

Passion in Sport: A Look at Determinants and Affective Experiences

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Based on the Dualistic Model of Passion (Vallerand et al., 2003), a sequence involving the determinants and affective experiences associated with two types of passion (harmonious and obsessive) toward sport was proposed and tested. This sequence posits that high levels of sport valuation and an autonomous personality orientation lead to harmonious passion, whereas high levels of sport valuation and a controlled personality orientation facilitate obsessive passion. In turn, harmonious passion is expected to lead to positive affective experiences in sport but to be either negatively related or unrelated to negative affective experiences. Conversely, obsessive passion is hypothesized to be positively related to negative affective experiences in sport but to be either negatively related or unrelated to positive affective experiences. Results of three studies conducted with recreational and competitive athletes involved in individual and team sports provided support for the proposed integrative sequence. These findings support the role of passion in sport and pave the way to new research.

Key Words: harmonious and obsessive passion, sport involvement, sport addiction, positive and negative affect, subjective well-being

Peter and Matt play basketball—they have been for more than 10 years. You can find them playing just about every day. They love the game, value it, and spend lots of time and energy on it. In fact, for them, basketball is more than a game. It is part of who they are, of their identity. They don't just play the game, they *are* basketball players. They play at the intercollegiate level, both being on scholarship. They play the game with a lot of enthusiasm. However, even though both are passionate toward basketball, they are different in some ways. For instance, Matt can

decide when to play basketball and when to invest himself in other activities, such as his studies and relationships. By contrast, Peter has a tough time thinking about other activities besides basketball. It's always on his mind. So sometimes he ends up playing when he should be doing something else like studying. This different outlook on their sport leads to an important distinction between Matt and Peter. Matt is experiencing a lot of joy and satisfaction when playing basketball, whereas Peter may feel guilty and anxious. Thus, although Peter and Matt are equally good and passionate players, Matt is happier than Peter while playing basketball.

In light of the above example, one is left wondering about the psychological factors that allow athletes to remain dedicated and passionate for their sport for years, sometimes a lifetime, as well as lead them to experience either positive or negative affective experiences in the process. We propose that passion (Vallerand et al., 2003) represents such a psychological factor. As we will see, however, the types of affective experiences one derives from sport participation depend on the type of passion one has developed toward one's sport, thereby explaining why one player (e.g., Matt) may be happier than the other (e.g., Peter) when playing the game that they both love. Furthermore, in light of the potential importance of passion in sport, it would appear important to have a better understanding of its determinants.

Theory and Research on Passion

Passion and Related Constructs

Although the concept of passion has generated a lot of attention among philosophers (see Rony, 1990 for a review), it has received little empirical attention in psychology. In fact, until recently, the only empirical work in psychology had focused on romantic passion (Hatfield & Walster, 1978). However, romantic passion can be seen as different from passion toward activities and will not be discussed herein. Still other researchers, especially in sport and exercise, have focused on concepts that would appear related to that of passion such as positive and negative addiction (Glasser, 1976), running addiction (e.g., Morgan, 1979; Sachs, 1981), exercise dependence, and obligatory running (for a review, see Hausenblas & Symons Downs, 2002). Glasser (1976) for instance refers to negative addiction as engaging in an activity that is ill advised (e.g., using drugs) but one that individuals cannot help from engaging in because they feel really bad when activity engagement is not possible. On the other hand, positive addiction (toward running, for instance), is still an addiction (the person feels bad when he or she cannot run), but such activity engagement leads to some positive outcomes (e.g., running is good for your health). Particularly troublesome in this analysis is the fact that there is no conceptual distinction between the two types of addiction (i.e., positive vs. negative). It is simply proposed that the distinction between the two types of addiction lies in the type of activities people engage in, where negative addiction applies to activities that lead to negative outcomes (e.g., using drugs) and positive addiction to activities leading to positive outcomes (e.g., running). Furthermore, some negative affect can still be engendered from positive addiction when the person cannot engage in an activity leading to positive outcomes (see Szabo & Parkin, 2001). Clearly, positive addiction is therefore not always "positive." The same analysis

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applies to the concepts of exercise dependence, running addiction, and obligatory running in that they represent a form of dependence for an activity that can yield some positive benefits (such as for one's health) but may at times yield negative outcomes, especially when one is prevented from engaging in the activity.

In sum, it would appear that in spite of the progress made in the understanding of sport addiction and related constructs over the years, the absence of a satisfying conceptual framework is still prevalent (Hausenblas & Symons Downs, 2002). We believe that in addition to an unhealthy heavy involvement in sport (i.e., an addiction), it is also possible for athletes to be highly involved in sport in a healthy fashion without being addicted. In other words, an activity can occupy an important part of a person's life while remaining under their control. A complete understanding of athletes' engagement in sport must therefore be able to account for these two types of heavy involvement. Vallerand and his colleagues (Vallerand et al., 2003; Vallerand & Houliort, 2003; Vallerand & Miquelon, 2007) have recently developed a model of passion that addresses this issue.

A Dualistic Model of Passion

Vallerand et al. (2003) define passion as a strong inclination and desire toward an activity that one likes, finds important, and in which one invests time and energy. Thus, for an activity to represent a passion for people, it has to be significant in their lives, something that they like (or even love), and something at which they spend time on a regular basis. We further propose that there are two types of passion, obsessive and harmonious, that can be distinguished in terms of how the passionate activity is internalized into one's identity. Identity refers to an individual's relevant features, characteristics, and experiences, how these are interrelated, as well as the social and self-regulation functions that such features serve (see Schlenker, 1985). In line with self-determination theory (SDT; Deci & Ryan, 2000), we propose that people engage in various activities in the hope of satisfying basic psychological needs of autonomy (a desire to feel a sense of personal initiative), competence (a desire to interact effectively with the environment), and relatedness (a desire to feel connected to significant others). In so doing, certain activities come to be so self-defining that they represent central features of one's identity. In line with SDT (Deci & Ryan, 2000), we propose that there is a basic human tendency toward higher-order organization. Such organization takes place through the organismic integration process, which entails that the self becomes more complex over time through the interrelations of self constituents, as well as the internalization of elements from the environment. Past research has shown that values and regulations concerning uninteresting activities can be internalized in either a controlled or an autonomous fashion (see Deci, Eghrari, Patrick, & Leone, 1994; Sheldon, 2002). We propose that the representation of an activity that a person likes and engages in on a regular basis will be incorporated in that person's identity to the extent that the activity is highly valued (Aron, Aron, & Smolan, 1992; Csikszentmihalyi, Rathunde, & Whalen, 1993), thereby leading to a passion toward that activity. Such a passionate activity becomes a central feature of that person's identity and serves to define the person. For instance, those who have a passion for playing basketball (like Matt and Peter) do not merely play basketball. They are "basketball players."

