

Ruminations and Flow: Why Do People with a More Harmonious Passion Experience Higher Well-Being?

Joëlle Carpentier · Geneviève A. Mageau · Robert J. Vallerand

Published online: 5 July 2011
© Springer Science+Business Media B.V. 2011

Abstract Research shows that harmonious and obsessive passion are positively and negatively linked to well-being respectively (e.g., Vallerand et al. in *J Personal* 75:505–534, 2007; *Psychol Sport Exerc* 9:373–392, 2008). The present study investigated the psychological mechanisms underlying the different impact of the two types of passion on well-being. A theoretical model involving passion, ruminations, flow experiences, and well-being was tested. Results showed that the more people have a harmonious passion, the more they tend to experience flow in their favorite activity, which in turn predicts higher well-being. Obsessive passion did not seem to be systematically linked to flow in the favorite activity. In contrast, the more people have an obsessive passion, the more they tend to ruminate about their passionate activity while engaging in another activity, which did not seem to be systematically the case for people with a harmonious passion. These ruminations are negatively related to flow experiences in the other activity, which are positively associated with well-being. Flow and ruminations thus seem to contribute to the understanding of the link between passion and well-being.

Keywords Harmonious and obsessive passion · Well-being · Flow · Ruminations

Over the past decade, a new field of research has emerged in psychology. Instead of focusing on what hinders health and the quality of life, this new field of research, termed *positive psychology* (Seligman and Csikszentmihalyi 2000), focuses on the factors and processes that make life worth living. In line with this theoretical perspective, Vallerand

J. Carpentier (✉) · G. A. Mageau (✉)
Department of Psychology, Université de Montréal, P.O. Box 6128, Succursale Centre-Ville,
Downtown Station, Montreal H3C 3J7, Canada
e-mail: joelle.carpentier@umontreal.ca

G. A. Mageau
e-mail: g.mageau@umontreal.ca

R. J. Vallerand
Laboratoire de Recherche sur le Comportement Social, Department of Psychology, Université du
Québec à Montréal, P.O. Box 8888, Downtown Station, Montreal H3C 3P8, Canada

et al. (2003) suggested that the concept of passion toward an activity, by enhancing well-being and giving meaning to everyday life, constitutes one avenue toward a more fulfilling life.

The Dualistic Model of Passion (Vallerand et al. 2003) posits that people can experience two different types of passion toward their activity, a harmonious and an obsessive passion. While harmonious passion refers to a motivational force that leads people to choose to engage in their activity, obsessive passion is characterized by intra- or interpersonal pressures that push obsessively passionate people to partake in their activity. Research shows that these two types of passion lead to different affective outcomes. Specifically, harmonious passion has been shown to be beneficial for one's well-being, whereas obsessive passion is negatively linked to well-being indicators (Philippe et al. 2009b; Rousseau and Vallerand 2003; Vallerand et al. 2007, 2008). Although differences in the affective outcomes of the two types of passion have been documented, relatively few studies have examined the processes that could explain these differences.

Mageau and Vallerand (2007) recently suggested that people with a more obsessive passion tend to ruminate about their passionate activity while engaging in other activities. These ruminations, in turn, are hypothesized to prevent people with a more obsessive passion from experiencing flow (Csikszentmihalyi 1975, 1982) in these other activities, which, ultimately, would lead to lower levels of well-being. Research confirms that flow experiences are linked to positive affective consequences (Cantor and Sanderson 1999; Csikszentmihalyi 1999; Eisenberger et al. 2005; Kubovy 1999). In line with this finding and Mageau and Vallerand's (2007) hypotheses, a theoretical model is tested in which ruminative thoughts about one's passionate activity and flow experiences constitute psychological processes responsible for the different impact of the two types of passion on well-being indicators.

1 The Concept of Passion

In their Dualistic Model of Passion, Vallerand et al. (2003) define passion as a strong inclination toward an activity that one finds important, likes (or even loves), and to which one devotes time and energy. According to this model, activities are passionate when they become central features of people's identity (Mageau et al. 2009; Schlenker 1985). People with a passion for dancing or for swimming do not merely dance or swim. They are "dancers" or "swimmers".

In line with Self-Determination Theory (Deci and Ryan 1985, 2000), Vallerand et al. (2003) further propose a dualistic view of the concept of passion by suggesting that, depending on the context in which passionate activities are internalized in a person's identity, one can experience a more harmonious or a more obsessive passion toward the activity. People with a more harmonious passion have internalized their activity in an environment where they felt autonomous (Mageau et al. 2009). As a result, the importance of the activity is freely endorsed and the activity is pursued for autonomous reasons (e.g., because of the inherent satisfaction it brings). Harmonious passion thus refers to a motivational force that leads people to choose to engage in their activity (Vallerand et al. 2003). Although the activity occupies a significant space in the person's identity, it is not overpowering, such that activity engagement remains under the person's wilful control and is in harmony with other aspects of the person's life (Vallerand et al. 2003). Consequently, people with a more harmonious passion partake in their passionate activity as well as in

other activities with an openness that is conducive to positive experiences (Hodgins and Knee 2002).

In contrast, obsessive passion results from a controlled internalization of the activity into one's identity, which occurs when people internalize their activity in a context where they feel pressured to invest themselves in the activity (Mageau et al. 2009). In controlling contexts, intra- or interpersonal pressures (or both) are also internalized and these, in turn, push the person to engage in the passionate activity (Mageau et al. 2009). The individual thus feels compelled to do his or her activity because various contingencies are attached to it, such as the maintenance of one's value or sense of self-worth (Mageau et al., in press). As a result, the activity tends to be overly valued, to be favored above all other aspects of the person's life, and to take disproportionate space in the person's identity (Vallerand et al. 2003).¹

Empirical evidence supports the theoretical validity of the Dualistic Model of Passion (Vallerand et al. 2003). First, past research supports Vallerand et al. (2003) definition of passion in showing that both types of passion lead one to spend more time on the activity, to value it more, and to perceive it as a "passion" to a greater extent. Second, the reliability and the two-factor structure of the Passion Scale, which assesses harmonious and obsessive passion, have also been confirmed (Vallerand et al. 2003). Finally, research shows that obsessive passion (but not harmonious passion) is related to a more rigid form of activity engagement as well as to a tendency to experience more conflicts between the activity and other life domains (Mageau et al. 2005; Séguin-Lévesque et al. 2003; Vallerand et al. 2003).

1.1 Passion and Well-Being

The two types of passion have also been shown to relate differently to well-being indicators. More specifically, while having a more harmonious passion toward an activity seems to enhance one's well-being, people who are more obsessively passionate about their activity seem to experience higher levels of psychological distress. For instance, research with teenagers, young adults, and elderly people shows that harmonious passion is positively associated with psychological well-being indicators such as life satisfaction, positive affect, meaning in life, and vitality, while being negatively related to anxiety and depression (Philippe et al. 2009b, Study 2; Rousseau and Vallerand 2003, 2008; Vallerand et al. 2007, Studies 1 and 2; Vallerand et al. 2008, Study 2). On the contrary, obsessive passion predicts higher levels of anxiety and depression, but it is negatively related or unrelated to the positive indices (Philippe et al. 2009b, Study 2; Rousseau and Vallerand 2003, 2008; Vallerand et al. 2007, Studies 1 and 2; Vallerand et al. 2008, Study 2).

