should follow. However, negative consequences are expected to ensue from non self-determined motives (e.g., feeling pressured to behave in certain ways).

Incorporating elements from the self-determination perspective in the Hierarchical model of intrinsic and extrinsic motivation, Vallerand (1997) recently proposed the following motivational sequence: "Social Factors → Psychological Mediators → Types of Motivation → Consequences." Figure 1 depicts the model. It can be seen that social factors (e.g., success/failure, competition/cooperation, coaches' feedback, etc.) influence athletes' perceptions of competence, autonomy, and relatedness (i.e., the psychological mediators) which in turn determine their motivation. Intrinsic motivation and extrinsic motivation then lead to a host of consequences (e.g., affect, sportpersonship orientations, and persistence in sport). In the following three sections, we use this model to present findings from relevant research on motivation in sport. As will be seen, this model is useful as it allows us to review existing sport research on both the determinants and consequences of intrinsic and extrinsic motivation. This review is not meant to be exhaustive but rather illustrative of the heuristic value of the integrative value of the motivational sequence. In the first section, we present results that suggest that the motivational effects of social events inherent in sport, such as success/failure, competition/cooperation, and the coaches' behavior toward athletes, take place through the influence of such variables on athletes' perceptions of autonomy, competence, and relatedness. In the second section, we present a recent multidimensional perspective of athletes' motives, as well as results on a measure that can be used to capture such a perspective. In the third section, we review findings concerning different consequences resulting from this multidimensional approach to sport motivation.

Social Factors as Determinants of Sport Motivation

Much research in social psychology reveals that how other people behave toward us can have a tremendous impact on our thoughts, feelings,

and behaviors (e.g., Gilbert, Fiske, & Lindzey, 1998). We believe that this conclusion also applies to motivation: the social environment can have potent effects on one's motivation. Research in the sport domain has focused on social psychological factors that are likely to have an important impact on athletes' motivation. In this section, we focus on three such factors: success/failure, competition/cooperation, and the coach's behavior toward the athlete. As will be made clear, in line with self-determination theory (Deci & Ryan, 1985, 1991) and the Hierarchical model of intrinsic and extrinsic motivation (Vallerand, 1997), we believe that social events influence athletes' motivation through their perceptions of autonomy, competence, and relatedness (i.e., the psychological mediators).

Success and Failure

As indicated in Figure 1, outcome (i.e., success and failure) represents an important social factor in sport. Self-determination theory (Deci & Ryan, 1985, 1991) makes a relatively clear statement concerning the relationship between perceptions of competence and motivation. Situations that provide failure feedback should generate feelings of incompetence and undermine one's intrinsic motivation for the given activity. However, success feedback should increase one's feelings of competence and subsequent intrinsic motivation. In general, empirical evidence supports this analysis: experiencing failure is conducive to lower levels of intrinsic motivation, while success promotes intrinsic motivation (e.g., Bandura & Schunk, 1981). Research in sport and physical activity also supports this hypothesis (e.g., Thill & Mouanda, 1990; Vallerand, 1983a).

Although these studies demonstrate the influence of success and failure on intrinsic motivation, they do not tell us whether perceived competence acts as a mediator of the impact of performance feedback on intrinsic motivation, as hypothesized by self-determination theory. Vallerand and Reid (1984) tested this important hypothesis. Using self-report scales, baseline measures (pre-test) of perceptions of competence and intrinsic motivation were obtained from physical education male undergraduates, after they had performed on an interesting motor task (i.e., the stabilometer). Three weeks later (post-test), these participants did the task again, while this time being randomly assigned to one of three experimental conditions: positive, negative, and no verbal feedback. Perceptions of competence and intrinsic motivation were assessed again. Results from analyses of variance replicated the positive and negative effects of success and failure, respectively, on intrinsic motivation and perceived competence. In order to test the mediating role of perceptions of competence with respect to the impact of social feedback on motivation, a path analysis was performed. The results revealed that the effects of verbal feedback on intrinsic motivation were indeed mediated by perceptions of competence. In fact, perceived competence accounted for much of the changes in intrinsic motivation.

The findings from the Vallerand and Reid (1984) study have been replicated and extended in laboratory (Vallerand & Reid, 1988), physical activity (Whitehead & Corbin, 1991), and sport settings (Losier & Vallerand, 1994). For instance, using a cross-lagged panel design over the course of an ice hockey season, Losier and Vallerand (1994) demonstrated that while motivation at Time 1 (T1) did not predict perceived competence at Time 2 (T2), perceived competence at T1 was a significant predictor of motivation at T2. These findings provide additional evidence on the causal link between perceived competence and intrinsic motivation.

The results reviewed above on the mediating effects of competence are also consistent with findings from research based on theoretical perspectives other than self-determination theory. For instance, research based on self-efficacy theory (Bandura, 1986) generally supports the hypothesis that the belief of being able to achieve success or desired outcomes (similar to perceptions of competence) is positively related to motivation and performance in sport (see Feltz, 1992, for a review). Similarly, research based on Nicholls' (1984) theory of achievement motivation generally shows that perceived competence is conducive to higher levels of intrinsic motivation, effort, and skill acquisition in sport (e.g., Duda, Chi, Newton, Walling, & Catley, 1995; Theeboom, De Knop, & Weiss, 1995; Williams & Gill, 1995).