However, there is an important distinction in how the activity is internalized in one's identity. Two distinct types of passion arise as a result of the internalization process that varies in how fully it is developed. Harmonious passion results from an autonomous internalization of the activity into the person's identity. Aspects of one's identity, such as harmonious passion, that have been internalized in an autonomous fashion are then part of the self. An autonomous internalization occurs when individuals have freely accepted the activity as important for them without any contingencies attached to it. This type of internalization emanates from the intrinsic and integrative tendencies of the self (Deci & Ryan, 2000; Ryan & Deci, 2003) and produces a motivational force to engage in the activity willingly and engenders a sense of volition and personal endorsement about pursuing the activity. Individuals do not experience an uncontrollable urge to engage in the passionate activity, but rather, freely choose to do so. With this type of passion, the activity occupies a significant but not overpowering space in the person's identity and is in harmony with other aspects of the person's life. In other words, with harmonious passion the authentic integrating self (Deci & Ryan, 2000) is at play allowing the person to fully partake in the passionate activity and other activities with an openness that is conducive to positive experiences (Hodgins & Knee, 2002). Thus, there should be little or no conflict between the person's passionate activity and his or her other life activities. Consequently, people with a harmonious passion should be able to fully focus on the task at hand and experience positive outcomes both during task engagement (e.g., positive affect, concentration, flow) and after task engagement (general positive affect, satisfaction, etc.). Furthermore, when prevented from engaging in their passionate activity, people with a harmonious passion should be able to adapt well to the situation and focus their attention and energy on other tasks that need to be done. Finally, with harmonious passion, the person is in control of the activity and can decide when to and when not to engage in the activity. People with a harmonious passion are able to decide not to play on a given day if needed or even to terminate the relationship with the activity if they decide it has become a negative factor in their life. Thus, behavioral engagement can be seen as flexible.

Obsessive passion, by contrast, results from a controlled internalization of the activity into one's identity. Such an internalization process leads aspects of one's identity, such as obsessive passion, to be at best partially internalized in the self, and at worse to be integrated in the person but completely outside the integrating self (Deci & Ryan, 2000). A controlled internalization originates from intra and/or interpersonal pressure typically because certain contingencies are attached to the activity such as feelings of social acceptance or self-esteem. People with an obsessive passion can thus find themselves in the position of experiencing an uncontrollable urge to partake in the activity they view as important and enjoyable. They cannot help but to engage in the passionate activity. The passion must run its course as it controls the person. Consequently, they risk experiencing conflicts and other negative affective, cognitive, and behavioral consequences during and after activity engagement. For instance, a student/athlete with an obsessive passion for basketball might not be able to resist an invitation to play basketball with his teammates the night before an exam. During the scrimmage, he might be upset with himself for being on the court instead of being at home studying. He might therefore

have difficulties focusing on the task and may not experience positive affect while playing. It is proposed that individuals with an obsessive passion come to display a rigid persistence toward the activity. This is so because ego-invested rather than integrative self structures (Hodgins & Knee, 2002) are at play, with obsessive passion leading the person to eventually becoming dependent on the activity. Even though such persistence may lead to some benefits (e.g., improved performance at the activity), it may also come at a cost for the individual, potentially leading to suboptimal functioning within the confines of the passionate activity because of the lack of flexibility that it entails. Furthermore, such a rigid persistence may lead the person to experience conflict with other aspects of the person's life when engaging in the passionate activity (when one should be doing something else, for instance), as well as to frustration and rumination about the activity when one is prevented from engaging in it.

Thus, it is posited that harmonious passion leads to more adaptive outcomes than obsessive passion. Furthermore, two processes are hypothesized to influence the development of passion toward an activity: activity valuation and the internalization of the representation of the activity in one's identity. Activity valuation as seen within the present formulation refers to the subjective importance of the given activity for the person. Activity valuation is expected to play an important role in the internalization of the activity within the person. Research has indeed shown that when the object of interest is highly valued and meaningful, one is inclined to internalize the valued object, to make it part of him- or herself (Aron et al., 1992; Deci et al., 1994). Furthermore, activity valuation can be seen as providing the intensity dimension underlying one's passion for the activity. The more important (or valued) the activity, the more the activity will be internalized in the person's identity, and thus the more passionate the person will be toward this activity. Research (Brown & Weiner, 1984) has shown that task importance (or value) affects the intensity experienced with respect to activity involvement. Thus, activity valuation can be seen as the intensity (or quantity) dimension (the fuel) underlying activity internalization and the development of passion.

It is further proposed that when an interesting activity such as sport and physical activity becomes highly valued, the type of passion that will ensue is determined by the type of internalization that takes place. This second process can be seen as affecting the "quality" dimension or the type of passion that will take place. A controlled internalization of the sport representation is expected to lead to the development of an obsessive passion and an autonomous internalization to a harmonious passion. It is further proposed that an important determinant of the internalization process is one's personality (see Vallerand & Houliort, 2003; Vallerand & Miquelon, 2007). Past research (see Vallerand, 1997, 2001, in press) has shown that an autonomous personality orientation (having a tendency to do things out of pleasure and/or choice) leads to the choiceful internalization of uninteresting activities in the self. On the other hand, having a controlled personality orientation (to do things out of outside or inner pressure) leads to the pressured internalization of uninteresting activities in the person (Guay, Mageau, & Vallerand, 2003; see also Vallerand, 1997). It thus appears that an autonomous personality facilitates a controlled internalization style, whereas a controlled personality facilitates an autonomous internalization style. In light of the above, to the extent that one highly values an enjoyable activity, people with an autonomous personality should be more

likely to internalize the activity in the person's identity in an autonomous fashion (i.e., willingly, without needing external or internal pressure), thereby leading to harmonious passion. Similarly, a controlled personality should be more conducive to the internalization of an enjoyable and valued activity in a controlled manner, thus leading to obsessive passion.

Research on Passion

Research has provided empirical support for several aspects of the passion conceptualization. A study by Vallerand et al. (2003, Study 1) revealed several important findings. First, results from exploratory and confirmatory factor analyses supported the existence of two constructs corresponding to harmonious and obsessive passion. Second, results from partial correlations (controlling for the correlation between the two types of passion) revealed that both harmonious and obsessive passions were positively associated with measures of activity valuation and measures of the activity being perceived as a passion, thereby providing support for the definition of passion. Furthermore, empirical evidence (Vallerand et al., 2003, Study 1) has shown that harmonious and obsessive passions were associated with different affective experiences. For instance, results from partial correlations between the two types of passion and other variables experienced during task engagement have shown that when controlling for obsessive passion, harmonious passion is positively associated with positive experiences such as flow and positive emotions. By contrast, when controlling for harmonious passion, obsessive passion is positively associated with negative emotions (especially shame). Furthermore, obsessive passion has been found to be associated with negative affect (especially shame and anxiety) and rumination when the person is prevented from engaging in the passionate activity, whereas harmonious passion is unrelated to these negative experiences (Vallerand et al., 2003, Study 1). Finally, research has also shown that obsessive (but not harmonious) passion predicts rigid persistence in ill-advised activities (Vallerand et al., 2003, Studies 3 and 4).