¹ Research shows that passion can be distinguished from other motivational constructs such as intrinsic and extrinsic motivation. From a theoretical perspective (Vallerand 2010), passionate activities differ from intrinsically motivated ones in that they are deeply valued by the individual and they are internalized into the person's identity. This is not necessarily the case for intrinsically motivated activities. The concept of passion (both harmonious and obsessive) also differs from extrinsic forms of motivation because, contrary to extrinsic motivation (which means to engage in an activity to obtain something outside of the activity), passion implies a strong liking for the activity. Because passion entails both an identification to and a strong liking for an activity, it should have a more profound impact on people's lives than motivation or goals. Empirical evidence confirms that when motivation and passion are assessed toward a given activity, harmonious and obsessive passion, respectively predict positive and negative affects above and beyond what is predicted by intrinsic and extrinsic motivation (Vallerand et al. 2003, Study 2).

The negative consequences of obsessive passion for people's well-being have been most obvious when people are prevented from engaging in their activity (Mageau and Vallerand 2007). In a diary study, Mageau and Vallerand (2007) followed college students for 14 days. Every night, before going to bed, participants rated their level of positive affect and indicated whether or not they had engaged in their passionate activity during the day. Results from hierarchical linear modeling showed that the more people had an obsessive passion, the more they experienced an accentuated decrease in positive affect on days when they did not engage in their passionate activity compared to days when they did (Mageau and Vallerand 2007). Such decrease in positive affect was not observed for people with higher levels of harmonious passion. These findings suggest that obsessive passion may lead to lower well-being when people cannot engage in their activity.

When interpreting their results, Mageau and Vallerand (2007) proposed that people with a more obsessive passion fail to experience positive affect in other activities because they tend to ruminate about their favorite activity (see Ratelle et al. 2004). These ruminative thoughts, in turn, would prevent the experience of flow (Csikszentmihalyi 1975, 1982) during these other activities and, ultimately, the experience of positive affect and well-being (Cantor and Sanderson 1999; Csikszentmihalyi 1982; Csikszentmihalyi 1999; Eisenberger et al. 2005; Kubovy 1999; Mundell 2000). Although this theoretical model has never been tested, there is evidence suggesting that flow experiences and ruminative thoughts may mediate the relationship between passion and well-being.

1.2 Passion, Flow, and Ruminative Thoughts

In his theory, Csikszentmihalyi (1975, 1982, 1988) defines flow as the complete absorption of oneself in the present moment, when all contents of consciousness are in harmony with each other. In flow, people experience a sense of complete mastery over their environment as well as an intense and focused attention on the activity, thereby losing any reflective self-consciousness. Past research in various domains has shown that such state has many positive consequences, such as maximized efficiency, creativity, and well-being (Csikszentmihalyi 1988, 1990, 1997; Nakamura and Csikszentmihalyi 2002; Steele and Fullagar 2009).

Research that examined the relationship between passion and flow shows that harmonious passion is positively related to task focus and other components of flow (i.e., perceptions of control, challenge and skill balance, and absence of public self-consciousness) during activity engagement, whereas obsessive passion is unrelated to these positive outcomes (Forest et al. 2008; Mageau et al. 2005; Philippe et al. 2009a, Study 1; Vallerand et al. 2003, Study 1). Since the concept of flow has been repeatedly related to well-being (Cantor and Sanderson 1999; Csikszentmihalyi 1999; Eisenberger et al. 2005; Kubovy 1999), it is hypothesized that flow experiences in one's passionate activity may explain the positive link between harmonious passion and well-being.

Furthermore, to better understand the negative link between obsessive passion and well-being (Philippe et al. 2009b; Rousseau and Vallerand 2003; Vallerand et al. 2007, 2008), we propose to examine what happens to passionate people when they are prevented from engaging in their activity. There is no evidence supporting the relationship between passion toward an activity and flow experiences when people engage in life activities other than the passionate one. However, given past research on the link between passion and ruminative thoughts (Ratelle et al. 2004; Vallerand et al. 2003, Study 1), it is likely that people with a more obsessive passion are so preoccupied with their passionate activity that they are

unable to put it aside in order to emerge themselves in other areas of their lives and to experience flow in other life activities.

Indeed, past research shows that obsessive passion is linked to distractions (Vallerand et al. 2003, Study 1) and ruminative thoughts (Ratelle et al. 2004) when people are prevented from engaging in their activity, whereas harmonious passion is unrelated to these variables. Ruminative thoughts are defined as conscious thoughts about a particular theme that recur in the absence of immediate environmental demands requiring these thoughts (Martin and Tesser 1996). These recurrent, unintentional, off-task thoughts are hypothesized to reflect people's current concerns (Klinger 1975, 1977) and unattained goals (Martin and Tesser 1989). Ruminations are thus a manifestation of people's tendency to persist in goal-directed actions until goals have either been reached or been discarded (Carver and Scheier 1981; Klinger 1977; Zeigarnik 1938). Furthermore, Carver (1996) suggests that the information available in consciousness is what is most valued at the present moment. The content of ruminative thoughts can thus be considered as being more important than whatever the person is presently doing.

If people with higher levels of obsessive passion feel an internal pressure to engage in their favorite activity (Vallerand et al. 2003), tend to rigidly persist in activity engagement (Rip et al. 2006; Vallerand et al. 2003, Study 3), and value their favorite activity above all others (Ratelle et al. 2011), it comes as no surprise that this type of passion should generate ruminative thoughts about the passionate activity (Ratelle et al. 2004; Vallerand et al. 2003, Study 1). In contrast, people with a more harmonious passion tend to equally value their different life domains and to be more flexible in their activity engagement, such that they should not be inclined to systematically ruminate about their passionate activity when engaged in other activities. Past research supports these hypotheses (Ratelle et al. 2004; Vallerand et al. 2003, Study 1).

In turn, because ruminative thoughts about their favorite activity distract people with a more obsessive passion from the present moment, they should be prevented from experiencing flow when they engage in other activities. As mentioned before, flow results from one's total absorption in one's activity (Csikszentmihalyi 1975, 1982). Dispositional and situational factors that distract people from activity engagement, such as ruminations, have therefore been proposed to hinder the experience of flow (Nakamura and Csikszentmihalyi 2002). Hence, it is hypothesized that obsessive passion, through its impact on ruminative thoughts, should be negatively related to flow in other activities and ultimately, to well-being. This hypothesis is also coherent with a recent study that revealed a negative link between ruminations and happiness (Killingsworth and Gilbert 2010). Harmonious passion, being unrelated to ruminative thoughts (Ratelle et al. 2004), should not prevent flow in other life domains.

2 The Present Study

The goal of the present study is to investigate the psychological processes responsible for the different impact of the two types of passion on well-being. A theoretical model is proposed (see Fig. 1) where, in line with past studies (Forest et al. 2008; Mageau et al. 2005; Philippe et al. 2009a, Study 1; Vallerand et al. 2003, Study 1), harmonious passion is expected to be positively related to flow in one's favorite activity, while obsessive passion is expected to be unrelated to this variable. Flow in one's favorite activity should in turn predict higher levels of well-being.

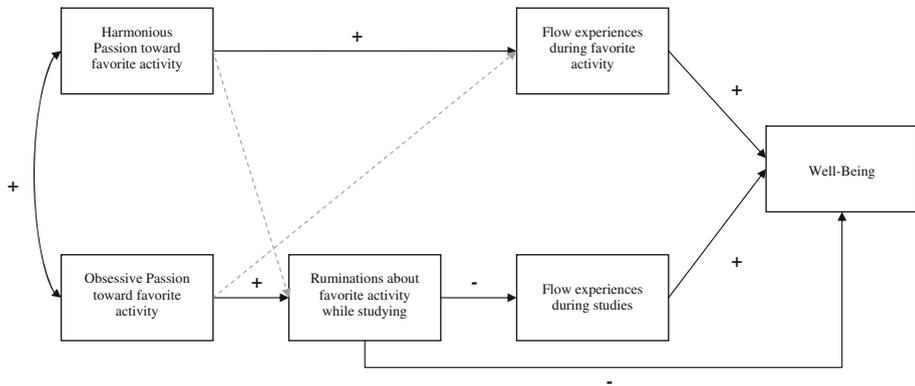


Fig. 1 The proposed model

Furthermore, in an attempt to explore the processes underlying the negative link between obsessive passion and well-being (Philippe et al. 2009b; Rousseau and Vallerand 2003; Vallerand et al. 2007, 2008), the present research proposes to examine what happens when passionate people engage in other activities. People with a more obsessive passion are expected to be so preoccupied with their passionate activity that they should be unable to put it aside, thereby preventing them from experiencing flow in other areas of their lives. Specifically, it is hypothesized that the more people have an obsessive passion toward their favorite activity, the more they should ruminate about it while doing another activity. These ruminations, in turn, should prevent people with a more obsessive passion from experiencing flow in this other activity, and, ultimately, from deriving well-being from it. In contrast, harmonious passion is expected to be unrelated to ruminative thoughts.

