



On the differential relationships involving perfectionism and academic adjustment: The mediating role of passion and affect



Jérémie Verner-Filion^{a,*}, Robert J. Vallerand^{a,b}

^a Laboratoire de Recherche sur le Comportement Social, Université du Québec à Montréal, Canada

^b Australian Catholic University, Australia

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ABSTRACT

The purpose of this research was to shed light on the paradoxical relationships between perfectionism and academic adjustment. It was proposed that the positive relationship between self-oriented perfectionism (SOP) and academic adjustment is due to harmonious passion (HP) for one's studies, which triggers positive affect. Conversely, it is proposed obsessive passion (OP) for studies, through negative affect, mediates the negative relationship of both SOP and socially prescribed perfectionism (SPP) with academic adjustment. These hypotheses were supported in two studies. Furthermore, Study 2 revealed that the *positive* effects of SOP are due to striving for perfection, a facet of SOP (Campbell & Di Paula, 2002). In contrast, the *negative* relationship between SOP and academic adjustment is due to the importance of being perfect (another facet of SOP). Results provide insights on the role of perfectionism in academic adjustment and yield implications for the field of educational psychology.

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1. Introduction

Perfectionism entails aspiring to perfection. Two types of perfectionism have been identified (Hewitt & Flett, 1991). Namely, one can pursue perfectionism as something that is self-oriented (self-oriented perfectionism; SOP) or as imposed by others (socially prescribed perfectionism; SPP). Over the past two decades or so, much research has focused on the role of perfectionism in academic adjustment. To this day, a heated debate still rages in the scientific literature regarding the adaptive nature of perfectionism in academic settings. On the one hand, perfectionism has been linked with indices of maladjustment in the academic domain, such as low levels of academic performance and psychological well-being (Bong, Hwang, Noh, & Kim, 2014; Miquelon, Vallerand, Grouzet, & Cardinal, 2005; Verner-Filion & Gaudreau, 2010). On the other hand, researchers have shown that perfectionism in the academic domain sometimes leads to desirable outcomes, such as high levels of performance and psychological well-being (Bong et al., 2014; Miquelon et al., 2005; Verner-Filion & Gaudreau, 2010). Although such research typically reveals that SPP predicts negative, and SOP positive, academic adjustment, two issues remain. First, these findings have been inconsistent. Specifically, SOP sometimes has been found to predict negative effects (Hewitt & Flett, 1991). Second, the nature of the

mediating variables responsible for these differential effects has received little empiric attention.

It is proposed herein that perfectionism will lead one to invest greatly in one's area of expertise thereby inducing a passion for such activities to the extent that they include some interesting features. Thus, passion should represent an important mediator of the effects of perfectionism on outcomes. Further, as will be made clearer in a later section, because of the different types of psychological mechanisms that they entail, two types of passion (harmonious and obsessive) and related processes should be responsible for the adaptive or maladaptive forms of adjustment associated with perfectionism. It is this thesis that is being developed below.

1.1. On perfectionism

Perfectionism is a complex and multidimensional personality construct (Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Hewitt & Flett, 1991). The various aspects of perfectionism are differentiated on the basis of their origin (e.g., self vs. social) and their cognitive manifestations (e.g., high standards, doubts about action, etc.). For instance, Hewitt and Flett (1991) have distinguished between the intrapersonal and interpersonal aspects of perfectionism. Specifically, *self-oriented perfectionism* (SOP) represents the self-imposed tendency to strive toward perfection by establishing high standards upon which a person evaluates and defines him/herself. In contrast, *socially prescribed perfectionism* (SPP) is built around the perception that significant others are exerting pressure to be perfect, to the extent that very high standards

* Corresponding author at: Laboratoire de Recherche sur le Comportement Social, Université du Québec à Montréal, Box 8888, Succursale Centre-Ville, Montréal, Québec H3C 3P8, Canada.

E-mail address: verner-filion.jeremie@uqam.ca (J. Verner-Filion).

of excellence must be achieved for the person to feel valued by significant others.