It should also be noted that support for the above findings has been obtained in various activities such as work (see Vallerand & Houliort, 2003), gambling (Mageau, Vallerand, Rousseau, Ratelle, & Provencher, 2005; Philippe & Vallerand, in press; Ratelle, Vallerand, Mageau, Rousseau, & Provencher, 2004; Rousseau, Vallerand, Ratelle, Mageau, & Provencher, 2002), Internet use (Séguin-Lévesque, Laliberté, Pelletier, Blanchard, & Vallerand, 2003), and several types of recreational activities such as reading and playing music (Vallerand et al., 2003, Study 1). Only one study, however, has looked at the role of passion in affective experiences in the sport context. In that study, Vallerand et al. (2003, Study 2) examined the relationship between passion toward football and general affect in a sample of intercollegiate football players. Results showed that over the course of a football season, harmonious passion predicted increases in positive affect in one's life in general, whereas obsessive passion was associated with increases in negative affect.

Because Vallerand et al. (2003, Study 2) measured the affect that athletes experience in life in general, their results provide no direct information regarding the affect that athletes experience within the context of sport. Thus, a better understanding of the contribution of passion to athletes' affect as experienced in sport is needed. Furthermore, although an increasing amount of studies have been

conducted on the concept of passion, little information is currently available on the determinants of passion. While the dualistic model of passion proposes that passion should result from at least two variables (activity valuation and personality orientation), no research to date has tested this hypothesis.

The Present Research

The purpose of the present research was to remedy the lack of research on the determinants of passion and associated affective experiences by conducting three studies on an integrative sequence of passion in sport. Such a sequence posits that sport valuation facilitates the internalization process and that the personality orientation determines the type of internalization process that will take place, with an autonomous personality leading to harmonious passion and a controlled personality to obsessive passion. In turn, harmonious passion is expected to lead to positive affective experiences, whereas obsessive passion is expected to be either negatively related or unrelated to positive affect. Conversely, obsessive passion is expected to lead to negative affect, while harmonious passion is hypothesized to be either negatively related or unrelated to it. No study has provided a test of this integrative sequence.

Study 1 focused on the determinants of passion and was conducted with recreational athletes who have been involved in their sport activity for several years. Sport valuation, personality orientations (Guay et al., 2003), and both types of passion were assessed. It was hypothesized that the more athletes value their sport and display an autonomous personality, the more harmonious their passion should be. On the other hand, the more athletes value their sport and display a controlled personality, the more obsessive their passion should be. Study 2 was conducted with competitive basketball players and focused on the affective experiences associated with passion (positive and negative affect, sport satisfaction, and vitality). It was hypothesized that harmonious passion would positively predict positive affective experiences within the realm of sport, whereas obsessive passion was hypothesized to be either negatively related or unrelated to such affective experiences. Conversely, obsessive passion was expected to positively predict negative affective experiences whereas harmonious passion was hypothesized to either negatively predict or be unrelated to such experiences. Finally, Study 3 was conducted with elite water polo and synchronized swimming athletes and tested the complete integrative sequence dealing with the determinants of passion and affective experiences using a summative affective index (subjective well-being; Diener, 2000). It was hypothesized that the overall sequence would be supported.

Study 1

Study 1 focused on the determinants of passion. The dualistic model of passion (Vallerand et al., 2003; Vallerand & Houliort, 2003; Vallerand & Miquelon, 2007) posits that passion results from the influence of two processes: activity valuation and personality orientations (Guay et al., 2003). Recreational athletes from various sports completed scales assessing sport valuation, personality orientations, and passion. It was hypothesized that a controlled personality orientation and sport

valuation would positively predict obsessive passion. Conversely, high sport valuation and an autonomous personality orientation should positively predict harmonious passion.

Method

Participants

The participants were 206 collegiate recreational sport participants (119 females, 84 males, and 3 not specified) engaged in one of several sports (e.g., basketball, football, hockey, skiing, swimming).¹ These participants engaged in their sport on average 7.21 hours per week and had been participating in their sport for an average of 68.86 months ($SD = 3.56$ months). The age of the participants was 18.70 years (age range = 17–29 years, $SD = 0.11$ year). Results from t tests and correlations, with Bonferroni adjustments for the number of variables assessed, revealed no significant differences as a function of age and gender on any of the variables (see Bland & Altman [1995] for additional information on the Bonferroni technique).

Measures

Passion. Passion toward sport was measured using the Passion Scale (Vallerand et al., 2003), an instrument comprised of two seven-item subscales assessing harmonious and obsessive passion (sample item for harmonious passion: "My activity [e.g., basketball] is in harmony with the other activities in my life"; sample item for obsessive passion: "I have a tough time controlling my need to play [basketball]"). Participants indicated their responses using a 7-point Likert scale ranging from *Do not agree at all* (1) to *Very strongly agree* (7). The Passion Scale has been used in several studies and has been found to display high levels of validity and reliability. For instance, results of exploratory and confirmatory factor analyses have supported the existence of two factors corresponding to harmonious and obsessive passion. Results from a confirmatory factor analysis (CFA) conducted in the present study confirmed once again the two-factor structure of the Passion Scale, $\chi^2 (df = 76, n = 206) = 158.88, p < .001$; CFI = .930, SRMR = .077, RMSEA = .077. The two passion subscales have also been found to be positively correlated to definitional elements of passion (i.e., activity valuation, interest, activity perceived as a "passion," and time spent on the activity). The two subscales have also led to a number of divergent results in line with predictions on the adaptive and maladaptive effects of harmonious and obsessive passion, respectively. Finally, the two subscales have yielded moderate to high levels of reliability (Cronbach alphas typically between .75 and .90) (see Mageau et al., 2005; Rip, Fortin, & Vallerand, 2006; Ratelle et al., 2004; Rousseau et al., 2002; Séguin-Lévesque et al., 2003; Vallerand et al., 2003, Studies 1 to 4). In the present study, internal reliability coefficients were .80 and .89 for the harmonious and obsessive passion subscales, respectively.