Finally, a direct link between ruminations about one's passionate activity and well-being is postulated because distractibility has been shown to lead to other consequences apart from impaired flow (e.g., impaired motivation, Lyubomirsky and Tkach 2004). Flow experiences are thus not expected to fully mediate the impact of ruminations on well-being.

3 Method

3.1 Participants and Procedure

The final sample was composed of 172 students registered in two different colleges located in the Montreal area. It consisted of 134 women and 36 men (2 not specified), aged between 17 and 32 years old, with a mean age of 18.4 years. Participants were recruited in their classrooms where they were invited to participate in a study on their attitudes toward two activities: their favorite activity and their studies. People's studies were chosen as the "other" life domain because this activity was shared by all participants. Indeed, because participants in our study were recruited in colleges and were therefore all students, we could be sure that they all engaged in this same other activity. This procedure thus controlled for undesirable sources of variability. Participants completed a questionnaire containing measures of passion, well-being, ruminations, flow experiences in their studies and in their favorite activity, as well as demographic variables.

3.2 Measures

3.2.1 *The Passion Scale (Vallerand et al. 2003)*

The Passion Scale has two components: one that distinguishes between passionate and non-passionate individuals and another that assesses the relative importance of harmonious and obsessive passion. Participants were first asked to think about the activity that was most dear to their heart, to write it down, and then to indicate the extent to which they agreed with each statement using a 7-point Likert-type response scale ranging from “Do not agree at all” (1) to “Strongly agree” (7). The first component assesses the extent to which people have a passion for the activity. The level of passion is measured with the three criterion items dealing with the definition of passion. Specifically, participants are asked to report the extent to which they value the activity, devote time and energy to it, and love it. In general, participants highly valued their favorite activity ($M = 6.20$, $SD = 1.03$), devoted time and energy to it ($M = 4.82$, $SD = 1.47$), and loved it ($M = 6.73$, $SD = .52$), which indicated that the majority of the sample could be considered passionate.

The second component of the Passion Scale assesses the relative importance of harmonious and obsessive passions with two seven-item subscales. Items for harmonious passion are: “This activity allows me to live a variety of experiences”, “The new things that I discover with this activity allow me to appreciate it even more”, “This activity allows me to live memorable experiences”, “This activity reflects the qualities I like about myself”, “This activity is in harmony with the other activities in my life”, “For me it is a passion, that I still manage to control”, and “I am completely taken with this activity” ($\alpha = .70$). Items for obsessive passion are: “I cannot live without this activity”, “The urge is so strong, I can’t help myself from doing this activity”, “I have difficulty imagining my life without this activity”, “I am emotionally dependent on this activity”, “I have a tough time controlling my need to do this activity”, “I have almost an obsessive feeling for this activity”, and “My mood depends on me being able to do this activity” ($\alpha = .89$). Previous research has supported the psychometric properties of the Passion Scale (Vallerand et al. 2003).

3.2.2 *Ruminations About One’s Favorite Activity*

An adapted version of the Rumination on Sadness Scale (Conway et al. 2000) was used to measure people’s tendency to ruminate about their favorite activity while engaging in another activity (i.e., their studies). Conway and his colleagues (2000) defined ruminations as repetitive and unintentional thoughts concerning a target and the circumstances surrounding this target. For the purpose of the present study, the target of ruminations was changed from one’s sadness to one’s favorite activity. Using a 6-item scale, participants were asked to indicate their level of agreement with each item on a 7-point Likert-type response scale ranging from (1) “Not at all in agreement” to (7) “Very strongly in agreement”. Each item started with the stem: “In general, while I study...”. These items were: “I repeatedly analyze and keep thinking about my favorite activity”, “I have difficulty getting myself to stop thinking about my favorite activity”, “I get absorbed in thinking about my favorite activity and find it difficult to think about other things”, “If people try to talk to me or ask me a question, it feels as though they are interrupting an ongoing silent conversation I am having with myself about my favorite activity”, “I keep thinking and searching my mind many times to try and figure out if there is anything about my favorite activity that I could change or improve”, and “I keep thinking about what I

would do the next time that I would engage in my favorite activity” ($\alpha = .90$). Previous studies supported the reliability and validity of the original scale (Conway et al. 2000).

3.2.3 Flow Experiences

Flow experiences were measured using the Autotelic Experience Subscale of the Flow State Scale (Jackson and Marsh 1996). The flow state has itself been defined as a positive experiential state, which occurs when people become one with the activity (Csikszentmihalyi 1975, 1982, 1988). The autotelic experience subscale, by measuring the extent to which the activity is an intrinsically rewarding experience, assesses this positive phenomenological experience (Csikszentmihalyi 1990) using a three-item scale. Flow was assessed twice (i.e., toward participant’s favorite activity and toward their studies) with each item starting either with the stem: “In general, when I engage in my favorite activity...” or “In general, when I study (courses, homework, studying)...”. The three items were: “I really enjoy the experience”, “I love the feeling of that moment and want to capture it again” and “I find the experience extremely rewarding”. Participants were asked to rate the extent to which they agreed with each item using a 7-point Likert-type response scale ranging from (1) “Not at all in agreement” to (7) “Very strongly in agreement”. The Autotelic Experience Subscale was shown to be reliable and theoretically valid, as indicated by positive relationships with the other eight flow dimensions (see Jackson and Marsh 1996, for more details). In the present study, the Autotelic Experience Subscale was also internally reliable in both instances (autotelic experiences while doing one’s favorite activity, $\alpha = .83$; autotelic experiences while studying, $\alpha = .85$).

3.2.4 Subjective Well-Being

In line with past research (e.g., Diener 1984, 1994), subjective well-being was conceptualized as the presence of life satisfaction and positive affect combined with the absence of negative affect. The *Satisfaction with Life Scale* (Blais et al. 1989; Diener et al. 1985) was used to evaluate participants’ life satisfaction. This 5-item scale assesses participants’ level of satisfaction with their life in general using a 7-point Likert-type response scale ranging from (1) “Not at all in agreement” to (7) “Very strongly in agreement”. The items are: “I am satisfied with my life”, “In most ways, my life is close to my ideal”, “The conditions of my life are excellent”, “So far I have gotten the most important things I want in life” and “If I could live my life over, I would change nothing”. The reliability of this scale was high ($\alpha = .86$). A shortened version of the *Positive and Negative Affect Schedule* (PANAS; Watson et al. 1988) was used to measure participants’ level of pleasant and unpleasant affect. This shortened version was shown to be both reliable and valid in previous studies (Mageau and Vallerand 2007; Rousseau and Vallerand 2008). Participants were instructed to indicate the extent to which they experienced each positive (interested, determined, alert, enthusiastic and active) and negative (distressed, upset, hostile, irritable and nervous) emotion at the present moment using a 5-point response scale ranging from (1) “Very slightly or not at all” to (5) “Extremely”. The positive and negative items showed good reliabilities, with Cronbach’s alphas of .79 and .78, respectively. A subjective well-being index was computed by taking the mean of the standardized scores of the life satisfaction scale, the positive affect scale, and the negative affect scale (reversed).

