Passion and Psychological Adjustment: A Test of the Person-Environment Fit Hypothesis

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Passion represents a strong inclination toward an activity that is important, liked, and in which significant time is invested. Although a harmonious passion is well integrated in one's identity and is emitted willingly, obsessive passion is not well integrated and is emitted out of internal pressure. This study tested for the presence of a Passion × Environment fit interaction with respect to psychological adjustment. Elite hockey players (N = 233) who tried out for a team in a highly competitive league participated in this short-term longitudinal study. As hypothesized, being selected by the highly competitive leagues led to higher psychological adjustment than not being selected by such leagues. Two months later, an interaction revealed that among athletes who were playing in highly competitive leagues, obsessively passionate athletes reported higher psychological adjustment than did harmonious athletes. Conversely, among athletes playing in less competitive leagues, harmonious athletes reported higher psychological adjustment than did obsessive athletes.

Keywords: *passion; person-environment fit; psychological adjustment*

Throughout the years, much research has shown that the type of involvement with which people engage in their daily activities can have important psychological effects (e.g., Sheldon & Kasser, 1995; Vallerand, 1997). At the same time, much research has revealed that the environment in which we operate also can have influences on a variety of psychological outcomes (see Deci & Ryan, 2002). Using a person-environment fit approach (P-E fit; e.g., Caplan, 1987; Pervin, 1968), the present study seeks to determine whether a person variable affecting activity engagement, namely, one's passion toward an activity, may interact with the type of environment in which one performs the passionate activity in influencing psychological adjustment. We first present the dualistic approach to passion (Vallerand et al., 2003) and then the P-E fit perspective.

A Dualistic Approach to Passion

Vallerand et al. (2003) have proposed a theoretical analysis of passion that sheds light on the type of involvement that individuals bring to an activity. Passion is defined as a strong inclination toward an activity that individuals like, that they value, and in which they invest time and energy. Another defining characteristic of passion is that the passionate activity has been internalized in the person's identity. Thus, in line with various theories (e.g., Csikszentmihalyi, 2000; Deci & Ryan, 2000), it is proposed that the self becomes more complex over time, in part by internalizing elements of the environment. Vallerand et al. (2003) further posit that two dis-

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tinct types of passion develop as a result of the type of internalization process that takes place. The first one, obsessive passion, results from a controlled internalization of the activity into one's identity (Sheldon & Kasser, 1995). Such an internalization originates from intra- and/or interpersonal pressure, either because certain contingencies are attached to the activity, such as feelings of social acceptance or self-esteem, or because the sense of excitement derived from activity engagement becomes uncontrollable. Thus, although individuals like the activity, they feel compelled to engage in it due to these internal contingencies that come to control them. Because activity engagement is out of the person's control, it eventually takes disproportionate importance in the person's identity and causes conflict with other aspects of the person or other activities in the person's life.

For instance, the student who is preparing for tomorrow's exam who has an obsessive passion toward playing basketball is likely to stop studying to go play with his friends, even though his exam may suffer the next day. Furthermore, obsessive passion is expected to breed an internal compulsion to engage in the passionate activity, leading to a more rigid and conflicted form of task engagement. Such a pressured engagement should prevent the person from fully focusing on the task at hand and may interfere with the experience of positive affect or even facilitate negative affect during task engagement. In addition, because this internal compulsion inherent in obsessive passion leads the person to engage in the activity even when he or she should not, he or she may experience negative emotions once engagement in the passionate activity is terminated (e.g., guilt for having engaged in the activity when one should not have done so). In a similar vein, this internal pressure to engage in the passionate activity makes it very difficult for the person to fully disengage from thoughts about the activity. Thus, the person will experience negative feelings of psychological dependence and rumination when prevented from engaging in the activity. Finally, because of its controlled nature, obsessive passion is expected to lead to a rigid form of persistence. Such persistence is rigid because it not only occurs in the absence of positive emotions but even in the face of important personal problems experienced at work and in relationships.

Harmonious passion, by contrast, results from an autonomous internalization of the activity into the person's identity. An autonomous internalization occurs when individuals have freely accepted the activity as important for them without any contingencies attached to it (Sheldon & Kasser, 1995). This type of internalization produces a motivational force to engage in the activity willingly and engenders a sense of volition and personal endorsement about pursuing the activity. Individuals are not compelled to do the enjoyable activity, rather, they freely choose to do so. With this type of passion, the activity is important but not in an overpowering way. The activity is then in harmony with other aspects of the person's identity and there is little conflict between the passionate activity and other life activities. Thus, the student who is preparing for tomorrow's exam who has a harmonious passion toward playing basketball is likely to continue studying and reschedule the pickup game with his or her friends.