However, these other theoretical formulations are incomplete in explaining the effects of success and failure on motivation because they neglect two other important mediators: perceptions of autonomy and relatedness. A recent study (Blanchard & Vallerand, 1996a; Study 2) has attempted to assess the role of these other mediators. In this study, basketball players participating in a tournament assessed their personal and team performance following a game. In addition, their motivation and perceptions of competence, autonomy, and relatedness were also assessed. Results from a path analysis revealed that the effects of personal and team outcomes on self-determined motivation (acting out of choice and pleasure) were significantly and completely mediated not only by perceptions of competence, but also by those of autonomy and relatedness. In fact, perceptions of autonomy and relatedness had slightly more important effects on motivation than perceptions of competence. Similar findings have also been obtained in fitness settings (Cadorette, Blanchard, & Vallerand, 1996). It thus appears that limiting ourselves to perceptions of competence as proposed by other theories, even following success and failure, may lead to an incomplete view of the individual in the sport context. This is because athletes and fitness participants are not only trying to achieve competence, but also to have a choice in their actions (i.e., autonomy) and to be connected to others in a meaningful way (i.e., relatedness).

Competition and Cooperation

Another social factor that can affect intrinsic motivation is competition. Competition is an integral part of sport. It allows athletes to measure their

abilities against those of others in a particular activity. Consequently, in the context of competitive sport, the focus is often on beating the opponent and not on the task itself. Theorists such as Ames (1992), Duda (1989), Dweck (1986), and Nicholls (1984) would suggest that intrinsic motivation is undermined when there is a change of focus away from the activity (task involvement), and toward a more self-pride focus (ego-involving). Similarly, Deci and Ryan (1985) would argue that doing an activity for instrumental reasons (an external locus of causality), rather than for the activity itself (an internal locus of causality), should result in a loss of perceived autonomy and consequently should undermine intrinsic motivation toward the activity. Initial research has shown that putting the emphasis on competition or on "beating an opponent" undermines intrinsic motivation (Deci, Betley, Kahle, Abrams, & Porac, 1981) and forestall creativity (Amabile, 1983) on a cognitive task. Do the same findings apply to sport?

Vallerand, Gauvin, and Halliwell (1986a) tried to answer this question by using a controlled experimental design. In this laboratory study, the experimenters asked 10 to 12 year old children to engage in a balancing task (i.e., the stabilometer) under one of two conditions. In the control condition, participants simply tried to do their best at this novel task. However, in the experimental condition, participants were instructed to try to beat the other participants. After performing the activity, all participants were observed for a 5 minute free-choice period, in which they could either continue doing the balancing task or do something else. The amount of time spent on the stabilometer during this free-choice period served as the behavioral measure of intrinsic motivation. The results revealed that participants in the competitive situation (i.e., the experimental condition) spent less than half the amount of time on the activity during the free-choice period ($M = 1$ minute) than participants in the control condition ($M = 2.5$ minutes). Thus, competition undermined children's intrinsic motivation toward the motor task.

The results from research in this area suggest that competitive sport structures that emphasize beating an opponent or "winning at all cost" typically hinder athletes' intrinsic motivation (see Deci & Olson, 1989, for a review). This is in keeping with self-determination theory (Deci & Ryan, 1985, 1991) which posits that a sport context in which external elements to the activity are emphasized (e.g., beating an opponent or winning a prize) will negatively affect athletes' perceptions of autonomy (i.e., the locus of causality becomes external rather than internal) and subsequently undermine their intrinsic motivation toward the activity. However, the social context of competition might influence athletes' motivation not only through changes in their perceptions of autonomy, but through their perceptions of competence as well. Indeed, as seen previously, winning or losing a competition (experiencing a success or a failure) can represent another potent social determinant of motivation. Research in sport reveals that winners (e.g., Vallerand, Gauvin, & Halliwell, 1986b; Weinberg & Ragan, 1979) and those who subjectively feel that

they have done well in competition (McAuley & Tammen, 1989) display higher levels of intrinsic motivation than losers and those who feel that they have not done well.

It would thus appear that the effects of competition may take place through two processes: the perceived autonomy process (the locus of causality process) and the perceived competence process. Which one will be in operation is determined by the functional significance of the event (Deci & Ryan, 1985, 1991). Competition contains elements pertaining to both processes. When the perceived competence process is more salient, athletes' intrinsic motivation will be affected by the informational message (e.g., objective and/or subjective success/failure). On the other hand, when athletes perceive the locus of causality process (or the perceived autonomy process) as being more salient, their intrinsic motivation will be influenced accordingly. Thus, if they feel that they are obliged to compete (that they are pressured into competing), their intrinsic motivation will be undermined. However, if they feel that they choicefully engage in competition (as many athletes do), then their intrinsic motivation may not be undermined and may even be enhanced (see Reeve & Deci, 1996, for results supporting both types of processes).

Although the findings from the sport studies reveal that competition can undermine intrinsic motivation in sport, it should be underscored that such effects may not generalize to all situations and participants (see Gill, 1993, to that effect). For instance, research reveals that high achievers do not display a loss of intrinsic motivation even under highly competitive conditions (see Harackiewicz, 1989; Harackiewicz, Manderlink, & Sansone, 1992). Similarly, it has been found that individuals competing in less competitive structures such as intramural sports do not report the intrinsic motivation losses reported by athletes engaged in highly competitive structures such as intercollegiate sports (Fortier, Vallerand, Brière, & Provencher, 1995). In line with the above, research by Kavussanu and Roberts (1996) in beginning tennis classes has shown that the prevalent motivational climate has an important impact on participants' intrinsic motivation. When the climate is highly competitive (trying to "beat" other athletes), intrinsic motivation is diminished. However, when the climate is mastery oriented (trying to do as best as one can), then intrinsic motivation is preserved and perhaps even enhanced. Thus, the key element in competitive events may be to encourage participants to focus on the mastery dimensions of the activity and not on the extrinsic (winning) dimensions (Burton, 1989).