3.3 Statistical Analyses

Structural equation modeling (SEM), using EQS software (Version 6.1; Bentler and Wu 2004), was used to test the proposed theoretical causal sequence (see Fig. 1). SEM is a procedure that was elaborated to simultaneously investigate patterns of relationships among variables. These analyses compare observed variance–covariance matrices to expected ones, which are derived from proposed theoretical models of relationships. The standard maximum likelihood method of estimation was used.

SEM analyses have the advantage of yielding fit indices that denote the adequacy of the proposed model to the data. In the present study, we relied on the model Chi-square (χ^2_M), the normed Chi-square (NC), the comparative fit index (CFI; Bentler 1990), the normed and non-normed fit indices (NFI, NNFI; Bentler and Bonett 1980), the root mean square error of approximation (RMSEA; Browne and Cudeck 1993) and the standardized root mean square residual (SRMR) to evaluate model fit.² All models respected the minimal ratio of 10:1 for the number of cases to the number of free parameters that is required to ensure stable results (Kline 2005).

4 Results

4.1 Preliminary Analyses

Means, standard deviations, and correlations between all key variables are presented in Table 1. Correlations are presented for informative purposes only and are not interpreted because these analyses fail to control for the common variance found between the different constructs.³ Kurtosis and skewness values for all variables met the requirements for structural equation modeling analyses (Kline 2005).

² The χ^2_M tests for differences between the estimated and observed correlation matrices, such that a non-significant p value supports the adequacy of the proposed model. The NC, which is the ratio of the chi-square statistic on its degrees of freedom, takes into account the sample size and is thus usually a better fit index than the χ^2_M . Values smaller than 2.0 for this index indicate a good fit (Tabachnick and Fidell 2007). The CFI, NFI, and NNFI are comparative or incremental fit indices that assess fit relative to other models (Kline 2005). Values greater than .95 on the CFI, the NFI and the NNFI are indicative of a good-fitting model (Tabachnick and Fidell 2007). The NNFI is adjusted for model complexity and can yield values greater than 1.00. The RMSEA is a parsimony-adjusted index which corrects for model complexity (Kline 2005). Browne and Cudeck (1993) suggest that RMSEAs less than .05 are indicative of a “close fit” and that values up to .08 represent reasonable errors of approximation. Finally, SRMR is a measure of the mean absolute correlation residual (i.e., the mean difference between observed and predicted covariances) and should be less than .10 to indicate a reasonable fit (Kline 2005).

³ Specifically, correlations between passion and the other variables are expected to differ from the relations found using SEM because SEM controls for the common variance typically found between the two types of passion (e.g., Philippe et al. 2010; Vallerand et al. 2003). By controlling for this positive correlation, relations between each type of passion and the dependent variable can be investigated independently from the effect of the other type of passion. The two types of passion are expected to correlate positively because as types of passion they share common elements. Indeed, both types of passion refer to a unique relationship with an activity that a person has internalized in his or her identity. In addition, whether more obsessively or harmoniously passionate, people equally report liking their activity, finding it important, and devoting time to it (for a similar analytical strategy, see Carbonneau et al. 2010; Mageau et al. 2005; Philippe et al. 2009a, c; Rousseau and Vallerand 2008). The correlation between harmonious and obsessive passion observed in the present study is similar to the one found in previous research (e.g., Philippe et al. 2010; Vallerand et al. 2003).

Table 1 Descriptive statistics and correlations

Variables	Correlations					
	1	2	3	4	5	6
1. Obsessive passion	–	.41***	.45***	.00	.32***	–.16*
2. Harmonious passion		–	.18*	.13	.64***	.18*
3. Ruminations during studies			–	–.17*	.13	–.27***
4. Flow during studies				–	.12	.31***
5. Flow during activity					–	.28***
6. Subjective well-being						–
<i>N</i>	172	172	171	171	172	172
Mean	4.14	5.58	2.39	3.83	5.78	0
SD	1.43	.87	1.16	1.30	1.15	.69

* $p < .05$; *** $p < .001$

4.2 Main Analyses

A first model was evaluated to verify the direct effect of the two types of passion on well-being. Results showed that harmonious passion was positively related to well-being, $\beta = .30$, whereas a negative relationship was observed between obsessive passion and well-being, $\beta = -.28$. As it is usually the case (Vallerand et al. 2003), a positive relationship was also obtained between the two types of passion, $\beta = .41$. This simple model being just-identified, no fit index could be computed.

The proposed theoretical model (Fig. 1) was tested to evaluate the processes underlying the influence of passion on well-being. Results of Lagrange Multipliers Statistics indicated that in addition to the hypothesized paths, an additional direct path should be added between obsessive passion toward one's activity and well-being, indicating that ruminations about one's favorite activity and flow do not fully mediate the influence of obsessive passion on well-being. Results also indicated that harmonious passion predicts flow in one's studies. A revised model incorporating these direct links was thus tested (see Fig. 2).

In line with past studies (Forest et al. 2008; Mageau et al. 2005; Philippe et al. 2009a, Study 1; Vallerand et al. 2003, Study 1), results first showed that harmonious passion was positively related to flow experiences during one's favorite activity, $\beta = .60$, while obsessive passion was unrelated to this construct. In turn, flow in the favorite activity was positively associated with subjective well-being, $\beta = .32$.

In contrast, obsessive passion toward an activity predicted ruminations about this activity during one's studies, $\beta = .45$, while harmonious passion was unrelated to this construct. These ruminations, in turn, seemed to prevent people with higher levels of obsessive passion from experiencing flow in their studies, $\beta = -.20$. Harmonious passion toward the favorite activity was also positively related to flow experiences during one's studies, $\beta = .17$. Flow in one's studies, in turn, predicted subjective well-being, $\beta = .23$. Ruminations, $\beta = -.20$, and obsessive passion, $\beta = -.16$, also had direct and negative links to subjective well-being. The overall fit of the revised model was adequate, $\chi^2(4) = 2.01$, $p = .73$, $NC = 2.02$, $CFI = 1.00$, $NFI = .99$, $NNFI = 1.04$, $RMSEA = .00$, $SRMR = .02$.⁴

⁴ Because past research shows that men and women often react differently in the school context (Cai 2005; Else-Quest et al. 2010; Ewert 2010; Fan 2011; Tison et al. 2011), we replicated our final model while

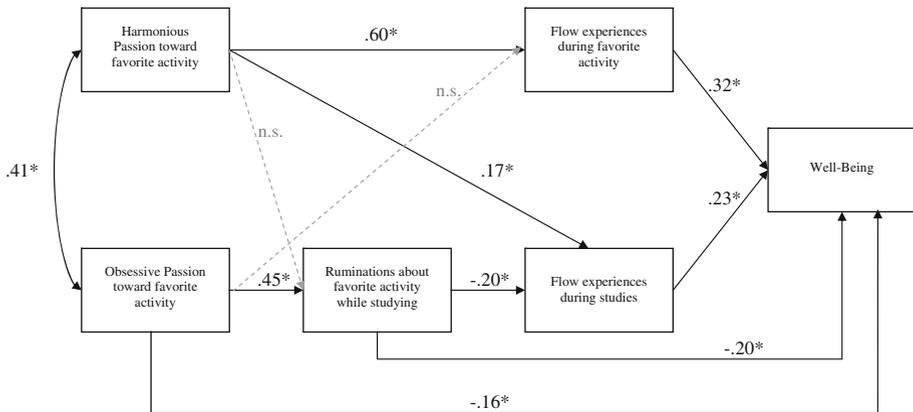


Fig. 2 The mediating effect of ruminations and flow experiences on the relationship between passion and well-being

When we compared the relationships between the two types of passion and well-being in the direct model to the ones in the mediation model (Fig. 2; Baron and Kenny 1986), adding ruminations about one’s favorite activity and flow as mediators accounted for the effect of harmonious passion on subjective well-being, and reduced the direct effect of obsessive passion on this construct.