Harmonious passion is hypothesized to lead to greater positive affect and less negative affect than obsessive passion. This is because the autonomous internalization of the activity leads the person to engage in the task in a more flexible manner and thus to experience task engagement more fully. Such a flexible form of activity engagement should facilitate better concentration and the experience of positive affect, absorption, and flow while engaging in the activity. Furthermore, because harmonious passion facilitates control of the activity, it should contribute to the experience of positive affect and minimize the experience of negative affect after task engagement. It may even facilitate positive affect when the person is prevented from engaging in the activity because the person feels free to fully engage in other activities. Finally, such control over the activity should lead the person to persist in the activity only if positive returns are expected. If the conditions become negative or aversive to the person, behavioral involvement should cease.

Research has provided support for the dualistic approach to passion. For instance, Vallerand et al. (2003, Study 1) showed that the results of exploratory and confirmatory factor analyses provided support for the validity and reliability of the two-factor Passion Scale. Both types of passion correlated equally and positively with measures of activity valuation and of perceptions of the task as being a passionate activity. Also, both types of passion correlated positively with a measure of activity inclusion in the self (e.g., Aron, Aron, & Smollan, 1992), whereas only obsessive passion was found to be associated with a measure of conflict with other life activities. Finally, the authors found a positive relation between harmonious passion and measures of flow (the feeling that the person is immersed in the activity; see Csikszentmihalyi, 1990; Marsh & Jackson, 1999) and positive affect experienced during task engagement, whereas obsessive passion was positively correlated with negative affect (e.g., shame) and cognition (e.g., rumination) after engagement with the activity and when prevented from engaging in the activity altogether.

Although no published research has looked directly at the relationship between passion and psychological

adjustment, some research suggests that passion may contribute to psychological adjustment. For instance, obsessive passion has been found to be associated with pathological gambling, whereas harmonious passion has been found to be unrelated to it (Ratelle, Vallerand, Mageau, Rousseau, & Provencher, 2004; Vallerand et al., 2003, Study 4). In addition, harmonious passion has been shown to contribute to increases in global positive affect over time, whereas obsessive passion predicts increases in global negative affect over time (Vallerand et al., 2003, Study 2).

The concept of passion has some ties with other concepts, such as those of flow (Csikszentmihalyi, 1990, 2000), talents (Rathunde, 1996; Rathunde & Csikszentmihalyi, 1993), well-developed interests (e.g., Renninger, 1992; Renninger & Hidi, 2002), and intrinsic and extrinsic motivation (Deci & Ryan, 1985). Flow can be seen as a consequence of passion (see Vallerand et al., 2003, Study 1). Thus, passionate people should experience more flow than those less passionate. Furthermore, flow should result mainly from one specific type of passion, namely, harmonious passion (see Vallerand et al., 2003, Study 1). In addition, other concepts such as talents and well-developed interests share the elements of interest and value that characterize passion. However, similar to flow, these concepts do not make a distinction between types of interests or talents that reflect different types of engagement, whereas the passion conceptualization does make such a distinction (i.e., harmonious and obsessive passion). Finally, intrinsic motivation also shares some conceptual similarity with passion because both involve interest and liking toward the activity. However, intrinsically motivated activities are typically not seen as being internalized in the person's identity (Deci & Ryan, 1985) and are best seen as emerging from the person-task interaction at the short-term level (Koestner & Losier, 2002). Furthermore, extrinsic motivation does not entail performing the activity out of sheer enjoyment but for something outside of the activity. A fundamental difference between extrinsic motivation and passion is thus the lack of liking for the activity (see also Vallerand et al., 2003, Study 2). In sum, although the passion framework does share some conceptual similarities with other motivational constructs, it also differs from them in significant ways.

The Person-Environment (P-E) Fit Perspective

The P-E fit approach proposes that the fit between individual characteristics and environmental contexts can have important psychological repercussions for the individual (Caplan, 1987; Diener, 1998; Eccles, Lord, & Roeser, 1996; Pervin, 1968). A P-E fit is achieved when there is a match between personal characteristics of the person and characteristics of the environment. In line with past research (e.g., O'Connor & Vallerand, 1994), and as a supplementary methodological control, we used experts in the present research to identify the highly and less competitive environments (hockey leagues) in which participants would engage. Doing so also allowed us to validate the level of competitiveness of the environments in which our participants participated. It may be hypothesized that highly competitive environments that promote a rigid and inflexible type of persistence and involvement, and which require individuals to be overly involved in the activity at the expense of other life domains, can be seen as fitting well with an obsessive type of passion. Conversely, less competitive environments, while still being demanding, do not require an inordinate investment of time and energy in the activity. Such environments should fit better with individuals holding a harmonious passion who may have more diversified interests (Vallerand et al., 2003; Vallerand & Houlfort, 2003).