Personality Orientations. Athletes' personality orientation was measured using the Global Motivation Scale (GMS; Guay et al., 2003). Guay et al. (2003) showed in two studies that the GMS has good levels of internal consistency, with Cronbach alphas ranging from .76 to .91. In addition, results from a CFA supported the factor

structure of the GMS (see Guay et al., 2003). Eighteen items were used to measure four types of global orientations: (1) external regulation (4 items; sample item: "In general, I do things because I do not want to disappoint certain people"; alpha = .84 in this study); (2) introjected regulation (4 items; sample item: "In general, I do things because otherwise I would feel guilty for not doing them"; alpha = .79); (3) identified regulation (4 items; sample item: "In general, I do things in order to help myself become the person I aim to be"; alpha = .70); and (4) intrinsic motivation (6 items; sample item: "In general, I do things because I like them"; alpha = .86). Each item was scored on a 7-point Likert scale ranging from *Do not agree at all* (1) to *Very strongly agree* (7).

Sport Valuation. Sport valuation, or the extent to which athletes perceived their sport as important, was measured using four items. A sample item was "Hockey is important for me." Possible answers ranged from *Do not agree at all* (1) to *Very strongly agree* (7). The internal reliability coefficient was .84. Finally, participants indicated their gender, their age, and the number of hours they engage in their sport activity each week, as well as the number of years they have been practicing their sport.

Procedure

All participants were met in class. Participants were told that the purpose of the questionnaire was to learn about how they felt toward their activity. Questionnaires and pencils were then distributed to participants. Upon completion of the consent form and the questionnaire, each participant returned his or her questionnaire to the experimenter. Participants were then explained the purpose and hypotheses of the study.

Results and Discussion

Inspection of the skewness and kurtosis indices for all variables in the model proved normal (values ranged from -0.58 to 0.43 for skewness and -0.73 to 0.15 for kurtosis). Means, standard deviations, reliability coefficients, and Pearson correlations are presented in Table 1. In order to test the proposed model, we created two indices. First, an index of autonomous personality orientation was created in line with the motivational constructs' placement on the self-determination continuum and in line with past research (see Vallerand, 1997) by giving a weight of +2 and +1, respectively, to the global intrinsic motivation and global identified regulation subscales, and summing the two subscales. Second, an index of controlled personality orientation was created by giving a weight of -2 and -1, respectively, to the global external and global introjected regulation subscales and summing the two. The Cronbach alphas for the autonomous and controlled orientations were both .86.

The adequacy of the hypothesized model was assessed by way of a structural equation modeling (SEM) with EQS using the parceling approach proposed by Coffman and MacCallum (2005). Thus, a hybrid model including both a measurement model and a structural model was employed (Kline, 2005). The measurement model was constructed by creating three indicators of two items each for the latent

Table 1 Means, Standard Deviations, Reliability Coefficients, and Pearson Correlations: Study 1

Item	M	SD	α	HP	OP	SV	AP
Harmonious passion (HP)	5.00	1.14	.80	—			
Obsessive passion (OP)	3.07	1.40	.89	.48***	—		
Sport valuation (SV)	4.89	1.23	.84	.59***	.66***	—	
Autonomous personality (AP)	8.05	1.51	.86	.44***	.18*	.24**	—
Controlled personality (CP)	4.68	1.86	.86	.01	.24**	.15*	.06

*p < .05; **p < .01; ***p < .001.

variables in the model. Each parcel constituted the sum of the most- and least-correlated items with the total scale score (see Coffman & MacCallum, 2005 on this issue). Four fit indices recommended by SEM experts (e.g., Hu & Bentler, 1999; Kline, 2005) were selected to ascertain the model fit: (1) the χ^2 test statistic; (2) the comparative fit index (CFI); (3) the standardized root-mean squared residual (SRMR); and (4) the root mean square error of approximation (RMSEA). In the present model, all exogenous variables were allowed to covary among themselves (see Kline, 2005). Furthermore, the disturbance components of both types of passion were also allowed to covary to account for any common factor not accounted for in the model (see Figure 1). The model's fit indices were acceptable, χ^2 ($df = 58$, $n = 206$) = 106.57, $p < .001$; CFI = .966, SRMR = .058, RMSEA = .064. Results showed that all proposed links were significant (see Figure 1). Finally, it should also be underscored that an adequate amount of variance was explained in both harmonious (58%) and obsessive passions (51%).

The present findings provided support for the hypotheses. As expected, sport valuation and an autonomous personality orientation positively predicted harmonious passion, whereas sport valuation and a controlled personality orientation positively predicted obsessive passion. It would thus appear that activity valuation and personality both play independent, yet complementary, roles in the way the activity gets internalized in the person's identity and thus becomes passionate. These findings, therefore, provide preliminary support for the dualistic model of passion (Vallerand et al., 2003; Vallerand & Houliort, 2003; Vallerand & Miquelon, 2007) with respect to the determinants of the two types of passion.

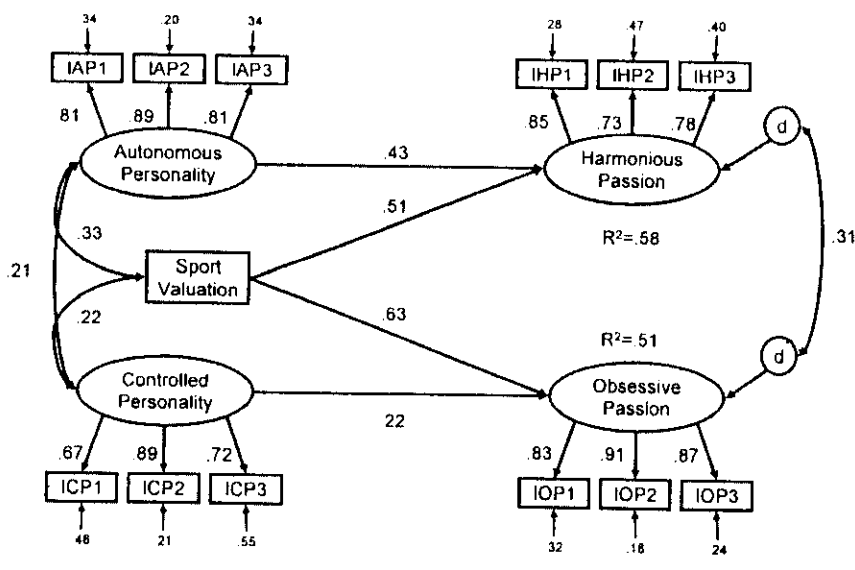


Figure 1 — Structural equation model involving the determinants (personality orientations and sport valuation) of harmonious and obsessive passion: Study 1. All parameters are significant at $p < .05$.