If competing in order to beat an opponent can have negative consequences for intrinsic motivation, what would happen in the opposite scenario, that is, in a cooperative situation? Much research in psychology in general reveals that cooperation leads to more positive effects than competition on a host of variables including learning, performance, satisfaction, and moral development (Argyle, 1991; Johnson et al., 1981). That is essentially the findings that seem to emerge from research in physical

activity settings (e.g., Kleiber & Roberts, 1981; Orlick, 1981). However, what are the effects of cooperation on intrinsic motivation?

In an attempt to answer this question, Vallerand, Hamel, and Daoust (1998; Study 1) had participants engaged in a cognitive task under one of three experimental conditions: competitive, cooperative, and individualistic. In the competitive situation, participants faced an opponent (i.e., the experimenter's accomplice), which they had to beat. On the other hand, the cooperative situation required participants to work side-by-side with another person (i.e., the experimenter's accomplice). In the control situation, participants worked individually on the task at hand (the "NINA" puzzles). The results clearly showed that participants in the cooperative situation displayed higher levels of intrinsic motivation (using the free-choice period measure) than those in the competitive condition. Participants in the individualistic (control) condition displayed an intermediate level of intrinsic motivation. Additional research is needed in order to better understand the effects of cooperation on intrinsic motivation toward sport-related activities and the psychological processes involved in such effects. Such research may be particularly relevant for interdependent sports such as football, basketball, and rugby.

In sum, it appears that both competition and cooperation represent important social factors that can profoundly affect athletes' intrinsic motivation. Furthermore, it also appears that processes proposed by self-determination theory provide a cogent explanation of such effects. Future research along these lines would appear promising.

The Coach's Behavior

Perhaps the most important interpersonal relationship in sport is that of the coach and the athlete. This relationship is particularly relevant to athletes' performance (Horn & Carron, 1985), satisfaction (Challadurai, 1993), and even persistence in sport (Pelletier, Fortier, Vallerand, & Brière, 1998). We believe that the coach's behavior can have a crucial impact on athletes' motivation as well. For instance, results from validation studies of the Interpersonal Relationships in Sport Scale (Losier & Vallerand, 1995) revealed that the more athletes perceive their relationship with the coach in a positive light (i.e., higher perceptions of relatedness), the more intrinsically motivated they are toward their sport.

Research conducted by Deci, Ryan, and their colleagues (see Deci & Ryan, 1987; Deci et al., 1991, for reviews) reveals that individuals in supervisory position (e.g., teacher, parents, coaches) can affect subordinates' intrinsic motivation through their behavior toward their subordinates. Thus, behaviors of coaches can be perceived in light of two interacting styles: a controlling style, and an autonomy-supportive style. Coaches that use a controlling style will interact with their athletes in a highly-directive manner (e.g., "You do the play when and how I tell you to do it or you stay on the bench"). On the other hand, coaches that are autonomy supportive will leave room for players' input (e.g., "We have

practiced three different plays, and during the game, it is your call to see which one is the most appropriate for the situation”).

Research in education and other fields reveals that supervisors who adopt an autonomy-supportive style instill higher levels of intrinsic motivation in their subordinates than those who favor a controlling style (e.g., Deci et al., 1981). Similar findings have been observed in the sport domain as well. For instance, Pelletier, Fortier, Vallerand, and Brière (1998) found that university swimmers were less intrinsically motivated with coaches who used a controlling approach than with those favoring autonomy-supportive coaches. Other research in various sports (Pelletier et al., 1995), and physical education settings (Goudas, Biddle, Fox, & Underwood, 1995), has replicated these initial findings.

From the present standpoint, the coach's behavior should have important effects on athletes' motivation because it will likely influence their perceptions of competence, autonomy, and relatedness. A recent study by Blanchard and Vallerand (1996b) has tested this hypothesis. In this study, the authors had basketball players complete scales assessing their contextual (or general) perceptions of competence, autonomy, and relatedness in basketball, as well as the Sport Motivation Scale (Pelletier et al., 1995). In addition, athletes completed a scale (adapted from Deci et al., 1981) to assess their perceptions of their coach's interacting style. A path analysis revealed that the more the coach was perceived as autonomy-supportive by his or her athletes, the more competent, autonomous, and related to the team they felt. In turn, athletes' perceptions of competence, autonomy, and relatedness were positively related to their motivation.

The above findings thus suggest that the coach who interacts with athletes in a supportive manner will facilitate their motivation in a positive way. But what factors lead a coach to interact in a controlling vs. autonomy-supportive fashion with athletes? Vallerand and Pelletier (1985, cited in Vallerand et al., 1987) proposed that one key factor deals with the coach's perceptions of an athlete's motivation. This last aspect is related to the concept of behavioral confirmation (or self-fulfilling prophecy), and deserves special consideration. According to the behavioral confirmation paradigm (Snyder, 1984), our initial perceptions of an individual can lead us (unknowingly) to modify our behavior toward that person so as to confirm our initial perceptions of that given individual. This phenomenon would appear to exist in sport. For instance, a coach's initial perceptions of an athlete who does not appear motivated may lead that coach to become controlling toward the athlete, presumably in order to lead the latter to be optimally motivated. Conversely, an athlete perceived as being intrinsically motivated by the coach might draw autonomy support from the latter (indeed why intervene when all is well?). Thus, how an athlete is initially perceived by the coach may modify the behavior of the latter, so as to eventually confirm his or her early perceptions of the athlete.