Additional analyses were also conducted to provide further evidence for the proposed theoretical model (Frazier et al. 2004; Holmbeck 1997). Specifically, we tested a series of models where the direct effects that were not included in our final model were added one at a time (i.e., the direct path between harmonious passion and well-being and the one between obsessive passion and flow during one’s studies). Chi-square statistics of these models were then compared to the one from the final model and Chi-square differences were tested for statistical significance using the Chi-square distribution with one degree of freedom. Results showed that adding these direct paths would not significantly improve model fit, indicating that the proposed mediators fully accounted for the relations between harmonious passion and well-being and between obsessive passion and flow during one’s studies. Similarly, direct paths that were included in the final model (i.e., the direct path between obsessive passion and well-being and the one between ruminations about one’s favorite activity and well-being) were deleted one at a time and the difference between these models’ and the final model’s Chi-square statistics were tested for statistical significance. Results showed that deleting these direct paths would significantly worsen model fit and confirmed that the links between ruminations about one’s favorite activity and well-being and between obsessive passion and well-being were only partially mediated. Nevertheless, mediation did occur as indicated by the reduction of the direct paths that can be observed when mediators are added to the model. Specifically, the beta weight of the relationship between obsessive passion and well-being is $-.28$ when no mediator is present and becomes $-.16$ when mediators are added (a reduction of 42.8%). Similarly, the direct

Footnote 4 continued

controlling for the impact of gender on all endogenous variables. Results showed that gender was not significantly linked to the model’s variables and that all significant relations were observed above and beyond any gender differences. For the sake of parsimony, the model is presented without controlling for gender.

path between ruminations during one's studies and well-being is reduced by 20% (from $-.25$ to $-.20$) when flow during one's studies is added as mediator. Overall, these analyses supported the revised model (see Fig. 2), where ruminations about one's favorite activity and flow partially, but not fully, mediated the influence of obsessive passion on well-being. In contrast, flow experiences seemed to fully mediate the effect of harmonious passion on well-being. Results also confirmed that ruminations about one's favorite activity were directly related to well-being.

Finally, alternative models were tested to verify if other models could account for the observed data. As a first alternative model, we postulated that less ruminative thoughts and higher levels of flow might lead to higher levels of both types of passion, which in turn would predict greater well-being. This model did not fit the data well, $\chi^2(7) = 82.05$, $p < .001$, $NC = 11.72$, $CFI = .63$, $NFI = .63$, $NNFI = .21$, $RMSEA = .25$, $SRMR = .14$, which confirmed that passion did not mediate the relationships between flow and well-being. As a second alternative model, we tried to improve the fit of this last model by adding the direct paths between flow (i.e., in one's favorite activity and in one's studies) and well-being. This new model was also inadequate, $\chi^2(5) = 59.45$, $p < .001$, $NC = 11.89$, $CFI = .73$, $NFI = .73$, $NNFI = .20$, $RMSEA = .25$, $SRMR = .12$. In particular, Lagrange Multipliers Statistics suggested that flow experiences during one's studies did not mediate the link between ruminative thoughts about the activity and obsessive passion. These results confirmed that the revised model (see Fig. 2) fitted the data with the most accuracy.

5 Discussion

The present research first replicated past findings (Philippe et al. 2009b; Rousseau and Vallerand 2003; Vallerand et al. 2007, 2008) and showed that harmonious passion was positively associated with psychological well-being, whereas obsessive passion was negatively related to this psychological health indicator. These results suggest that having a harmonious passion toward an activity may constitute one avenue toward a more fulfilling life, whereas the more people have an obsessive passion, the less they seem to experience psychological well-being.

The main goal of the study was to test a theoretical model investigating the psychological processes responsible for the positive link between harmonious passion and well-being and the negative association between obsessive passion and well-being. Results showed that the more people have a harmonious passion, the more they tended to experience flow in their passionate activity, which in turn was positively associated with subjective well-being. Obsessive passion did not seem to be systematically linked to flow experiences in the favorite activity. Unexpectedly, harmonious passion toward the favorite activity was also positively related to flow experiences in other activities (i.e., one's studies).

In contrast, results supported the hypothesis that people with higher levels of obsessive passion are unable to put their favorite activity aside in order to experience flow in other activities. Indeed, the more people have an obsessive passion toward an activity, the more they tended to ruminate about this activity while doing other things (i.e., studying). These ruminations, in turn, were negatively related to the experience of flow in this other activity, which predicted higher levels of subjective well-being. People with a more harmonious passion did not seem to systematically ruminate about their passionate activity while engaging in another activity.

The present research contributes to the field of positive psychology by first confirming the positive link between flow and well-being. This finding is consistent with previous studies that found flow experiences to be related to positive emotional consequences such as increased levels of positive moods and emotions, pride, and subjective well-being (Bloch 2002; Clarke and Haworth 1994; Delle Fave and Massimini 2004; Han 1988). This study thus adds to the literature by successfully generalizing the positive effect of flow on well-being to a new domain, i.e., the context of one's passion. Second, the present findings also contribute to the field of positive psychology by offering additional support to the importance of passion for enhancing people's well-being. Indeed, consistent with past research, the present study shows that having a harmonious passion toward an activity is positively linked to one's well-being (Philippe et al. 2009b; Rousseau and Vallerand 2003; Vallerand et al. 2007, 2008).

The present results are also particularly relevant for research on passion. First they replicate past findings on the positive association between harmonious passion and the experience of flow during activity engagement (Forest et al. 2008; Mageau et al. 2005; Philippe et al. 2009a, Study 1; Vallerand et al. 2003, Study 1). An unexpected link has also been found between harmonious passion toward one activity and experiences of flow in another activity (i.e., one's studies), suggesting that people with a more harmonious passion might have a particular disposition to immerse themselves in what they are doing and to experience flow during activity engagement in general. It is also possible that people with a more harmonious passion toward a given activity also have a harmonious passion toward other activities in their lives, which would explain the positive relationship found between harmonious passion and flow in one's studies. Future research is needed to investigate whether or not people with higher levels of harmonious passion toward a given activity also tend to report high levels of harmonious passion toward other activities.

The present research also offers an insight on the processes responsible for the diametrical consequences of the two types of passion. Indeed, while the consequences of having a more harmonious or a more obsessive passion are well documented, few studies have examined the psychological processes underlying the different impact of the two types of passion. Given that harmonious passion is linked to flow experiences during one's passionate activity and in other activities and that past research shows that people who experience flow more frequently report higher levels of well-being (Csikszentmihalyi 1999; Eisenberger et al. 2005; Haworth 1997; Haworth and Evans 1995; Haworth and Hill 1992), it is likely that repeated experiences of flow can account for the positive link that is found between harmonious passion and well-being indicators (Mageau and Vallerand 2007; Philippe et al. 2009b; Rousseau and Vallerand 2003, 2008; Vallerand et al. 2003, 2007, 2008).

In contrast, obsessive passion is either unrelated to or negatively associated with indicators of well-being during, after, and when prevented from engaging in the activity (Mageau and Vallerand 2007; Philippe et al. 2009b; Rousseau and Vallerand 2003, 2008; Vallerand et al. 2003, 2007, 2008). The present research extends previous findings in showing that obsessive passion is also associated with negative outcomes in other activities such as more ruminative thoughts about their passionate activity and less flow experiences. Examining what happens when people with a more obsessive passion engage in other activities also reveals that ruminations about the passionate activity and flow, in addition to being new correlates of obsessive passion, seem to be two psychological processes that partially account for the detrimental effect of obsessive passion on subjective well-being. Indeed, people with a more obsessive passion seem to remain focused on their favorite

activity when they engage in other life activities, which in turn prevents them from deriving flow and well-being from these other activities.