Past research has shown that having a P-E fit is positively associated with various indices of psychological adjustment, including life and work satisfaction, personal accomplishment, maintenance of smoking cessation, and positive affect, and is negatively associated with negative indices such as emotional exhaustion, depersonalization, somatic complaints, and negative affect (Brandstatter, 1994; Harackiewicz, Sansone, Blair, Epstein, & Manderlink, 1987; O'Connor & Vallerand, 1994; Smith & Tziner, 1998; Wallenius, 1999). Using an achievement motivation approach to the P-E fit, Tauer and Harackiewicz (1999) also have shown that individuals high in achievement motivation reported more enjoyment toward a task in a competitive context (where P-E fit was greater) than in a less competitive context (where fit was lower). Conversely, those low in achievement motivation, who dislike evaluation and avoid achievement situations, reported more enjoyment in a less competitive context than in a more competitive one. However, very few longitudinal and prospective designs have been used in past P-E fit research. Clearly, the use of such designs would be important to help determine the extent to which the P-E fit can predict changes in psychological adjustment over time.

THE PRESENT RESEARCH

In line with the above, there were two major purposes to this research. First, we wished to test the role of a Passion × Environment P-E fit in the psychological adjustment of adolescents and young adults involved in the same passionate activity, namely, competitive hockey. Adolescents and young adults were used because, according to Roberts and Caspi (2003), developing an identity may be particularly important at such an age (on this issue, see also Berzonsky & Adams, 1999; Erikson,

1982). Because having a passion for hockey entails having internalized the activity into one's identity (Vallerand et al., 2003), events occurring in hockey are likely to have important psychological effects on these individuals. This is especially the case for male Canadians, for whom hockey represents a highly significant and valued activity. The second purpose of this study was to assess changes in the psychological adjustment of adolescents and young adults that may take place over time with the use of a short-term longitudinal design.

Male adolescent and young adult hockey players who had been playing competitive hockey for a significant amount of time presented themselves at a tryout camp for a team playing in a highly competitive league. They then completed a questionnaire assessing their level of passion toward hockey as well as their psychological adjustment. Two weeks later, athletes completed a second questionnaire assessing psychological adjustment immediately after finding out if they had made the team. In line with past research on the psychological effects of success and failure at a significant activity (e.g., Boggiano, 1998; Brunstein & Gollwitzer, 1996), it was hypothesized that participants who made a team from a highly competitive league would experience greater levels of psychological adjustment in comparison to those who did not make that team (i.e., but who were selected by a less competitive league).

Finally, 2 months later (i.e., after approximately one third of the regular hockey season had elapsed), after all players had the time to get used to their environment, psychological adjustment was assessed a third time. In line with the P-E fit perspective, an interaction was hypothesized. More specifically, it was anticipated that obsessively passionate individuals who made it in the highly competitive leagues would display a higher level of psychological adjustment compared to harmoniously passionate athletes. This is because for obsessively passionate athletes, making it in the most competitive leagues might best correspond to the very high level of involvement they want to achieve in hockey, even at the expense of other life activities. However, for harmoniously passionate athletes, the demands of the highly competitive leagues may be at odds with the more balanced involvement that these individuals typically desire in their lives. Conversely, among the athletes who ended up playing in the less competitive leagues, we expected the harmoniously passionate athletes to display higher levels of psychological adjustment compared to obsessively passionate ones. This is because such leagues fit better with the goals and values of harmoniously passionate individuals who seek a more balanced lifestyle but not with those of obsessively passionate persons who want to focus almost exclusively on the passionate activity.

In sum, we first expected that after learning which team had selected them, athletes selected by the highly competitive leagues would report higher psychological adjustment in comparison to athletes not selected by these highly competitive leagues (i.e., who ended up being selected by less competitive leagues). However, 2 months later, we expected that it would be athletes who presented the best match between their passion and their competitive environment (i.e., obsessively passionate athletes playing in highly competitive leagues and harmoniously passionate athletes playing in less competitive leagues) who would present the highest levels of psychological adjustment.

METHOD

Participants

A total of 233 individuals constituted our final sample. Participants were between the ages of 13 and 20 years (M = 18 years), were all men, and predominantly had French as their mother tongue (93%). They had been competing in hockey for an average of 8.4 years.

Procedure

Participants were recruited by the first author during the training camps held by teams from the three most competitive nonprofessional hockey leagues of the Province of Québec (i.e., 53% from the Québec Midget AAA Hockey League: LHMAAAQ, 31% from the Québec Junior AAA Hockey League: LHJAAAQ, and 16% from the Québec Junior Major Hockey League: LHJMQ). When presented with the first questionnaire, athletes were informed that there was no wrong or right answer and that the researchers conducting the study were interested in understanding how athletes feel when they participate in their sport. They also were informed that they could put an end to their participation at any time. Participants were assured that their answers would serve for research purposes only. A total of 835 athletes received and completed this first questionnaire.