A recent laboratory study by Pelletier and Vallerand (1996) supports this analysis. In this study, participants who played the role of teachers had to help out student-participants perform a complex task, which con-

sisted in assembling jigsaw puzzles in order to form different geometric figures. The experiment included three conditions where teacher-participants were led to believe that student-participants were either: (a) intrinsically motivated toward the task, (b) extrinsically motivated toward the task, or (c) teacher-participants were not told anything with respect to the student-participants. (In reality, student-participants had been randomly assigned to conditions). The results showed that teachers who thought that they were dealing with intrinsically motivated students became more autonomy supportive than controlling (as assessed by both teachers and students). Conversely, in the condition where teachers thought that they were dealing with extrinsically-motivated students, they became more controlling than autonomy supportive. Teachers in the control condition were just as controlling as they were autonomy-supportive in their interaction with students. More important, the results demonstrated the presence of a behavioral confirmation effect, as teachers' interacting styles had the expected effect on their students' motivation. Students in the intrinsic-motivation belief condition showed higher levels of intrinsic motivation than those in the extrinsic motivation belief condition. Students in the control group displayed a moderate amount of intrinsic motivation. In Snyder's (1984) words, "beliefs had created reality."

Results of the Pelletier and Vallerand study suggest that coaches' initial perceptions of their athletes' motivation can lead them to subsequently modify their behaviors in line with their perceptions in order to confirm their hypotheses. Such behavior may then induce in athletes the very motivation that the coach had initially perceived. While the behavioral confirmation paradigm is indeed important, it should be nevertheless underscored that situations in sport are typically more complex than the one studied in the Pelletier and Vallerand (1996) laboratory study. In predicting the effects of the behavioral confirmatory process, one should take into consideration variables pertaining to the athlete, as well as those dealing with the coach. For instance, research reveals that older individuals are less susceptible to behavioral confirmatory effects than younger individuals (Rosenthal & Jacobson, 1968). Furthermore, it would appear that individuals who know themselves well on certain dimensions (e.g., their level of intrinsic motivation) are less likely to undergo a change of motivation than those uncertain about their characteristics (Swann & Ely, 1984). These two factors may explain why some studies have not found the behavioral confirmation effect in sport (e.g., Rejeski, Darracott, & Hutslar, 1979).

In sum, the findings reviewed in this section demonstrate that several social factors inherent in sport, such as success/failure, competition/cooperation, and the coach's behavior, can have important influences on athletes' motivation. Furthermore, the results reviewed herein suggest that athletes' perceptions of autonomy, competence, and relatedness act as psychological mediators of the effects of social factors on their intrinsic motivation toward sport. These results provide additional support for the proposed motivational sequence and underscore its usefulness in under-

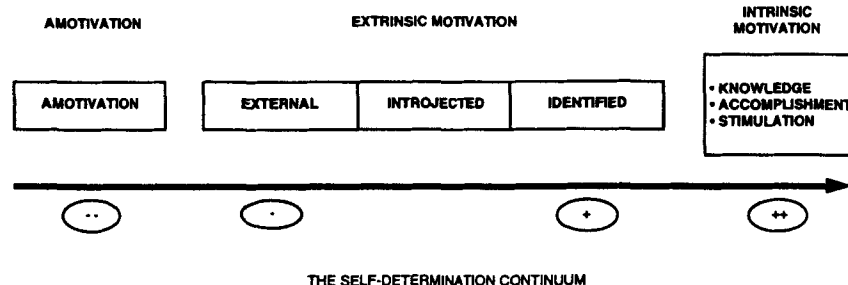


Figure 2. The Self-Determination Continuum and the Different Types of Motivation (adapted from Deci & Ryan, 1985; Vallerand et al., 1989, 1992, 1993).

standing the social psychological processes involved in athletes' motivation.

Toward a Multidimensional Analysis of Sport Motivation

From a Dichotomy to a Continuum Approach of Sport Motives

Early research on intrinsic and extrinsic motivation (e.g., Deci, 1971; Lepper, Greene, & Nisbett, 1973) emphasized the dichotomy between the two concepts. Self-determination theory, however, considers that this dichotomy is insufficient to adequately depict human behavior (Deci & Ryan, 1985; Rigby, Deci, Patrick, & Ryan, 1992). It views motivation in terms of varying degrees of self-determination, thereby leading to a continuum of different types of motives (see Figure 2). The proposed continuum is posited to run from high to low levels of self-determination as one moves from intrinsic motivation to extrinsic motivation to amotivation (Deci & Ryan, 1985).

The highest level of self-determination is postulated to be inherent in intrinsic motivation. As indicated earlier, intrinsic motivation refers to doing an activity for the pleasure it provides or for its own sake (Deci, 1971). Initially, theorists posited that intrinsic motivation was unidimensional in nature. However, recently researchers have started to deal with intrinsic motivation in a multidimensional fashion. For instance, Vallerand and his colleagues (Vallerand et al., 1989, 1992, 1993), have proposed the existence of three forms of intrinsic motivation: intrinsic motivation toward knowledge, toward accomplishment, and toward experiencing stimulation. Intrinsic motivation toward knowledge involves engaging in sport for the pleasure of learning something new or of knowing more about the activity. When a wide receiver in football says that he is playing "For the pleasure I get from learning new moves," intrinsic motivation toward knowledge is displayed. Intrinsic motivation toward accomplishment results from practicing a sport for the pleasure of out-doing oneself, and the process of trying to reach new personal objectives. Athletes' reasons for doing an activity out of intrinsic motivation toward accomplishment can be typified by the response: "For the pleasure I get from

mastering difficult skills.” Intrinsic motivation toward experiencing stimulation refers to engaging in sport for the pleasant sensations derived from the activity itself, such as the sensation of speed that is inherent in many sports. Athletes who say that they engage in sport “Because of the pleasure I experience while doing exciting things” are displaying intrinsic motivation toward stimulation.