From a theoretical perspective, these processes are coherent with Vallerand et al.'s (2003) conceptualization of obsessive passion. According to research on ruminations, ruminative thoughts origin from ongoing goals that have a high-priority status in people's goals hierarchy (Carver 1996; Carver and Scheier 1981; Klinger 1977; Zeigarnik 1938). By showing that obsessive passion is linked to such ongoing concerns about their passionate activity, the present study offers support for the propositions that obsessive passion entails a tendency to value the activity above all others (Ratelle et al. 2011) and to rigidly persist in their passionate activity (Vallerand et al. 2003, Study 3 and 4).

Although the present findings contribute to the positive psychology and passion literatures, a few limitations are worth mentioning. First, readers should keep in mind that ruminations about one's favorite activity and flow mediate the negative relationship between obsessive passion and well-being only partially. Indeed, in the final model (Fig. 2), a direct link between obsessive passion and well-being remained even after adding ruminations and flow as mediators. In light of past research on passion and interpersonal conflicts (Séguin-Lévesque et al. 2003), it is possible that people with a more obsessive passion report lower levels of well-being because they tend to experience more interpersonal conflicts owing to the way they manage their passionate activity. Future research is needed in order to identify other processes that could account for the detrimental effect of obsessive passion on well-being.

Second, although choosing people's studies as the "other" activity allowed us to limit undesirable sources of variability, it would be important to replicate the present findings while controlling for potential confounding variables typically related to school experiences. Indeed, people's ruminations or flow experiences during their studies can be affected by many variables other than the type of passion they experience toward their favorite activity (e.g., attention span, hyperactivity, student engagement, achievement level, or teacher-student relationship). Future research is needed to show that obsessive passion is related to people's ruminations over and beyond these other variables. The present findings could also be replicated using a more general context as the "other" activity (e.g., when participants are simply not engaged in their passionate activity).

Similarly, it is important to note that distractibility during school work also comes with its own consequences such as biased thinking, poor problem solving, impaired motivation, and inhibition of instrumental behaviour (see Lyubomirsky and Tkach 2004 for a review). These consequences might account for the fact that flow during one's studies was only a partial mediator of the relationship between ruminations and well-being. Future research is needed to test this hypothesis.

Fourth, the fact that people's passion toward their studies was not assessed also constitutes a limit to the present data. Indeed, when filling out the Passion Scale, people were asked to think about their favorite activity *apart from their studies*. It is possible that, for a limited number of participants, their studies were their favorite activity. Future research is needed to replicate the present findings while assessing participants' passion toward their favorite activity and toward their studies.

Fifth, the concept of flow comprises multiple facets such as being completely absorbed in the present moment, having a sense of complete mastery over the environment and losing any reflective self-consciousness during the activity. However, in the present study, only the autotelic dimension (i.e., the extent to which the activity is an intrinsically rewarding experience) was used to measure the experience of flow in one's passionate activity and in one's studies. Even though the autotelic experience has been described as

the end result of being in flow (Csikszentmihalyi 1990), future research should be conducted in order to replicate the present findings using a more comprehensive measure of flow.

Sixth, the homogeneity of the present sample limits the generalizability of the findings. Even if women now constitute the majority (55%) of the college students in Quebec (Ministère de l'Éducation, du Loisir et du Sport du Québec, 2007) where the study was conducted, they were still over-represented (78%) in the present sample. Given that recruitment was voluntary, this suggests that women may be more inclined to take part in this type of studies than men. Special care should thus be taken in the future to ensure equal representation of men and women when similar recruitment procedures are used. It is important to note however, that, in the present study, results were observed above and beyond gender differences and that gender was not related to the model's endogenous variables. Finally, the present study employed a correlational design, which makes causality inferences impossible.

Despite these limitations, the present research suggests that not all passions are beneficial for one's well-being. A more obsessive type of passion seems to result in people focusing on their activity even when they should be doing something else. In turn, this inability to put their activity aside seems to prevent them from experiencing flow in other activities, and ultimately leads to lower levels of well-being. In contrast, having a harmonious passion toward an activity is positively linked to both flow and well-being. Given that both types of passion are equally related to high levels of performance (Bonneville-Roussy et al. 2011; Mageau et al. 2009, Study 3; Vallerand et al. 2007, 2008), the present research suggests that, compared to obsessive passion, harmonious passion may offer the important added benefit of contributing to making life worth living.

Acknowledgments This research was facilitated by masters and doctoral fellowships from the Social Sciences and Humanities Research Council of Canada (SSHRC) to the first and second author, and from the Fonds de Recherche sur la Société et la Culture (FQRSC) to the first author. It was also funded by grants from SSHRC and the FQRSC to the third author.

References

- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychology research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, *51*, 1173–1182. doi:10.1037/0022-3514.51.6.1173.
- Bentler, P. M. (1990). Comparative fit indexes in structural models. *Psychological Bulletin*, *107*, 238–246. doi:10.1037/0033-2909.107.2.238.
- Bentler, P. M., & Bonett, D. G. (1980). Significance tests and goodness of fit in the analysis of covariance structures. *Psychological Bulletin*, *88*, 588–606. doi:10.1037/0033-2909.88.3.588.
- Bentler, P. M., & Wu, E. J. W. (2004). *EQS 6.1 for Windows*. Multivariate Software, Inc.
- Blais, M. R., Vallerand, R. J., Pelletier, L. G., & Brière, N. M. (1989). L'échelle de satisfaction de vie: Validation canadienne-française du "Satisfaction With Life Scale" [French-Canadian Validation of the Satisfaction With Life Scale]. *Canadian Journal of Behavioural Sciences*, *21*, 210–223. doi:10.1037/h0079854.
- Bloch, C. (2002). Moods and quality of life. *Journal of Happiness Studies*, *3*, 101–128. doi:10.1023/A:1019647818216.
- Bonneville-Roussy, A., Lavigne, G. L., & Vallerand, R. J. (2011). When passion leads to excellence: The case of musicians. *Psychology of Music*, *39*, 123–138. doi:10.1177/0305735609352441.
- Browne, M. W., & Cudeck, R. (1993). Alternative ways of assessing model fit. In K. Bollen & R. Stine (Eds.), *Testing structural equation models* (pp. 136–162). Newbury Park, CA: Sage.
- Cai, X. (2005). *Stability of externalizing problem behaviors with onset in early childhood: A meta-analytic review*. Unpublished Doctoral Dissertation, Vanderbilt University, Nashville, United States.