The second questionnaire was sent out by mail to participants' homes approximately 2 weeks after Questionnaire 1. The mailing of this questionnaire was synchronized so that it reached participants' homes as close as possible to the moment that they had been informed of whether they had been selected by a team from a highly competitive league versus by a team from a less competitive league for that season. Four hundred and fifty participants completed and returned this questionnaire, representing a response rate of 54%. A number of participants (n = 23) received and completed Questionnaire 2 before having actually learned if a team from a highly versus a less competitive league had selected them for that season. These participants were excluded from

the analyses. The third questionnaire was sent to athletes' homes 2 months after the second one. Two hundred and sixty-nine athletes returned this questionnaire (a 60% response rate from Questionnaire 2).

To determine if the athletes who had completed all three questionnaires of the study ($n = 269$) differed from those who only completed Questionnaire 1 ($n = 566$), a MANOVA was conducted on the variables of Questionnaire 1 (i.e., harmonious and obsessive passions and psychological adjustment). Results revealed the absence of a significant multivariate difference between the two samples, $F(6, 828) = 1.58$, $p = .78$, $\eta^2 = .01$. Furthermore, although the most competitive leagues selected approximately 50% of the athletes that were invited to their training camps, this proportion also was observable among the participants who completed all three questionnaires (i.e., 116 of the 233 participants constituting our final sample had been selected by one of the most competitive leagues).

Competitiveness Levels of the Different Environments

To obtain an assessment of the competitiveness of the different leagues (highly vs. less competitive hockey leagues), a small questionnaire was distributed to experts in the field of hockey in Québec ($n = 5$). These experts had been working for at least 10 years in provincial or regional hockey associations. Because they were not currently involved with any league, these experts also were less likely to be biased in their assessment of the different types of environments present in the different leagues.

These experts were asked to compare the environment present in the three most competitive nonprofessional hockey leagues in the Province of Québec (see above) to that present in the other leagues with respect to a number of criteria.[1] According to the experts, the two types of leagues differed significantly ($p < .05$), with the highly competitive leagues being more demanding than the less competitive leagues with respect to the number of weekly on-ice practices (*M*s = 4.50 vs. 1.63, respectively), the number of weekly hours spent on on-ice (*M*s = 7.30 vs. 2.20) and off-ice training (*M*s = of 2.50 vs. 1.00), the number of regular season games (*M*s = 54 vs. 30), and the average number of hours spent traveling between cities to take part in the games (*M*s = 10.33 vs. 3.70). Clearly, these two types of leagues differ with respect to the type of environment in which the participants are engaged.

Measuring Instruments

The questionnaire at Time 1 included demographic questions as well as instruments measuring passion toward hockey (Vallerand et al., 2003) and baseline measures of psychological adjustment, including positive and negative affect (Watson, Clark, & Tellegen, 1988), depressive symptoms (Radloff, 1977), and life satisfaction (Diener, Emmons, Larsen, & Griffin, 1985). The questionnaire used at Times 2 and 3 was composed of these three psychological adjustment measures.

The Passion Scale. The Passion Scale consists of two seven-item subscales assessing harmonious and obsessive passion. The scale has been shown to display adequate levels of reliability and validity (Vallerand et al., 2003). Participants were asked to complete the Passion Scale by referring to hockey. An example for an obsessive passion item is "I cannot live without hockey," and an example of an item measuring harmonious passion is "This activity (hockey) is in harmony with the other activities in my life." Items were rated on a 7-point scale ranging from 1 (*do not agree at all*) to 7 (*completely agree*). The obsessive and harmonious passion subscales both showed adequate internal reliability (Cronbach's alphas = .90 and .75, respectively).

Depressive symptoms (Radloff, 1977). The Center for Epidemiological Studies Depression Scale (CES-D) assesses depressive symptomatology. When completing this 20-item scale, respondents were asked to consider and rate the frequency of different actions and feelings on a 4-point scale. The CES-D was designed for nonclinical populations. In the present study, the internal reliability of this scale was acceptable (Cronbach's alphas = .85 at Time 1, .91 at Time 2, .91 at Time 3).

Affective states (Positive and Negative Affect Schedule; Watson et al., 1988). Five positive (e.g., *enthusiastic*) and five negative (e.g., *nervous*) adjectives were used to measure positive and negative affective states. Each adjective was rated on a 5-point Likert-type scale (1 = *not at all or a little*, 5 = *extremely*). The positive and negative affect subscales presented adequate reliabilities at Time 1 (Cronbach's alphas = .74 and .70, respectively), Time 2 (.86 and .75), and Time 3 (.82 and .75).