Study 2

The purpose of Study 2 was to pursue our investigation of the proposed integrative sequence while making two changes. First, whereas Study 1 looked at the determinants of the two types of passion, Study 2 focused on the outcomes side of the proposed integrative sequence. Specifically, Study 2 focused on the role of passion in the experience of affective variables within the context of sport. Participants completed scales assessing the two types of passion and positive and negative affect, vitality, and satisfaction in sport. It was hypothesized that harmonious passion would positively predict positive affect and vitality experienced within the realm of sport, whereas obsessive passion was hypothesized to be either negatively related or unrelated to these positive affective variables. Conversely, obsessive passion was hypothesized to be positively related to negative affect, whereas harmonious passion was expected to be either negatively related or unrelated to negative affect. In addition, in line with Diener (2000), a subjective well-being (SWB) in sport index was created by combining scales assessing satisfaction in one's sport, positive affect, and the absence of negative affect experienced in sport. The same hypotheses were formulated with this SWB index as with the positive affective variables. The second change that took place in Study 2, relative to Study 1, pertained to the participants. The participants of Study 1 were individuals involved in one of several sports, at the recreational level. In Study 2, athletes came from only one sport, namely basketball. Furthermore, they were competitive athletes who had reached a relatively high level of excellence, either at the high school, collegiate (or junior college), or university levels. The use of competitive athletes should allow us to determine whether the concept of passion is applicable beyond the realm of recreational activities, as shown in Study 1, and into the realm of competitive sports.

Method

Participants

The participants were 210 competitive basketball players (129 males, 78 females, 3 not specified). Most players ($n = 157$) were at the high school level and were participating in an elite basketball camp run by the Quebec Provincial Basketball Association. Other players were male university and junior-college players. Age ranged from 12 to 29 years ($M = 16.04$, $SD = 3.42$), and participants trained on average 9.46 hours per week. Athletes had been playing basketball for an average of 4.78 years ($SD = 3.26$ years). Results from t tests, with Bonferroni adjustments for the number of variables assessed, revealed no significant sex or group level (high school vs. university and junior-college levels) differences on any of the variables.

Measures

Passion. As in Study 1, passion toward sport was measured using the Passion Scale (Vallerand et al., 2003). In this study, internal reliability coefficients were .75 and .82 for the harmonious and obsessive passion subscales, respectively.

Satisfaction With Sport. This variable was measured using three items adapted from the French translation of Diener, Emmons, Larsen, and Griffin's (1985) Satisfaction With Life Scale (Blais, Vallerand, Pelletier, & Brière, 1989). In the present study, the word *life* was replaced by "basketball" (see Blanchard, Perreault, & Vallerand, 1998, for a similar procedure; sample item: "Even if I could, I wouldn't change any of my experiences in basketball, $\alpha = .80$). Participants were asked to indicate their degree of agreement with each of the three items using a 7-point Likert scale ranging from *Do not agree at all* (1) to *Very strongly agree* (7).

Positive and Negative Affect in Sport. Athletes were asked to complete the short PANAS scales (Watson, Clark, & Tellegen, 1988) with respect to how they feel during the basketball camp or the tryout camp. In this study, each subscale consisted of five adjectives (e.g., determined, anxious) and were assessed on a 7-point Likert scale. Internal reliability coefficients were .77 and .75 for positive affect and negative affect, respectively.

Vitality in Sport. Vitality in sport was assessed with three items from the Vitality Scale (Ryan & Frederick, 1997). This scale assesses the extent to which people feel alive and full of energy. A sample item is "I feel alive and full of energy when playing basketball" ($\alpha = .88$). It was completed on a 7-point scale.

Subjective Well-Being (SWB) in Sport. In order to test our hypothesis with respect to SWB in sport, an index was created. In line with Diener's (2000) definition of SWB, an index was created by combining athletes' satisfaction with basketball with their positive affect and the absence of negative experienced in that sport. Thus, scores for negative affect were reversed so that a higher score meant less negative affect and all three variables were then standardized and added together ($\alpha = .78$).

Procedure

Participants were met either directly in the gymnasium or in a classroom near the gymnasium. All participants completed the questionnaire during a rest period while playing basketball. The experimenters waited for all athletes to be seated and then proceeded to provide instructions about the study. Participants were told that the purpose of the questionnaire was to learn about how they felt toward their sport. Questionnaires and pencils were then distributed to participants. Upon completion of the consent form and the questionnaire, each participant returned his or her questionnaire to the experimenter. Participants were then explained the purpose and hypotheses of the study.

Results and Discussion

Inspection of the skewness and kurtosis indices for all variables proved relatively normal (values ranged from -1.24 to 0.77 for skewness and -0.78 to 2.64 for kurtosis; only sport valuation had a kurtosis higher than 2). Means, standard deviations, reliability coefficients, and Pearson correlations are presented in Table 2. In

Table 2 Means, Standard Deviations, Reliability Coefficients and Pearson and Partial Correlations: Study 2

Item	M	SD	α	HP	OP	PA	SS	VS	NA	SWB
Harmonious passion (HP)	5.84	.77	.75	—	.35***	.41***	.38***	.36***	-.02	.37***
Obsessive passion (OP)	3.84	1.32	.82	—	—	.26***	.11	.24***	.27***	.04
Positive affect (PA)	5.65	.87	.77	.36***	.13	—	.48***	.73***	-.05	.71***
Satisfaction with sport (SS)	6.11	.93	.80	.36***	-.03	—	—	.58***	-.31***	.83***
Vitality in sport (VS)	5.64	1.13	.88	.30***	.13	—	—	—	-.01	.61***
Negative affect in sport (NA)	2.55	1.17	.75	-.13	.31***	—	—	—	—	-.63***
Subjective well-being (SWB) (standardized mean)	0.00	2.16	.78	.38***	-.11	—	—	—	—	—

Note. Pearson correlations appear above the diagonal, whereas partial correlations involving the two types of passion and affective experiences appear below the diagonal; subjective well-being (SWB) in sport is an index composed of three variables: positive and negative affect (reverse scoring) in sport and satisfaction in sport. *** $p < .001$.

light of the significant correlation between the two types of passion ($r = .35$, $p < .01$) and past research on passion (Vallerand et al., 2003), partial correlations were conducted. These involved one type of passion (e.g., harmonious passion) and the various affective variables while controlling for the relationship with the other type of passion (e.g., obsessive passion). Furthermore, we used the Bonferroni correction to correct for the number of correlations performed (alpha level of $.05$ divided by 5 dependent variables = alpha value at the $.01$ level). Thus, only correlations beyond the $.01$ level were deemed significant in the present study. Results from the correlation analyses appear in Table 2. Of particular interest are the partial correlations, which are presented under the diagonal. As can be seen, partial correlations revealed that harmonious passion was consistently positively and significantly related to all positive affective variables. Although the relationship with negative affect was in the expected direction, it was not significant. The opposite pattern took place with obsessive passion as it was significantly and positively related to negative affect but not significantly related to positive affective variables. Finally, results with the SWB index showed the same pattern as the individual positive affective indicators.²

In sum, as predicted, results from the partial correlations revealed that the two types of passion were differentially related to affective variables. Overall, the present findings provided additional support for the dualistic passion model and underscore the more adaptive features of harmonious relative to obsessive passion with respect to affective experiences in sport.