Deci and Ryan (1985) also proposed a multidimensional perspective of extrinsic motivation. These different types of motivation are: external regulation, introjected regulation, and identified regulation.¹ External regulation represents the least self-determined form of extrinsic motivation, in which case the person is behaving in order to receive a reward or to avoid punishment from others (the usual extrinsic motivation definition). The athlete who engages in sport for reasons such as “To show others how talented I am” is acting out of external regulation. Introjected regulation represents an incomplete internalization of a regulation that was previously external. Because the internalization is incomplete (i.e., not fully integrated into one’s self), the activity is done out of pressure rather than choicefully. Introjected reasons for doing an activity are typified by “should” and “must.” For example, a gymnast who says that she is practicing sport “Because I must do it in order to feel good about myself” displays introjected regulation. Finally, identified regulation is present when an athlete choicefully decides to engage in behaviors that are not interesting per se, but nevertheless important, because they help him or her reach personal valued goals. For instance, the volleyball player who decides to work with weights “Because this is the means that I have chosen to improve aspects of my game” exemplifies identified regulation.

Finally, amotivation refers to behaviors that are neither intrinsically nor extrinsically motivated. Amotivation reflects the relative absence of motivation. Amotivated behaviors are the least self-determined because there is no sense of purpose, and no expectation of the possibility of influencing the environment. In other words, there is little contingency between one’s actions and responses from the environment (Deci & Ryan, 1985). For instance, a basketball player who would say “I really don’t know why I play basketball anymore; I don’t see what it does for me” is displaying amotivation toward the activity.

Over the years, we have developed several instruments aimed at assessing motivation toward different spheres of activities (or contexts), such as education (Vallerand et al., 1989; Vallerand et al., 1992, 1993), leisure (Pelletier et al., 1996), interpersonal (Blais, Vallerand, Pelletier, & Brière, 1994) and couple relationships (Blais et al., 1990), and work (Blais et al., 1993). Research on these scales has yielded impressive support for their reliability and validity. Scales have a sound factor structure, assess-

¹ Deci and Ryan (1985) also include integrated regulation (or integration) as one type of extrinsic motivation. However, since integrated regulation is expected to be present mainly in adults and that our research has mainly focused on adolescents and young adults, it is not discussed in the present paper.

ing independently the various types of motivation described earlier. In addition, high levels of reliability are displayed by the various scales. Finally, the construct validity of the scales is supported by the fact that they relate as predicted to various determinants and consequences. In sum, impressive support exists for the validity of the multidimensional perspective of intrinsic and extrinsic motivation, and amotivation.

In recent years, this multidimensional perspective of motivation has been applied to the realm of sport. Thus, the Sport Motivation Scale (Brière et al., 1995; Pelletier et al., 1995) was developed to assess the different types of motivation in sport. Below, we briefly discuss its development along with some findings.

A Multidimensional Measure of Athletes' Motives: The Sport Motivation Scale

In order to assess the different types of motivation discussed above, we developed and validated the Sport Motivation Scale (SMS) first in French (Brière, Vallerand, Blais, & Pelletier, 1995). In line with the position of several theorists (e.g., Deci & Ryan, 1985; Harter, 1978; McClelland, 1985), it was decided to operationalize motivation as the perceived reasons for participation or the "why" of behavior. Therefore, athletes are asked the following question, "Why do you practice your sport?", at the beginning of the scale, and items represent the perceived reasons for engaging in the activity, thus reflecting the different types of motivation. Items are assessed using a 7-point Likert scale with 1 (*Does not correspond at all*) and 7 (*Corresponds exactly*) as extreme points, and 4 (*Corresponds moderately*) as the midpoint.

The French SMS was validated in three steps. The first step involved generating various reasons for sport participation. French-Canadian athletes from different sports were interviewed to ascertain the different reasons explaining why they engaged in their sport. These reasons were then content analyzed and used to formulate items according to the seven types of motivation. In the second step, a series of judges evaluated the content validity of the items and subsequently eliminated those that were thought to be ambiguous. This led to a preliminary version of the SMS that was then administered to a second sample of athletes from various sports and data were submitted to an exploratory factor analysis. Results revealed a seven-factor solution (i.e., the seven different types of motivation) with 4 items per subscale, thus resulting in a 28 item scale. In the third and final step, two additional studies were conducted to further validate the SMS with approximately 500 college athletes recruited from different athletic teams (basketball, volleyball, swimming, ice hockey, football, handball, soccer, and badminton). Results from these investigations revealed that the SMS has satisfactory internal-consistency levels, moderate to high indices of temporal stability, a seven-factor structure, and adequate construct validity.

Translation of the French SMS into English involved back-translation

and committee procedures (see Vallerand, 1989). Then, two studies (Pelletier et al., 1995) involving more than 600 college athletes from various sports were conducted in order to assess the psychometric properties of the SMS. Results were almost identical to those obtained with the French SMS. Specifically, a 7-factor solution (with 4 items on each factor) was supported through confirmatory factor analysis. In addition, the subscales were found to be reliable and temporally stable. Finally, in line with self-determination theory (Deci & Ryan, 1985, 1991), correlations with various sport variables representing determinants and consequences were also obtained. Thus, these results provide support for the reliability and validity of the SMS. Results from other studies provide additional support for this assertion (e.g., Blanchard & Vallerand, 1996a, 1996b; Fortier, Vallerand, Brière, & Provencher, 1995; Vallerand & Losier, 1994).