Life satisfaction. The Satisfaction With Life Scale (Diener et al., 1985) was used as a final indicator of psychological adjustment. This five-item scale assesses the level of satisfaction with one's global life using a 1 (*strongly disagree*) to 7 (*strongly agree*) Likert-type scale (e.g., "The conditions of my life are excellent"). The reliability for this scale was acceptable (Cronbach's alphas = .80 at Time 1, .81 at Time 2, .86 at Time 3).

A psychological adjustment index was computed using these three scales by reversing the scores of the depression symptoms measure and of the negative affect subscale, standardizing all scores, and computing an average of these measures. This psychological adjustment index presented adequate reliabilities at Times 1, 2, and 3 (Cronbach's alphas = .88, .93, and .93, respectively).

TABLE 1: Adjusted and Observed Standardized Scores of Psychological Adjustment as a Function of Passion Types, Types of Leagues, and Time, Controlling for Psychological Adjustment at Time 1

	Passion Types							
	Harmonious				*Obsessive*			
	Types of Leagues							
	Less Competitive Leagues (n = *58*)		*Highly Competitive Leagues* (n = *51*)		*Less Competitive Leagues* (n = *59*)		*Highly Competitive Leagues* (n = *65*)	
	Time							
	2	*3*	*2*	*3*	*2*	*3*	*2*	*3*
Psychological adjustment								
Adjusted means	–0.05	0.17	0.20	–0.19	–0.30	–0.14	0.17	0.14
Observed means	–0.01	0.25	0.31	–0.13	–0.45	–0.23	0.18	0.09

NOTE: The psychological adjustment index is composed of the standardized scores of the following scales: life satisfaction, depressive symptoms (reversed), as well as positive affect and negative affect (reversed).

RESULTS

Preliminary Analyses

Prior to analyses, the main variables used in the analyses were examined for accuracy of data entry, missing values, and fit between their distributions and the assumptions of multivariate analysis (Tabachnick & Fidell, 2001). When the majority of the items of a scale had been completed by a participant, missing item scores were replaced by that participant's own mean on the variable. None of the variables presented particularly high numbers of missing data (range = 0 to 8). The missing data (representing less than 1% of the data file) were replaced using the mean imputation procedure. Normality indices showed appropriate levels of skewness and kurtosis for all computed variables. Thirteen participants were identified through Mahalanobis distance as multivariate outliers, $\chi^2(42) = 73.40$, $p < .001$) and were subsequently deleted. Two hundred and thirty-three participants were thus retained for the analyses.[2]

Main Analyses

Passion categories were created in the following fashion. The two subscale scores were first transformed into *z* scores. Obsessively passionate athletes were those with a higher *z* score on the obsessive passion subscale than on the harmonious passion subscale ($n = 124$), whereas harmoniously passionate athletes were those who presented a higher *z* score on the harmonious passion subscale than on the obsessive passion subscale ($n = 109$) (see Koestner, Bernieri, & Zuckerman, 1992, for more information on this strategy).

A 2 (Passion Types: obsessive passion vs. harmonious passion) × 2 (Types of Leagues: highly competitive leagues vs. less competitive leagues) × 2 (Times 2 and 3) ANCOVA was performed on the psychological adjustment index with the Time 1 psychological adjustment index serving as covariate (see Table 1). In this analysis, this covariate was significantly associated with psychological adjustment, $F(1, 228) = 81.40$, $p < .001$, $\eta^2 = .26$).[3] None of the multivariate main effects were significant (*F*s ranged from 0.05 to 2.26, η^2s ranged from .00 to .01). Two two-way interactions emerged, more specifically the one between Passion Types and Types of Leagues, $F(1, 228) = 8.71$, $p < .01$, $\eta^2 = .04$, and between types of leagues and time, $F(1, 228) = 27.50$, $p < .001$, $\eta^2 = .11$. The Passion Types × Time interaction was not significant, $F(1, 228) = 2.22$, $\eta^2 = .01$. These two-way interactions were interpreted in light of the hypothesized significant three-way interaction, $F(1, 228) = 4.14$, $p < .05$, $\eta^2 = .02$.

The three-way interaction was decomposed by investigating the Passion Types × Types of Leagues interaction effect separately at Time 2 and at Time 3. The 2 (Passion Types) × 2 (Types of Leagues) ANCOVA conducted at Time 2 revealed a significant effect for the Time 1 psychological adjustment index as a covariate, $F(1, 228) = 57.60$, $p < .001$, $\eta^2 = .20$. Results also revealed a nonsignificant interaction between passion types and types of leagues, $F(1, 228) = 1.81$, $\eta^2 = .01$, as well as a nonsignificant Passion Types main effect, $F(1, 228) = 2.64$, $\eta^2 = .01$. Only the Types of Leagues main effect was significant, $F(1, 228) = 19.11$, $p < .001$, $\eta^2 = .08$, revealing, as predicted, greater psychological adjustment among athletes who were selected by the highly competitive leagues ($M = 0.19$) in comparison to athletes who had not been selected by the highly competitive leagues ($M = –0.18$).