- Cantor, N., & Sanderson, C. A. (1999). Life task participation and well-being: The importance of taking part in daily life. In D. Kahneman, E. Diener, & N. Schwartz (Eds.), *Well-being: The foundation of hedonic psychology* (pp. 230–243). New York: Sage.
- Carbonneau, N., Vallerand, R. J., & Massicotte, S. (2010). Is the practice of Yoga associated with positive outcomes? The role of passion. *The Journal of Positive Psychology, 5*, 452–465. doi:[10.1080/17439760.2010.534107](https://doi.org/10.1080/17439760.2010.534107).
- Carver, C. S. (Ed.). (1996). *Goal engagement and the human experience* (Vol. 9). Mahwah, NJ: Lawrence Erlbaum.
- Carver, C. S., & Scheier, M. F. (1981). *Attention and self-regulation: A control-theory approach to human behavior*. New York: Springer.
- Clarke, S. G., & Haworth, J. T. (1994). “Flow” experience in the daily lives of sixth form college students. *British Journal of Psychology, 85*, 511–523. Retrieved from <http://pao.chadwyck.co.uk/PDF/1281966966867.pdf>.
- Conway, M., Csank, P. A. R., Holm, S. L., & Blake, C. K. (2000). On assessing individual differences in rumination on sadness. *Journal of Personality Assessment, 75*, 404–425. doi:[10.1207/S15327752JPA7503_04](https://doi.org/10.1207/S15327752JPA7503_04).
- Csikszentmihalyi, M. (1975). *Beyond boredom and anxiety*. San Francisco: Jossey Bass.
- Csikszentmihalyi, M. (1982). Toward a psychology of optimal experience. In L. Wheeler (Ed.), *Review of personality and social psychology* (pp. 13–36). Beverly Hills, CA: Sage.
- Csikszentmihalyi, M. (1988). The flow experience and its significance for human psychology. In M. Csikszentmihalyi & I. S. Csikszentmihalyi (Eds.), *Optimal experience: Psychological studies of flow in consciousness* (pp. 15–35). Cambridge: Cambridge University Press.
- Csikszentmihalyi, M. (1990). *Flow: The psychology of optimal experience*. New York: Harper Perennial.
- Csikszentmihalyi, M. (1997). *Finding flow: The psychology of engagement with everyday life*. New York: Basic Books.
- Csikszentmihalyi, M. (1999). If we are so rich, why aren't we happy? *American Psychologist, 54*, 821–827. doi:[10.1037/0003-066X.54.10.821](https://doi.org/10.1037/0003-066X.54.10.821).
- Deci, E. L., & Ryan, R. M. (1985). *Intrinsic motivation and self-determination in human behavior*. New York: Plenum Press.
- Deci, E. L., & Ryan, R. M. (2000). The “what” and “why” of goal pursuits: Human needs and the self-determination of behavior. *Psychological Inquiry, 11*, 227–268. doi:[10.1207/S15327965PLI1104_01](https://doi.org/10.1207/S15327965PLI1104_01).
- Delle Fave, A., & Massimini, F. (2004). Bringing subjectivity into focus: Optimal experiences, life themes and person-centered rehabilitation. In P. A. Linley & S. Joseph (Eds.), *Positive psychology in practice* (pp. 581–597). Hoboken, NJ: Wiley.
- Diener, E. (1984). Subjective well-being. *Psychological Bulletin, 95*, 542–575. doi:[10.1037/0033-2909.95.3.542](https://doi.org/10.1037/0033-2909.95.3.542).
- Diener, E. (1994). Assessing subjective well-being: Progress and opportunities. *Social Indicators Research, 31*, 103–157. doi:[10.1007/BF01207052](https://doi.org/10.1007/BF01207052).
- Diener, E., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). The satisfaction with life scale. *Journal of Personality Assessment, 49*, 71–76. doi:[10.1207/s15327752jpa4901_13](https://doi.org/10.1207/s15327752jpa4901_13).
- Eisenberger, R., Jones, J. R., Stinglhamber, F., Shanock, L., & Randall, A. T. (2005). Flow experiences at work: For high need achievers alone? *Journal of Organizational Behavior, 26*, 755–775. doi:[10.1002/job.337](https://doi.org/10.1002/job.337).
- Else-Quest, N. M., Hyde, J. S., & Linn, M. C. (2010). Cross-national patterns of gender differences in mathematics: A meta-analysis. *Psychological Bulletin, 136*, 103–127. doi:[10.1037/a0018053](https://doi.org/10.1037/a0018053).
- Ewert, S. (2010). Male and female pathways through four-year colleges: Disruption and sex stratification in higher education. *American Educational Research Journal, 47*, 744–773. doi:[10.3102/0002831210374351](https://doi.org/10.3102/0002831210374351).
- Fan, W. (2011). Social influences, school motivation and gender differences: An application of the expectancy-value theory. *Educational Psychology, 31*, 157–175. doi:[10.1080/01443410.2010.536525](https://doi.org/10.1080/01443410.2010.536525).
- Forest, J., Sarrazin, C., Morin, E. M., Brunet, L., Savoie, A., & Mageau, G. A. (2008). La passion harmonieuse et la passion obsessionnelle comme variables prévisionnelles de la santé psychologique et de l'état psychologique optimal de flow au travail: Résultats d'une étude empirique réalisée auprès de 118 travailleurs québécois (Harmonious and obsessive passion as predictors of mental health and the optimal psychological state of flow at work: Results from an empirical study with 118 Quebec workers). In A. Balikhjian, C. Lemoine, N. Kridis, & P. Salengros (Eds.), *Actes du colloque du 14ème congrès de l'Association Internationale de Psychologie du Travail de Langue Française* (pp. 43–54). Paris: L'Harmattan.

- Frazier, P. A., Tix, A. P., & Barron, K. E. (2004). Testing moderator and mediator effects in counseling psychology research. *Journal of Counseling Psychology, 51*, 115–134. doi:10.1037/0022-0167.51.1.115.
- Han, S. (1988). The relationship between life satisfaction and flow in elderly Korean immigrants. In M. Csikszentmihalyi & I. Csikszentmihalyi (Eds.), *Optimal experience: Psychological studies of flow in consciousness* (pp. 138–149). New York: Cambridge University Press.
- Haworth, J. T. (1997). *Work, leisure, and well-being*. London: Routledge.
- Haworth, J. T., & Evans, S. (1995). Challenge, skill, and positive subjective states in the daily life of a sample of YTS students. *Journal of Occupational and Organizational Psychology, 68*, 109–121. Retrieved from http://content.ebscohost.com/pdf17_20/pdf/1995/OOP/01Jun95/9510086532.pdf.
- Haworth, J. T., & Hill, S. (1992). Work, leisure and psychological well-being in a sample of young adults. *Journal of Community and Applied Social Psychology, 2*, 147–160. doi:10.1002/casp.2450020210.
- Hodgins, H. S., & Knee, C. R. (2002). The integrating self and conscious experience. In E. L. Deci & R. M. Ryan (Eds.), *Handbook of self-determination research* (pp. 87–100). Rochester, NY: The University of Rochester Press.
- Holmbeck, G. N. (1997). Toward terminological, conceptual, and statistical clarity in the study of mediators and moderators: Examples from the child-clinical and pediatric psychology literatures. *Journal of Consulting and Clinical Psychology, 65*, 599–610. doi:10.1037/0022-006X.65.4.599.
- Jackson, S. A., & Marsh, H. W. (1996). Development and validation of a scale to measure optimal experience: The Flow State Scale. *Journal of Sport & Exercise Psychology, 18*, 17–35. Retrieved from <http://journals.humankinetics.com/jsep-back-issues/1SEPVolume18Issue1March/DevelopmentandValidationofaScaletoMeasureOptimalExperienceTheFlowStateScale>.
- Killingsworth, M. A., & Gilbert, D. T. (2010). A wandering mind is an unhappy mind. *Science, 330*, 932. doi:10.1126/science.1192439.
- Kline, R. B. (2005). *Principles and practice of structural equation modeling* (2nd ed.). New York: The Guilford Press.
- Klinger, E. (1975). Consequences to commitment to and disengagement from incentives. *Psychological Review, 82*, 223–231. doi:10.1037/h0076171.
- Klinger, E. (1977). *Meaning and void: Inner experience and the incentives in people's lives*. Minneapolis: University of Minnesota Press.
- Kubovy, M. (1999). On the pleasures of the mind. In D. Kahneman, E. Diener, & N. Schwartz (Eds.), *Well-being: The foundations of hedonic psychology* (pp. 134–154). New York: Russell Sage Foundation.
- Lyubomirsky, S., & Tkach, C. (2004). The consequences of dysphoric rumination. In C. Papageorgiou & A. Wells (Eds.), *Depressive rumination: Nature, theory, and treatment* (pp. 21–41). Chichester: Wiley.
- Mageau, G. A., Carpentier, J., & Vallerand, R. J. (in press). The role of self-esteem contingencies in the distinction between obsessive and harmonious passion. *European Journal of Social Psychology*.
- Mageau, G. A., & Vallerand, R. J. (2007). The moderating effect of passion on the relation between activity engagement and positive affect. *Motivation and Emotion, 31*, 312–321. doi:10.1007/s11031-007-9071-z.
- Mageau, G. A., Vallerand, R. J., Charest, J., Salvy, S., Lacaille, N., Bouffard, T., et al. (2009). On the development of harmonious and obsessive passion: The role of autonomy support, activity valuation, and identity processes. *Journal of Personality, 77*, 601–645. doi:10.1111/j.1467-6494.2009.00559.x.
- Mageau, G. A., Vallerand, R. J., Rousseau, F. L., Ratelle, C. F., & Provencher, P. J. (2005). Passion and gambling: Investigating the divergent affective and cognitive consequences of gambling. *Journal of Applied Social Psychology, 35*, 100–118. doi:10.1111/j.1559-1816.2005.tb02095.x.
- Martin, L. L., & Tesser, A. (1989). Toward a motivational and structural theory of ruminative thought. In J. S. Uleman & J. A. Bargh (Eds.), *Unintended thought* (pp. 306–326). New York: Guilford.
- Martin, L. L., & Tesser, A. (1996). Some ruminative thoughts. In R. S. Wyer Jr (Ed.), *Advances in Social Cognition* (Vol. 9, pp. 1–47). Mahwah, New Jersey: Lawrence Erlbaum.
- Ministère de l'Éducation, du Loisir et du Sport du Québec. (2007). *Poursuite des études et obtention d'un diplôme chez les bénéficiaires du Programme de prêts et bourses*. Report prepared by la Direction de la recherche, des statistiques et des indicateurs (DRSI) et le secteur de l'Aide financière aux études (AFE), Ministère de l'Éducation, du Loisir et du Sport. <http://www.mels.gouv.qc.ca/stat/recherche/doc07/PoursuiteEtudesObtDipVolet3.pdf> [Consulted on March 7, 2011].
- Mundell, C. E. (2000). The role of perceived skill, perceived challenge, and flow in the experience of positive and negative affect. *Dissertation Abstracts International: Section B: The Sciences and Engineering, 61*, 2802.
- Nakamura, J., & Csikszentmihalyi, M. (2002). The concept of flow. In C. R. Snyder & S. J. Lopez (Eds.), *Handbook of positive psychology* (pp. 89–105). Oxford: Oxford University Press.