Recent studies conducted by other research teams have also tested the construct validity of the SMS. For instance, Li and Harmer (1996) tested the validity of the simplex structure of the scale. Such a study is important because it tests the conceptual validity of the self-determination continuum, according to which the different forms of motivation (from amotivation to external, introjected, and identified regulation, to intrinsic motivation) represent low to high levels of self-determination, respectively. Men and women college students ($N = 857$) engaged in 5 different sports and physical activities completed the SMS. Results using structural equation modeling supported the simplex pattern, whereby subscales situated closer on the self-determination continuum were more strongly positively associated, and subscales farther apart were negatively related. Furthermore, this pattern was found to be invariant across gender. These findings provide additional support for the construct validity of the SMS.

A final point that needs to be discussed with respect to the SMS is that sometimes researchers combine the different subscales into a self-determination index (e.g., Blanchard & Vallerand, 1996a, 1996b; Losier & Vallerand, 1994; Vallerand & Losier, 1994). This is typically done by giving each subscale a specific weight according to its respective place on the self-determination continuum,² multiplying this weight by the score of the subscale, and adding the scores of all subscales so as to derive a single score. Research reveals that this index is reliable and valid (e.g., Blais et al., 1990; Fortier, Vallerand, & Guay, 1995; Guay & Vallerand,

² Therefore, intrinsic motivation and identified regulation items are assigned the weights of +2, and +1, respectively because they reflect the highest levels of self-determination. On the other hand, because it is conceptualized as the least self-determined form of motivation, amotivation items are assigned the weight of -2. Finally, external and introjected regulation items are averaged and given the weight of -1. It should be noted that all three types of intrinsic motivation are given the same weight (+2) and the total for the three types of intrinsic motivation is divided by 3 to make it comparable to that of the other scales. The total score reflects the person's relative level of self-determined motivation. A positive score indicates that the person's motivational profile is self-determined, whereas a negative score reflects the presence of a non self-determined motivation.

1997; Vallerand & Bissonnette, 1992; Vallerand et al., 1997). The higher the score on the index, the more athletes participate in sport out of pleasure and choice, and the less they participate out of external regulation and amotivation (what we refer to as the self-determined motivational profile).

In sum, the above taxonomy based on self-determination theory (Deci & Ryan, 1985, 1991) and the multidimensional approach to intrinsic motivation of Vallerand et al. (1989, 1992) is useful on at least two counts. First, it allows us to distinguish several types of motivation which refine our understanding of the concepts of intrinsic and extrinsic motivation. From a dichotomy, we are ready to move to a continuum of intrinsic and extrinsic motivation. Second, by using the proposed taxonomy, it becomes possible to develop scales assessing contextual motivational styles, or motivational tendencies of individuals within specific contexts such as sport. We will show that these motivations are important because they lead to various outcomes.

On Motivational Consequences

Over the years, much research in psychology has assessed the relation between motivation and various consequences (see Vallerand, 1997, for a review). Vallerand (1997) proposed that we conceive of consequences as being of at least three types: cognitive, affective, and behavioral outcomes. Affective consequences have been particularly popular and include interest, satisfaction, positive emotions, mood, and anxiety. Memory and conceptual learning, as well as concentration (or attention) are representative of cognitive consequences that have been studied in the intrinsic/extrinsic motivation literature. Finally, persistence at the task, choice of behavior, complexity, intensity, behavioral intentions, and performance represent examples of behavioral consequences that have been studied in the area (see Deci & Ryan, 1987; Vallerand, 1997, for reviews).

Research reveals that motivation does produce important outcomes on all three types of consequences (see Ryan, 1995; Vallerand, 1997, for reviews). Furthermore, in line with self-determination theory (Deci & Ryan, 1985, 1991), such research shows that outcomes are decreasingly positive from intrinsic motivation to amotivation. Because the different types of motivation are located on a continuum from high to low self-determination, and because self-determination is associated with enhanced psychological functioning (Ryan, Deci, & Grolnick, 1995), one can predict a corresponding pattern of consequences. Thus, the most positive outcomes should result from the self-determined forms of motivation (intrinsic motivation and identified regulation), while negative outcomes should follow from the least self-determined motivations (external regulation and especially amotivation). This pattern of results has been obtained with a host of different consequences and in various life contexts as diverse as education, leisure, work, and interpersonal relationships (see Vallerand, 1997, for a review). In this section, we review recent research

findings which relate the Sport Motivation Scale to three important applied issues in sport, namely affect, sportpersonship, and persistence.

Motivation and Affect

Affect is an important phenomenon in sport that represents a significant proportion of athletes' experiences (Vallerand & Blais, 1989). It has thus received much scientific scrutiny (e.g., Crocker & Graham, 1995; Vallerand, 1983b, 1984, 1987). Several authors posit that motivation plays a significant role in affect (e.g., Lazarus, 1991; Vallerand & Blanchard, in press). According to self-determination theory (Deci & Ryan, 1985, 1991), the nature of athletes' involvement or their reasons for taking part in sport activities determine whether the ensuing affective consequences will be positive or negative. More specifically, positive emotions should be positively associated to the more self-determined forms of motivation (i.e., intrinsic motivation and identified regulation), and negatively related to the less self-determined types of motivation (especially amotivation and external regulation). In contrast, negative emotions are expected to be negatively correlated to the more self-determined forms of motivation, and positively associated to the less self-determined types of motivation. Finally, correlations involving introjected regulation is expected to lie between these two extremities.

Validation studies for the French version of the SMS (Brière et al., 1995) correlated the seven types of motivation to different positive and negative emotions in sport. The results generally supported the above hypotheses. For instance, positive affect (e.g., feeling happy) in sport was positively associated with the three types of intrinsic motivation and identified regulation, but negatively related to amotivation and external regulation. Similar results were observed with other types of positive affective outcomes, such as enjoyment and satisfaction. In contrast, anxiety (a negative consequence) was uncorrelated with intrinsic motivation and identified regulation, but positively related to amotivation and external regulation. Similar findings have been reported by Pelletier et al. (1995) with the English version of the SMS.