A 2 (Passion Types) × 2 (Types of Leagues) ANCOVA was then conducted on Time 3 psychological adjustment (see Figure 1). This analysis again revealed a significant effect for the Time 1 psychological adjustment index as a covariate, $F(1, 228) = 53.15$, $p < .001$, $\eta^2 = .19$. The Passion Types and the Types of Leagues main effects were not significant in this analysis, $F(1, 228) = 0.01$, $\eta^2 = .00$, and $F(1,$

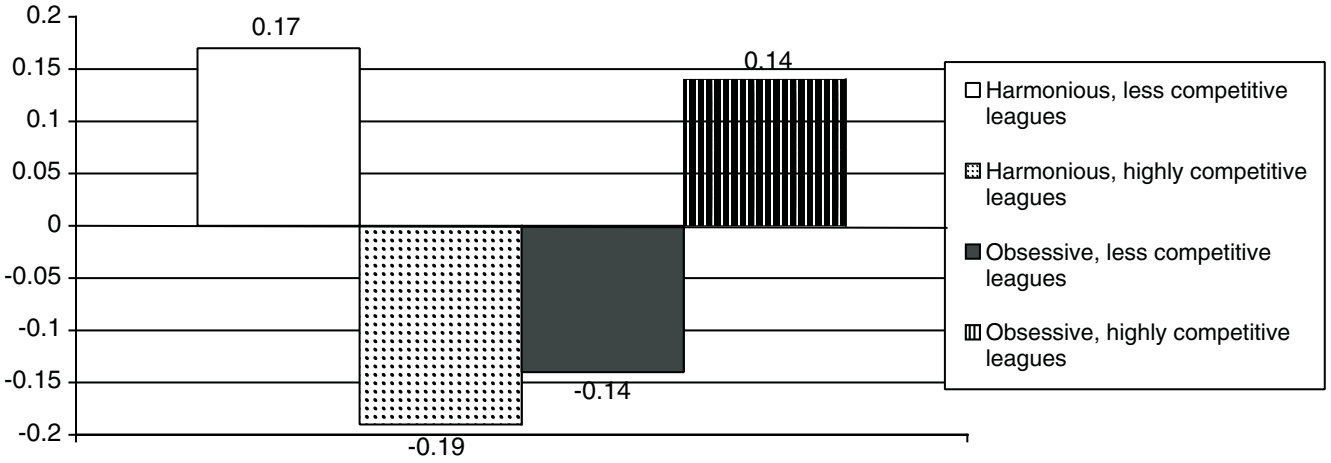

Figure 1 Time 3 psychological adjustment index scores adjusted for Time 1 scores as a function of passion types and types of leagues.

228) = 2.72, $\eta^2 = .01$, respectively. Only the Passion Types × Types of Leagues interaction proved to be significant, $F(1, 228) = 11.78$, $p < .01$, $\eta^2 = .05$. Further investigation of this interaction using simple effect tests revealed that among athletes who were playing in the less competitive leagues, those who were harmoniously passionate presented higher psychological adjustment ($M = 0.17$) than obsessively passionate athletes ($M = –0.14$), $F(1, 114) = 6.03$, $p < .05$, $\eta^2 = .05$. An inverse pattern was observed for athletes who were playing in the highly competitive leagues. More specifically, obsessively passionate athletes displayed a higher level of psychological adjustment ($M = 0.14$) than did harmoniously passionate athletes ($M = –0.19$), $F(1, 113) = 6.39$, $p < .05$, $\eta^2 = .05$.[4]

Overall, these results provide clear support for the P-E fit hypothesis. Indeed, 2 months after the selection was made (once athletes had time to realize what the demands of their new league were), obsessively passionate athletes playing in highly competitive leagues were found to report higher levels of psychological adjustment than harmoniously passionate athletes playing in such leagues. Conversely, harmoniously passionate athletes playing in less competitive leagues were found to experience higher levels of psychological adjustment than obsessively passionate athletes playing in such leagues.

DISCUSSION

The purpose of the present study was to test the role of P-E fit in the psychological adjustment changes of adolescents and young adults involved in different types of competitive environments. As would be expected, a selection effect was obtained whereby being selected by the most competitive leagues led to greater immediate psychological adjustment for all participants. However, of greater interest were the results of a significant Passion Types × Types of Leagues × Time interaction that emerged 2 months after the initial selection. Specifically, the two groups of hockey players who displayed concordance between their personal orientation (passion) and the demands of the environment (types of leagues; i.e., obsessively passionate players playing in highly competitive leagues and harmoniously passionate players in less competitive leagues) experienced greater psychological adjustment at Time 3 relative to those who showed discordance (i.e., obsessively passionate players playing in less competitive leagues and harmoniously passionate players in highly competitive leagues). Thus, these results provided support for the P-E fit hypothesis, which posits that participants who participate on a regular basis in an environment that is directly in line with their personal goals and values would come to experience greater psychological adjustment compared to those who interact in an environment that is contrary to their goals and values. These findings lead to a number of implications.