Study 3

The main purpose of Study 3 was to test the entire integrative sequence involving the determinants and affective experiences (i.e., SWB) associated with passion. The second purpose of Study 3 was to examine the links between passion and affective experiences in a design that enabled each of these constructs to be assessed at a separate time period. Passion and affective variables were assessed at the same point in time in Study 2, making it difficult to determine whether passion led to affect or vice versa. We sought to partially address this issue in Study 3 by inserting a lengthy time interval (four months) between the passion and affective assessments. Such a design allows us to eliminate, at least within the confines of this study, the possibility that affect influenced passion as affect was assessed several months after passion. Although only an experimental design can truly address the causality issue, if the results from Study 2 are replicated in Study 3, such findings would at least leave open the possibility that passion can influence affect. Elite athletes completed questionnaires assessing sport valuation, personality orientations, and passion at Time 1 and SWB at Time 2. The model tested posited that the more athletes value their sport and hold an autonomous personality, the more harmonious their passion should be. Alternatively, the more athletes value their sport and display a controlled personality, the more obsessive their passion should be. In turn, it was hypothesized that harmonious passion would positively predict higher levels of SWB in sport, whereas obsessive passion was expected to be either negatively related or unrelated to SWB.

Method

Participants

One hundred and seven athletes filled out two questionnaires, one in October (Phase 1) and one four months later, in February (Phase 2). The age of the participants ranged from 11 to 33 years ($M = 15.46$ years, $SD = 3.72$ years). The sample consisted of 79 water polo players (35 females, 44 males) and 28 synchronized swimmers (all females) who took part in competitions at the national (Canadian) level, and trained on average 9.40 hours per week. They had been playing their sport for an average of 4.7 years ($SD = 4.0$ years). Results from t tests, with Bonferroni adjustments, revealed no significant differences between water polo players and synchronized swimmers on age or on any of the variables included in the hypothesized model.

Measures (Phase 1)

Passion. Passion toward sport was measured using the Passion Scale (Vallerand et al., 2003). In this study, internal reliability coefficients were $.84$ and $.90$ for the harmonious and obsessive passion subscales, respectively.

Personality Orientations. As in Study 1, athletes' personality orientations were measured using the Global Motivation Scale (GMS; Guay et al., 2003). The reliability indices for the external, introjected, identified, and intrinsic subscales were $.78$, $.80$, $.79$, and $.86$, respectively. Each item was scored on a 7-point Likert scale ranging from *Do not agree at all* (1) to *Very strongly agree* (7).

Sport Valuation. Sport valuation was measured with one item: "Water-polo [synchronized swimming] is important for me." Possible answers ranged from *Do not agree at all* (1) to *Very strongly agree* (7). Finally, participants indicated their gender, their age, the name of their team, and the last four digits of their home phone numbers to allow for the matching of the questionnaires of Phase 1 and Phase 2.

Measures (Phase 2)

Satisfaction With Sport and Positive and Negative Affect in Sport. Satisfaction with sport was assessed with the same scale as in Study 2 (Blais et al., 1989), except that four items were used instead of three. As in Study 2, positive (5 items) and negative (5 items) affect were also assessed with the PANAS scales (Watson et al., 1988). Internal reliability coefficients were respectively $.79$, $.86$, and $.71$ for the three subscales.

Subjective Well-Being (SWB) in Sport. An index of SWB in sport was created by using the procedures used in Study 2 (by standardizing athletes' scores on their satisfaction with their sport and their positive and negative affect in sport, reverse scoring, and summing them). The overall internal reliability coefficient for this index was $.73$.

Procedure

All participants were met at the training center before one of their training sessions. Athletes were brought to a room where tables and chairs had been set up. The experimenters waited for all athletes to be seated and then proceeded to provide instructions about the study. Participants were told that the purpose of the questionnaire was to learn about how they felt toward their sport. Questionnaires and pencils were then distributed to participants. Upon completion of the consent form and the questionnaire, each participant returned his or her questionnaire to the experimenter. Participants were then explained the purpose and hypotheses of the study.

Results and Discussion

Inspection of the skewness and kurtosis indices for all variables in the model proved normal (values ranged from -1.61 to 0.81 for skewness and from -0.71 to 0.95 for kurtosis, except for sport valuation, which had a kurtosis value of 3.25). Means, standard deviations, reliability coefficients, and Pearson correlations of the model variables are presented in Table 3.³

In order to test the hypothesized sequence, we created the two personality orientation indices using the same procedures as in Study 1. The Cronbach alphas for the autonomous and controlled orientations were respectively $.88$ and $.84$. The adequacy of the hypothesized model was assessed by way of a SEM adjusting for measurement error using EQS. In line with Coffman and MacCallum (2005, p. 240), 1-reliability (Cronbach alpha) was used as measurement error. The same four fit indices used in Study 1 were used again in the present study. The model's fit indices were acceptable, $\chi^2 (df = 7, n = 107) = 7.80, p = .351$; CFI = $.996$ SRMR = $.045$, RMSEA = $.033$. Results showed that all proposed links but one were significant (see Figure 2). More specifically, activity valuation and an autonomous personality positively predicted harmonious passion, whereas activity valuation and a controlled personality predicted obsessive passion. In turn, harmonious passion at Phase 1 positively predicted SWB in sport at Phase 2 four months later. Obsessive passion was negatively related to SWB in sport, but this relationship was not statistically significant ($\beta = -.11$). In order to ensure that the hypothesized model provided the best fit indices, three meaningful alternative models were tested. Results showed that none of these models had acceptable fit indices.⁴ Finally, it can be seen from Figure 2 that an adequate amount of variance was explained in the various endogenous variables (from 8% to 51%). Thus, overall, the present findings provided additional support for the proposed integrative sequence.

General Discussion

A sequence on the determinants and affective experiences of passion toward sport was proposed and tested in three studies. In line with the dualistic model of passion (Vallerand et al., 2003; Vallerand & Houffort, 2003; Vallerand & Miquelon, 2007), results from the present research suggest that activity valuation and personality orientations represent important determinants of harmonious and obsessive passion toward sport activities. More specifically, the findings from both Studies 1 and 3

Table 3 Means, Standard Deviations, Reliabilities, and Pearson Correlations: Study 3

Item	M	SD	α	HP	OP	SV	AP	CP
Harmonious passion (HP)	5.56	1.02	.84	—				
Obsessive passion (OP)	4.34	1.37	.90	.69***	—			
Sport valuation (SV)	6.20	1.04	—	.70***	.55***	—		
Autonomous personality (AP)	8.87	1.30	.88	.51***	.37***	.54***	—	
Controlled personality (CP)	4.93	1.93	.84	.07	.24**	-.04	.02	—
Subjective well-being in sport (SWB)	0.00	0.69	.73	.27**	.13	.19*	.24*	-.16

Note. $n = 107$. All variables were measured at Phase 1, except for SWB, which was measured at Phase 2 three months later. SWB in sport is an index composed of three variables: positive and negative affect in sport (reverse scoring) and satisfaction with sport.
* $p < .05$; ** $p < .01$; *** $p < .001$.