Overall, these results suggest that athletes engaging in sport for self-determined reasons are likely to experience more positive affect (and less negative emotions) from their involvement, whereas athletes participating in sport for less self-determined motives are susceptible to experience greater negative affect (and less positive emotions). These findings provide additional support for the self-determination perspective within the sport context.

Motivation and Sportpersonship

Another type of outcome that may be influenced by motivation is sportpersonship orientations. Sportpersonship orientations can be seen as reflecting: "a general or core tendency toward the respect of and the concern for the sport environment, the rules, and its participants (coaches,

teammates, referees and officials, and the opponent), and a concomitant avoidance of a negative win at all costs approach toward participation in sports" (Vallerand, Deshaies, Cuerrier, Brière, & Pelletier, 1996, p. 96). It may be posited that athletes who display a self-determined motivational profile, that is, who play out of fun and choice, should display higher levels of sportpersonship (be more likely to show respect for others and less likely to cheat) than athletes who want to win trophies and medals at all costs (a non self-determined motivational profile). Results from the education domain supports this hypothesis. For instance, Lonky and Reihman (1990) reported that students who display a self-determined motivational profile toward school cheated less than students who had a non self-determined motivational profile. Research suggests that a similar relationship may exist in sports. For example, Webb's (1969) results suggest that individuals adopting a "play" orientation display more positive attitudes toward sport involvement relative to those who favor a "professional" (or win at all cost) orientation. Further, using the goal perspective, Duda, Olson, and Templin (1991) found that high school athletes who participate in sport with an emphasis on winning (low task- and high ego-oriented individuals) more readily approved of unsportspersonlike conduct (i.e., cheating) in order to win. Results from the Duda et al. (1991) study were correlational in nature and were obtained at a single point in time. They thus provide only suggestive support for the hypothesis that motivation influences sportpersonship orientations. Furthermore, it is possible that, over time, sportpersonship orientations could influence motivation as well. Indeed, by cheating and behaving in an unsportspersonlike conduct, individuals may come to focus on the extrinsic elements of their involvement in sport, such as outdoing opponents rather than oneself, thereby fostering an extrinsic motivational orientation.

In a field study (Vallerand & Losier, 1994), the relationship between motivation and sportpersonship orientations was examined from a longitudinal perspective. Male adolescent elite ice hockey players completed a questionnaire two weeks into the hockey season (T1) and at the end of the regular season (T2), five months later. Self-determined motivation (using the self-determination index) and sportpersonship orientations were assessed on both occasions, respectively, through the French version of the Sport Motivation Scale (Brière et al., 1995) and the Multidimensional Sportpersonship Orientations Scale (Vallerand et al., 1997). In line with self-determination theory (Deci & Ryan, 1985, 1991) and the social psychological approach to sportpersonship (Vallerand, 1991; Vallerand et al., 1996, 1997), it was anticipated that over time a positive bi-directional relationship would emerge between the two constructs. That is, initial self-determined motivation was expected to be positively related to subsequent sportpersonship orientations, and initial sportpersonship orientations were anticipated to be positively associated with subsequent self-determined motivation as well. Results supported the hypotheses. Thus, why you play the game (motivation) may determine how you play it (sportpersonship). However, the opposite can also be true as sports-

personship appears to also affect motivation. It should be noted that these results are preliminary and limited in scope, especially in light of the fact that they were obtained with a small number ($n = 77$) of (male) athletes who participated in only one sport (hockey). Therefore, additional research is needed in order to confirm these findings.

Motivation and Persistence in Sport

Much research now supports the fact that participation in sport and exercise produces several physical and psychological benefits (Martinsen & Stephens, 1994). It is thus unfortunate that a large number of children drop out of sport at a young age. In fact, it appears that between the age of 12 and 17, no less than 80% of children involved in sport eventually drop out (Seefeldt, Bliedernicht, Bruce, & Gilliam, 1978). In Canada, for instance, there is a 30 to 35% annual dropout rate in young competitive swimmers, some of whom show great potential. From a motivational perspective, it may prove interesting to look at social factors susceptible to influence athletes' motivation because it may allow us to better understand the psychological processes involved in the drop out phenomenon (see Weiss & Chaumeton, 1993). Additionally, such research may provide directions with respect to pertinent interventions.

Pelletier et al. (1998) recently conducted a study dealing with motivation and persistence in sport. These researchers assessed athletes' perceptions of their coach's interacting style (i.e., controlling vs. autonomy-supportive; with an adaptation of the scale of Deci et al., 1981), and athletes' motivation toward swimming (with the SMS). They then followed swimmers persistence over two years. Results from a structural equation modeling analysis indicated that the coach's behavior influenced athletes' motivation which in turn determined their level of persistence. In line with predictions, it was found that amotivation and intrinsic motivation had respectively the most negative and positive impact on persistence.

If motivation has a causal influence on persistence, then it should be possible to increase athletes' motivation and in turn their persistence toward sport. In line with the proposed motivational sequence (see Figure 1), this can be done by modifying social factors known to affect motivation such as the coach's interacting style. Using this perspective, Pelletier and his colleagues (Pelletier, Brière, Blais, & Vallerand, 1988) developed an intervention program dealing with swimmers' motivation and persistence. This program extended over an 18 month period, and mainly focused on: a) helping coaches become more autonomy supportive thereby allowing them to foster competence and autonomy in their athletes, and b) teaching athletes how to deal with the increased autonomy and to become more proactive in their sport environment.