A first set of implications pertains to the support that was obtained for the P-E fit approach. Indeed, it was found that participants who experienced the highest levels of psychological adjustment were either those who were obsessively passionate and who performed in a highly competitive environment or those who were harmoniously passionate and performed in a less competitive environment. Neither the person's passion nor the environment alone was able to individually explain the levels of psychological adjustment that eventually came to take place at Time 3. Rather, the present findings underscore the fact that a match between the person and the environment may be necessary for psychological

adjustment to be maximized. These findings are in line with past research that has shown that a P-E fit is related to several psychological benefits, including work satisfaction, personal accomplishment, positive affect, enjoyment, less emotional exhaustion, depersonalization, somatic complaints, and negative affect (e.g., Brandstatter, 1994; O'Connor & Vallerand, 1994; Smith & Tziner, 1998; Tauer & Harackiewicz, 1999; Wallenius, 1999).

Three aspects of the present research deserve attention in line with the P-E fit approach. A first is that the present findings were obtained while an assessment of the environment was performed by experts. This supplementary methodological control allowed us to ensure that all participants in a given condition (e.g., those in the highly competitive environment) interacted under similar environmental conditions. A second point of interest is that the present study employed a longitudinal design to look at changes in psychological adjustment that may take place over time. Typically, research in the area (e.g., O'Connor & Vallerand, 1994) is conducted at one point in time. By using a longitudinal design, the present research is in a better position to make inferences on the role of the P-E fit in psychological adjustment changes that the person experiences over time. A final point that deserves attention is that the P-E fit effect was not observed immediately after team selection in the different types of environment (i.e., leagues) but 2 months later, after the participants had the opportunity to experience the demands of their new environment. In line with the preceding point, these findings imply that a one-shot design may not be sensitive enough to detect the P-E fit effects that may come to take place after a certain time. Rather, longitudinal or prospective designs would appear more suitable to this task.

A second set of implications of the present findings deals with the concept of passion. Although the concept as defined by Vallerand et al. (2003) is very recent, research so far has systematically shown that harmonious passion is related to a host of positive outcomes, whereas obsessive passion is either unrelated to positive outcomes or positively related to negative outcomes (see Ratelle et al., 2004; Vallerand et al., 2003; Vallerand & Houlfort, 2003). The present findings are the first to qualify this pattern of effects. It thus appears that under certain circumstances, obsessive passion may not invariably lead to poor outcomes and harmonious passion to positive outcomes. The question is why? A first explanation may have to do with conflict. Although harmonious passion has previously been associated with less conflict between the passionate activity and other life pursuits, it is possible that in a highly competitive context, conflict might actually be experienced more by harmoniously passionate than by obsessively passionate individuals. This is because harmoniously passionate individuals may experience conflict between high levels of sustained activity involvement necessary to reach high levels of performance, on one hand, and their harmoniously oriented needs and goals, which (in addition to involvement in the passionate activity) also may include personal development and engagement in other life pursuits, on the other. However, the neglect of other life pursuits at the expense of increased engagement in the activity may actually fit in well with the objectives sought by obsessively passionate athletes. In such conditions, these individuals would therefore experience less conflict than their harmoniously passionate counterparts. The exact opposite situation would appear to take place in less competitive environments where less conflict would be experienced by harmoniously passionate than obsessively passionate individuals. Future research is needed to determine more clearly if the construct of conflict is responsible for the present effects.

A second explanation regarding why the present findings differ from those obtained in past research pertains to the samples and activities used so far in passion research. Past research has typically focused on the general population across a host of different activities (e.g., Vallerand et al., 2003, Study 1). It is possible that in general such activities are not engaged in highly competitive environments like it was the case in the present study. Thus, harmonious and obsessive participants in past research would have been typically engaged in less competitive environments. In line with the present findings, which showed that harmonious participants had higher levels of psychological adjustment than obsessive participants in less competitive environments, this would explain why it has been generally found in past research that harmonious passion predicts positive outcomes and obsessive passion predicts negative outcomes.