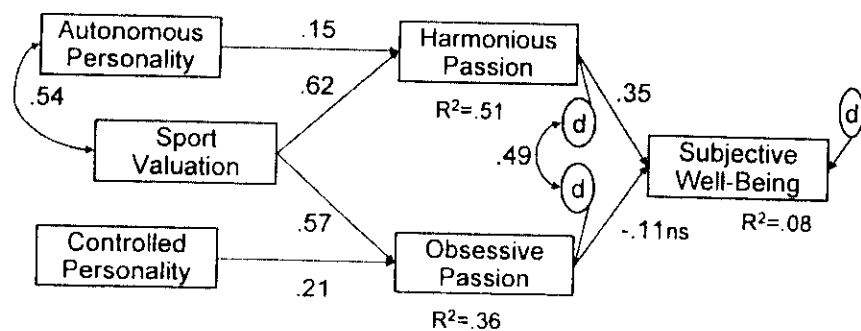


Figure 2 — Path analytic model of the integrative sequence involving the determinants (personality orientations and sport valuation) of harmonious and obsessive passion (Time 1) and subjective well-being in sport (Time 2): Study 3. All parameters are significant at $p < .05$ except when indicated as such (ns). The path analysis controlled for measurement error using 1-alpha as error term. Measurement error is not depicted in the figure for sake of clarity.

revealed that high levels of activity valuation and an autonomous personality predict harmonious passion, whereas high levels of activity valuation and a controlled personality predict obsessive passion. It is interesting to observe that the relationships between sport valuation and each of the two types of passion were highly similar in both studies (with the betas ranging from .51 to .63). What distinguishes the two types of passion is the personality orientation, with an autonomous personality contributing to harmonious passion, and a controlled personality to obsessive passion. These findings provide support for the “quantity/quality” dimensions of passion determinants as activity valuation (the “quantity” determinant) was found to predict the two types of passion to the same degree (and thus the presence of passion), whereas the type of personality orientations (the “quality” determinant) distinguished between the two types of passion. Finally, it should be noted that sport valuation was found to be a more important predictor of passion than personality orientations in both Studies 1 and 3. Such an effect may have been due to the fact that sport valuation was assessed at the same level of generality as passion (the contextual level; see Vallerand, 1997), whereas personality orientations were assessed at the global level. Thus, overall, these findings provide support for the determinants of passion as proposed by the dualistic model of passion.

The present research also provides valuable information on the role of passion in the affective life of athletes. The results of Studies 2 and 3 suggest that athletes with a harmonious passion toward sport are more likely to experience positive affective experiences in their sport than athletes with an obsessive passion. In fact, it would appear that if one is to experience a constellation of positive affective experiences and the absence of negative affect as indexed by SWB (Diener, 2000), harmonious passion needs to be involved in the process. Although the present results indicate that obsessive passion is unrelated to SWB in sport, they should not be interpreted as evidence that obsessive passion is unrelated to negative affective experiences in athletes. In a study conducted with football players over the

course of a season (Vallerand et al., 2003, Study 2), obsessive passion was found to positively predict increases in negative affective states experienced in one's life in general, whereas harmonious passion was unrelated to negative affect. Similar findings were obtained in both Studies 2 and 3, where obsessive passion was found to be negatively related to an index of SWB in sport, although the beta was nonsignificant ($-.11$ in both studies). Thus, although obsessive passion may lead to some desirable outcomes such as engaging and persisting wholeheartedly in the passionate activity, it would nevertheless appear to be conducive to less-adaptive affective functioning than harmonious passion.

Several issues should be examined in future research on passion for sport. First, the present research looked at the relationship between passion and affect but didn't look at other types of consequences. Future research is thus needed in order to more fully explore the role of passion in a variety of cognitive, behavioral, and even other types of affective outcomes. For instance, outcomes such as decision making, long-term persistence, performance, burnout, psychological adjustment following retirement from sport, and even injuries would appear to deserve empirical scrutiny from the present conceptualization. In light of the present findings and past research on passion, it would be predicted that harmonious passion would lead to more adaptive outcomes than obsessive passion. This is because harmonious passion originates from the authentic integrating self (Deci & Ryan, 2000; Hodgins & Kneec, 2002) and allows the individual to more fully open to the world. Harmonious passion would then facilitate the satisfaction of the psychological needs of competence, autonomy, and relatedness (Deci & Ryan, 2000), thereby leading to more adaptive outcomes. On the other hand, obsessive passion originates largely from ego-invested structures within the person (Hodgins & Kneec, 2002). The individual is then much more defensive and thus cannot open up as much to various experiences. Thus, although obsessive passion can lead the individual to persist in the activity, such persistence is rigid and may be counterproductive in the long run. Indeed, by not fully opening up to experiences and opportunities within the purview of the activity, people with an obsessive passion may not satisfy their psychological needs and thus are more likely to experience negative outcomes. Research to date is supportive of this analysis. For instance, having an obsessive passion facilitates engagement in risky behavior such as cycling on icy roads during winter (Vallerand et al., 2003, Study 3) and continuing dancing on an injury leading to greater number of days away from dancing due to chronic injuries (Rip et al., 2006). Such is not the case for harmonious passion. Finally, while harmonious passion has been found to be conducive to flow and concentration, obsessive passion has not been related to these variables and has even been found to be associated with negative affective experiences (Vallerand et al., 2003, Studies 1 and 2; the present research, Studies 1 and 3). Future research is needed, however, in order to determine whether the psychological needs of competence, autonomy, and relatedness represent mediators of the passion-outcomes relationship.

Second, the present research has looked at only one type of personality determinant, namely the autonomous vs. controlled personality orientations (Guay et al., 2003). As the results of the present research reveal, much variance remains to be explained in the two types of passion. What is needed is a better understanding of the personality variables that may characterize people with a harmonious vs. obsessive passion. Perfectionism (see Hall, Kerr, & Matthews, 1998) would

appear to represent a construct of interest. In line with the work of Miquelon, Vallerand, Grouzet, and Cardinal (2005), which has shown the existence of adaptive and maladaptive forms of perfectionism, it may be hypothesized that the first is conducive to harmonious passion, whereas the second may engender obsessive passion. Another variable of interest is self-control (Tangney, Baumeister, & Boone, 2004). Self-control is seen as "the ability to override one's inner responses, as well as interrupt undesired behavioral tendencies (such as impulses) and refrain from acting on them" (Tangney et al., 2004, p. 274). Thus, one would expect harmonious passion to correlate positively with the trait of self-control but obsessive passion to correlate negatively with it. Finally, in line with past findings on the different levels of adaptiveness associated with the two types of passion, it might be predicted that harmonious passion is associated with adaptive forms and obsessive passion with maladaptive forms of coping (Carver, Scheier, & Weintraub, 1989; Smith, Schutz, Smoll, & Ptacek, 1995). In sum, future research on the personality determinants of passion would appear in order.