Results revealed that the program was effective. For instance, a year and a half into the intervention program, athletes perceived their coach as significantly less controlling, and more autonomy supportive. Athletes'

level of perceived competence and intrinsic motivation toward swimming showed significant increases as well. The motivational consequences from the intervention program were even more impressive. Statistics showed that before the program was implemented, an average of only 12.6 athletes of the 22 swimmers on the team showed up for practices. At the end of the program, presence at practice increased to an average of 19.7 swimmers. Annual dropout rates in swimmers went down from 35% to 4.5% (they remained at 35% in other clubs serving as control groups). As an added "bonus" consequence, athletes' performance also showed improvement. Out of the 22 swimmers on the team, 20 made national standards, 4 were selected for the Canadian Olympic team, and 1 won a silver medal at the Seoul Olympics. Thus, in line with the proposed motivational sequence, these results suggest that through interventions designed at changing social factors, it is possible to facilitate athletes' sense of autonomy and competence, as well as their intrinsic motivation. In turn, athletes' renewed intrinsic motivation should allow them to experience positive outcomes in sport, such as enhanced persistence and performance.

In sum, the findings reviewed in this last section show that athletes' motivation can lead to a number of outcomes such as affective experiences, sportspersonship orientations, and persistence. Of course, these do not represent an exhaustive list of the motivational consequences to be found in sport. However, the results reviewed herein demonstrate the usefulness of the self-determination paradigm to examine motivational outcomes in sport.

Future Research Directions

In this paper, we have proposed a "Social Factors → Psychological Mediators → Motivation → Consequences" sequence in order to integrate intrinsic and extrinsic motivation research in sport. Empirical evidence reviewed in this paper provides support for the motivational sequence and leads to a number of future research directions. First, we have seen that several social factors such as success and failure, competition and cooperation, and the coach's behavior can affect athletes' motivation. Further, we have shown that such effects do not take place directly but are mediated through athletes' perceptions of competence, autonomy, and relatedness. Future research is needed in order to assess the impact of other social factors such as trophies and awards, parental behaviors, and interactions with teammates, on motivation and determine whether the impact of these social factors is also mediated by perceptions of competence, autonomy, and relatedness. Additional research is also warranted in order to ascertain if the impact of interpersonal factors such as cooperation on intrinsic motivation is moderated by variables such as cohesion, team morale, and social support. In other terms, it is possible that the effect of certain social factors (e.g., cooperation) on motivation varies as a function of another social factor (e.g., cohesion). Such research might reveal that

the impact of social factors on athletes' motivation is more complex than initially anticipated.

A second point deals with the nature of motivation. In light of existing evidence, it is now clear that it is inappropriate to describe athletes as being either intrinsically or extrinsically motivated because both motivations exist within the individual at different degrees (Pelletier et al., 1995; Vallerand, 1997). Even Susan Harter (Harter & Jackson, 1992), who has used for years an ipsative approach to assessing the two constructs, now acknowledges that a multidimensional approach is more adequate. In light of the above, future research is needed to delineate the various motivational configurations (or clusters) that best describe athletes of various ages, sports, and sex. We should also attempt to determine which social factors are associated with which configurations. Such a strategy would provide greater understanding of athletes' motivations and how they tend to develop.

A third fruitful area for future research deals with motivational consequences. We have seen that motivation influences one's affect, sports-personship orientations, and persistence in sport. Future research would do well to pursue the initial work presented here and focus on other types of outcomes. A variable of great importance is performance. Very little motivation research has looked at this outcome. We believe that the time is now right to do so because we now have the appropriate methodology to assess the motivation-performance relationship. In addition, we need additional research in order to determine whether motivational configurations other than the self-determined motivational profile (i.e., high levels of intrinsic motivation and identified regulation but low levels of external regulation and amotivation) can lead to positive outcomes (Vallerand, 1997). In that respect, the use of longitudinal and prospective designs would prove highly useful.

Finally, we believe that the motivational sequence proposed in this paper can lead to useful applied research. For instance, the research by Pelletier et al. (1988) showed that educating coaches on the impact of their behaviors on athletes' motivation brought about changes in coaches' behaviors (an important social factor), that in turn led to positive changes in athletes' motivation and level of persistence. Thus, by intervening on specific social factors, such as coaches' behavior or that of parents, it may become possible to maintain or reestablish self-determined forms of motivation in athletes that will produce positive outcomes. The proposed approach is not unlike the work of Smith, Smoll, and Curtis (1979) who have shown that educating coaches can lead to important positive consequences for athletes. Future applied research using the proposed motivational sequence is therefore encouraged because it could eventually lead to the design of useful sport interventions.

Conclusion

In sum, motivation is a complex phenomenon. It is influenced by numerous social factors and can lead to a host of consequences. In this

paper, we have shown that the proposed motivational sequence (Figure 1) allows us to integrate much of the literature on the determinants and consequences of intrinsic and extrinsic motivation in sport. Such an integration is important from a theoretical standpoint because it leads to a better understanding of the psychological processes involved in athletes' motivation. Further, of applied importance is the fact that research on sport motivation along the lines proposed here holds promising avenues for how we could help athletes fully benefit from their engagement in sport. In this respect, Rainer Martens' comments about children's sport nicely put things in perspective. He said: "I believe there always will be children to profit from well designed sports programs; and adults need to become wiser architects of these programs" (Martens, 1978, p. 359). Let us hope that through motivation research, we can become better architects of sport programs so that not only children, but adults as well, can reap the full psychological benefits of their sport participation.

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INTRINSIC AND EXTRINSIC MOTIVATION IN SPORT 165

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INTRINSIC AND EXTRINSIC MOTIVATION IN SPORT 169

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