- Philippe, F. L., Vallerand, R. J., Andrianarisoa, J., & Brunel, P. (2009a). Passion in referees: Examining their affective and cognitive experiences in sport situations. *Journal of Sport and Exercise Psychology*, *31*, 77–96. Retrieved from <http://journals.humankinetics.com/JSEP>.
- Philippe, F. L., Vallerand, R. J., Houffort, N., Lavigne, G., & Donahue, E. G. (2010). Passion for an activity and quality of interpersonal relationships: The mediating role of emotions. *Journal of Personality and Social Psychology*, *98*, 917–932. doi:10.1037/a0018017.
- Philippe, F. L., Vallerand, R. J., & Lavigne, G. (2009b). Passion makes a difference in people's lives: A look at well-being in passionate and non-passionate individuals. *Applied Psychology: Health and Well-Being*, *1*, 3–22. doi:10.1111/j.1758-0854.2008.01003.x.
- Philippe, F. L., Vallerand, R. J., Richer, I., Vallières, E., & Bergeron, J. (2009c). Passion for driving and aggressive driving behavior: A look at their relationship. *Journal of Applied Social Psychology*, *39*, 3020–3043. doi:10.1111/j.1559-1816.2009.00559.x.
- Ratelle, C. F., Mageau, G. A., Vallerand, R. J., & Provencher, P. (2011). *The role of absolute and relative importance in the development of passion*. (in preparation).
- Ratelle, C. F., Vallerand, R. J., Mageau, G. A., Rousseau, F. L., & Provencher, P. (2004). When passion leads to problematic outcomes: A look at gambling. *Journal of Gambling Studies*, *20*, 105–119. doi:1050-5350/04/0600-0105/0.
- Rip, B., Fortin, S., & Vallerand, R. J. (2006). The relationship between passion and injury in dance students. *Journal of Dance Medicine & Science*, *10*, 14–20. Retrieved from <http://www.er.uqam.ca/nobel/r26710/LRCS/papers/145.pdf>.
- Rousseau, F. L., & Vallerand, R. J. (2003). Le rôle de la passion dans le bien-être subjectif des aînés [The role of passion in the subjective well-being of elderly individuals]. *Revue Québécoise de Psychologie*, *24*, 197–211. Retrieved from <http://www.er.uqam.ca/nobel/r26710/LRCS/papers/121.pdf>.
- Rousseau, F. L., & Vallerand, R. J. (2008). An examination of the relationship between passion and subjective well-being in older adults. *International Journal of Aging and Human Development*, *66*, 195–211. doi:10.2190/AG.66.3.b.
- Schlenker, B. R. (1985). Identity and self-identification. In B. R. Schlenker (Ed.), *The self and social life* (pp. 65–99). New York: McGraw-Hill.
- Séguin-Lévesque, C., Laliberté, M.-L. N., Pelletier, L. G., Blanchard, C., & Vallerand, R. J. (2003). Harmonious and obsessive passion for the Internet: Their associations with the couple's relationship. *Journal of Applied Social Psychology*, *33*, 197–221. doi:10.1111/j.1559-1816.2003.tb02079.x.
- Seligman, M. E. P., & Csikszentmihalyi, M. (2000). Positive psychology: An introduction. *American Psychologist*, *55*, 5–14. doi:10.1037//0003-066X.55.1.5.
- Steele, J. P., & Fullagar, C. J. (2009). Facilitators and outcomes of student engagement in a college setting. *The Journal of Psychology*, *143*, 5–27. doi:10.3200/JRLP.143.1.5-27.
- Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics* (5th ed.). New York: Pearson Education.
- Tison, E. B., Bateman, T., & Culver, S. M. (2011). Examination of the gender-student engagement relationship at one university. *Assessment & Evaluation in Higher Education*, *36*, 27–49. doi:10.1080/02602930903197875.
- Vallerand, R. J. (2010). On passion for life activities: The dualistic model of passion. In M. P. Zanna (Ed.), *Advances in experimental social psychology*. New York: Academic Press.
- Vallerand, R. J., Blanchard, C., Mageau, G. A., Koestner, R., Ratelle, C. F., Léonard, M., et al. (2003). Les passions de l'âme: On obsessive and harmonious passion. *Journal of Personality and Social Psychology*, *85*, 756–767. doi:10.1037/0022-3514.85.4.756.
- Vallerand, R. J., Mageau, G. A., Elliot, A. J., Dumais, A., Demers, M.-A., & Rousseau, F. L. (2008). Passion and performance attainment in sport. *Psychology of Sport and Exercise*, *9*, 373–392. doi:10.1016/j.psychsport.2007.05.003.
- Vallerand, R. J., Salvy, S. J., Mageau, G. A., Elliot, A. J., Denis, P., Grouzet, F. M. E., et al. (2007). On the role of passion in performance. *Journal of Personality*, *75*, 505–534. doi:10.1111/j.1467-6494.2007.00447.x.
- Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS Scales. *Journal of Personality and Social Psychology*, *54*, 1063–1070. doi:10.1037/0022-3514.54.6.1063.
- Zeigarnik, B. (Ed.). (1938). *On finished and unfinished tasks*. New York: Harcourt, Brace, & World.