A final explanation deals with the time frame of the present study. Only 2 months elapsed between team selection and the last psychological adjustment assessment. It is possible that this provided insufficient time for harmoniously passionate individuals to adjust to their more demanding surroundings. It is possible that with more time, harmoniously passionate individuals may eventually come to flourish in such environments and experience high levels of psychological adjustment. This would be especially the case because these individuals should be able to engage in a flexible reorganization of their life so as to engage more often in the passionate activity (and still derive positive affect from participation) and yet come to mentally disengage from the activity when not performing it (and thus experiencing positive affect from engagement in other activities). Consequently, harmoniously passionate individuals may come to be able to derive comparable levels of psycho-

logical adjustment in both high and low competitive environments because of their greater level of flexibility. Furthermore, such flexibility also may help harmoniously passionate individuals learn to adapt to other competitive and/or demanding environments and to reestablish a balance between the different activities of their lives, both at the short-term (e.g., a new hockey league) and long-term levels (e.g., one's future career, parenting, etc). Conversely, obsessively passionate individuals may have a tough time to learn to adapt in such a fashion to varying environments because these individuals should be likely to display rigidity and cling to hockey-related activities rather than to flexibly reorganize the various aspects of their lives. They would thus be more likely to display lower levels of psychological adjustment as they progress, not only while playing hockey but also in their lives in general. On the medium- and longer-term levels, challenges such as injuries as well as retirement from hockey, for instance, should be especially difficult for these individuals. Future research is needed to test these hypotheses.

The present research has some limitations. Only adolescent and young male adults participated in the present study. Furthermore, the present research took place within the realm of a single activity, namely, hockey. Future research should seek to replicate the present findings with a larger spectrum of individuals (i.e., different ages, genders, cultures) and activities. Another limitation deals with the high level of attrition of our initial sample. Although no differences were found between the initial sample and participants who engaged in all three phases of the study, it is possible that these two groups of participants differ on some variables not assessed in this study. A further limitation pertains to the short-term aspect of the present study. As mentioned above, it would be interesting to extend the design and assess psychological adjustment, for instance at 6 and 12 months and beyond. Future research on this issue could lead to important insights regarding the long-term adjustment of harmoniously and obsessively passionate individuals in different types of environments. In addition, hockey players' level of ability was not assessed. Future research should control for the potential influence of this variable on team selection and psychological adjustment. Finally, the present study employed a quasi-experimental design whereby athletes were not randomly assigned to their respective teams. It is possible that certain personal or environmental characteristics (e.g., ability level) come into play in the selection process and may explain the Person × Environment interaction obtained. Future research using an experimental design would be necessary to randomly assign participants to different types of environments and to replicate the present findings under more controlled conditions.

In sum, the present findings provide support for the P-E fit hypothesis with respect to the role of passion and competitive environments in psychological adjustment changes that come to take place over time. Additional research is needed, however, to better understand the psychological processes that underlie such effects.

NOTES

1. A few words on the nature of the hockey leagues seem in order. First, although the Midget AAA, Junior AAA, and Junior Major leagues correspond to the three most competitive nonprofessional hockey leagues in the Province of Québec, they nevertheless differ with respect to players' ages. The Midget AAA league (as well as all other Midget leagues for that matter) corresponds to the 14- to 15-year age group, whereas the Junior leagues correspond to the 16- to 20-year age group. Furthermore, within the Midget and Junior league categories, leagues range in levels of competitiveness. Finally, each league includes a number of teams. Thus, an athlete will try out for a specific team from a league that corresponds to his age group for that season. Athletes are invited to a team's training camp and are selected on the basis of their athletic abilities. If not selected by that team, the athlete will have the possibility to play in a less competitive league. Thus, all athletes make a team at some level. Below the three most competitive leagues involved in this study range a large number of less competitive leagues. The competitiveness of the leagues is usually indicated by a letter (usually from A to C, A indicating more competitiveness) and the actual number of this letter (e.g., AAA, B, CC—the greater the number of letters, the most competitive the league—although this rule does not apply to the Junior Major league).

2. To test if athletes of all ages demonstrated comparable levels of harmonious and obsessive passion, a MANOVA was conducted with age as an independent variable and passion as the dependent variables. Age did not have a significant effect on either types of passions—for obsessive passion, $F(1, 220) = 0.57$, $p = .78$, $\eta^2 = .02$; for harmonious passion, $F(1, 220) = 0.55$, $p = .72$, $\eta^2 = .02$. Furthermore, age did not correlate significantly with either the obsessive ($r = -.07$, $p = .32$) or the harmonious passion ($r = -.08$, $p = .20$).

3. An alternative analysis, which also tested the interaction between the covariate and the independent variables of the study, revealed nonsignificant results for all of those interactions, Fs(1, 226) ranged between 0.002 and 2.37, η^2s ranged between .00 and .01.

4. The main analyses also were conducted using each adjustment measure separately. Although the strength of the patterns differed somewhat for each individual measure, these patterns were similar to those obtained when using the overall adjustment index. Furthermore, the correlations among these adjustment variables ranged from being moderate to quite strong; at Time 1, rs ranged from .27 to .34, $p < .001$; Time 2, rs ranged from .36 to .66, $p < .001$; and Time 3, rs ranged from .42 to .63, $p < .001$.

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