Third, the role of the social environment (e.g., parents and coaches) should not be neglected as a potential determinant of passion (see Vallerand & Miquelon, 2007). In line with SDT (Deci & Ryan, 2000), the dualistic model of passion posits that the social environment can influence the internalization process. Thus, to the extent that a given sport activity is highly valued by the participant, a controlling environment will be conducive to the internalization of the activity in the athlete's identity and thus to the development of an obsessive passion. On the other hand, an autonomy-supportive (and less-pressured) environment should facilitate the internalization of an enjoyable and valued activity in the person's identity and thus lead to the development of harmonious passion. Social agents such as parents and coaches would thus be expected to affect athletes' development of passion toward their chosen sport. Future research is needed on this issue.

Finally, because little is known regarding the existence of stages in the development of passion, many important questions on that issue remain unanswered. For instance, do individuals slowly develop an interest in a sport that will, over time, turn into a passion? Is it possible for individuals to develop a passion the first few times they try a new sport? Answering these questions could result in important theoretical advancements and lead to the creation of programs designed to facilitate the development of passion that would be most beneficial for athletes.

Some limitations of the present research need to be underscored. First, the correlational design used in all three studies does not allow causal inferences. Consequently, researchers should try to replicate the present findings using experimental designs. Second, in Studies 1 and 3, we didn't measure internalization styles as such, but rather used the personality orientation (autonomy vs. controlled; Guay et al., 2003) as its proxy because no such measure exists at the moment. Future research would do well to focus on the development of such an instrument. Third, while the present research has looked at the role of passion in the affective life of athletes, we don't want to imply that we have scrutinized all dimensions of affective life. Much research remains to be done in this department. One fruitful area would entail assessing the role of passion in different performance-related affect as identified by the IZOF method (Hanin, 2000). Such research could tell us how passion and affect are intertwined with optimal levels of performance. Finally, the

present research has focused exclusively on athletes. In light of the present findings, it would appear important to look at the role of passion in other sport participants such as referees, coaches, and even fans.

Despite these limitations, the present research offers preliminary information on the determinants of passion and associated affective experiences. The present findings suggest that the concept of passion might provide an important understanding of the underpinnings of two very different types of heavy athletic involvement. Additional research on the concept of passion in sport would thus appear promising.

Acknowledgments

This research program was supported by grants from the Fonds pour la formation de Chercheurs et l'Aide à la Recherche (FCAR) and the Social Sciences Humanities Research Council of Canada (SSHRC) to the first author and to SSHRC fellowships to the second and sixth authors. Ethical approval to conduct the present research was obtained through the Institutional Research Board of the Université du Québec à Montréal.

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Manuscript submitted: March 26, 2005

Revision accepted: June 20, 2006

Notes

1. Participants represented a subsample from the Vallerand et al. (2003, Study 1) study. Only participants who were involved in sports and who had completed the Global Motivation Scale were selected for the present research. Results with this last measure were not reported in the original Vallerand et al. (2003) article.
2. Controlling for the number of weekly hours of engagement in one's sport did not change the pattern of results with harmonious and obsessive passion as predictors of affective experiences in Studies 2 and 3.
3. Preliminary analyses of all variables yielded kurtosis and skewness values indicating univariate normality for all but one variable (sport valuation), which had a positive kurtosis of 3.25. A logarithmic transformation produced a normal distribution for that variable. Data were analyzed

using the original variable and were reanalyzed using the transformed variable, producing highly similar matrices of covariance. Moreover, multivariate normality was estimated and the resulting Mardia (1970) coefficient was satisfactory (i.e., 6.07). Results with the nontransformed variable are therefore reported.

4. *Alternative Model 1*: Personality orientations → Passion → Sport valuation → SWB, χ^2 ($df = 8, n = 107$) = 38.45, $p < .001$; CFI = 0.84, SRMR = .148, RMSEA = 0.19; *Alternative Model 2*: Personality orientations → Sport valuation → Passion → SWB, χ^2 ($df = 7, n = 107$) = 20.77, $p < .01$; CFI = 0.93, SRMR = .082, RMSEA = 0.14; *Alternative Model 3*: Sport valuation → Personality orientations → Passion → SWB, χ^2 ($df = 7, n = 107$) = 71.04, $p < .001$; CFI = 0.67, SRMR = .206, RMSEA = 0.29. In addition, results with the Parsimony Comparative Fit Index (PCFI; see Kline, 2005) revealed that the proposed theoretical model proved slightly more parsimonious (.46) than the other three alternative models (respectively, .45, .43, and .31). Thus, the better model fit indices obtained by the proposed model were not due to a less parsimonious model. Overall, the present data provide support for the proposed theoretical model.

Measurement of Multidimensional Sport Performance Anxiety in Children and Adults: The Sport Anxiety Scale-2

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This article describes the development and validation of the Sport Anxiety Scale-2 (SAS-2), a multidimensional measure of cognitive and somatic trait anxiety in sport performance settings. Scale development was stimulated by findings that the 3-factor structure of the original Sport Anxiety Scale (SAS; Smith, Smoll, & Schutz, 1990) could not be reproduced in child samples and that several items on the scale produced conflicting factor loadings in adult samples. Alternative items having readability levels of grade 4 or below were therefore written to create a new version suitable for both children and adults. Exploratory and confirmatory factor analyses replicated the original SAS factor structure at all age levels, yielding separate 5-item subscales for Somatic Anxiety, Worry, and Concentration Disruption in samples as young as 9 to 10 years of age. The SAS-2 has stronger factorial validity than the original scale did, and construct validity research indicates that scores relate to other psychological measures as expected. The scale reliably predicts precompetition state anxiety scores and proved sensitive to anxiety-reduction interventions directed at youth sport coaches and parents.

Key Words: sport anxiety measurement, reliability, factorial and construct validity

The study of anxiety, its antecedents, its relations with other psychological variables, and its consequences has a long history of theoretical and empirical attention within sport psychology. Cognition and arousal are widely considered to be different components of the anxiety response, and a distinction has long been made between cognitive and somatic anxiety (Burton, 1998; Davidson & Schwartz, 1976; Deffenbacher, 1977; Smith, Smoll, & Wiechman, 1998). Moreover, although they interact with one another, cognitive and somatic anxiety can at times be elicited by different antecedents (Burton, 1998; Morris & Engle, 1981; Morris & Liebert, 1973), and they can be differentially related to performance, depending

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