The adaptive vs. the maladaptive nature of perfectionism has led to much research in the educational literature. Such research reveals that the two types of perfectionism tend to lead to differential effects on academic adjustment. On the one hand, there is now clear evidence that SPP (and other dimensions known to be conceptually related to SPP, such as doubts about action and concerns over mistakes) predicts a host of negative outcomes related to academic adjustment. Specifically, SPP has been repeatedly associated with high levels of negative affect (Bieling, Israeli, Smith, & Antony, 2003), depression (Flett, Besser, Hewitt, & Davis, 2007), anxiety (Bong et al., 2014), stress (Ashby, Noble, & Gnilka, 2012), and low levels of performance (Verner-Filion & Gaudreau, 2010) in the academic domain.

On the other hand, the status of SOP (and other dimensions known to be conceptually related to SOP, such as high standards and personal standards) remains equivocal. Studies in the academic domain have shown that SOP positively predicts negative outcomes such as depression and stress (Hewitt & Flett, 1991), as well as positive outcomes like positive affect (Frost et al., 1993), subjective well-being (Miquelon et al., 2005), life satisfaction (Ashby et al., 2012), and achievement-related outcomes, such as academic performance (Cox, Enns, & Clara, 2002). Other studies have also shown that SOP is either unrelated (Bieling, Israeli, & Antony, 2004) or negatively related (Ashby et al., 2012) to facets of emotional distress, such as depression, anxiety and stress. The equivocal results obtained in past research regarding the status of SOP in academic adjustment thus highlight the importance of studying the mediating variables that could explain when SOP leads to adaptive outcomes and when it predicts maladaptive academic consequences.

1.2. From perfectionism to outcomes: the mediating role of passion

1.2.1. From perfectionism to passion

As mentioned previously, perfectionism entails engaging intensively in activities in order to attain the high standards set for oneself. Perfectionistic individuals will thus display a strong commitment toward attaining perfection. By devoting an important quantity of energy and effort in their quest for perfection, both self-oriented and socially prescribed perfectionists are likely to develop a preference for certain activities in which they are involved over time. Individuals will experience self-growth in such activities and eventually develop expertise. These activities can end up being internalized in the person's identity, to the extent that they are highly valued and meaningful for the person (Deci, Eghari, Patrick, & Leone, 1994). Such activities become passionate for the individual.

The Dualistic Model of Passion (DMP; Vallerand, 2015; Vallerand et al., 2003) defines passion as a strong inclination toward an activity that is important, liked (or even loved), and in which a significant amount of time and energy is invested. These activities come to be so self-defining that they represent central features of one's identity. For example, passionate individuals who strongly value their studies will define themselves as "students". The DMP further proposes the existence of two types of passion, namely harmonious passion (HP) and obsessive passion (OP). These two types of passion can be differentiated in terms of how the passionate activity has been internalized into one's identity and self. On the one hand, HP is derived from an autonomous internalization of this activity in the self. This internalization process occurs when individuals freely accept the activity and choose to engage in their passionate activity without any contingency attached to it (Mageau, Carpentier, & Vallerand, 2011). Furthermore, it produces a motivational force to engage in the activity willingly and engenders a sense of volition and personal endorsement about pursuing the activity. With HP, the activity occupies a significant, but not overpowering, space in one's identity. Therefore, the activity remains under the control of the individual and in harmony with other important life aspects (Séguin-

Lévesque, Laliberté, Pelletier, Blanchard, & Vallerand, 2003). Subsequently, students with a HP for their studies are able to decide when to and when not to engage in their studies. This is because they remain in control over their involvement in their studies. Thus, behavioral engagement in their studies can be seen as flexible.

On the other hand, OP results from a controlled internalization of the activity into one's identity and self. A controlled internalization originates from intra and/or interpersonal pressure typically because certain contingencies are attached to the activity, such as feelings of social acceptance or self-esteem, or because the sense of excitement derived from activity engagement is uncontrollable (Mageau et al., 2011). With OP, the activity becomes a part of one's identity because it is loved, but also because it brings other more extrinsic benefits, such as a boost of self-esteem or social rewards (Lafrenière, St-Louis, Vallerand, & Donahue, 2011; Mageau et al., 2011). Consequently, students with an OP can find themselves in the position of experiencing an uncontrollable urge to partake in their studies. They cannot help but to engage in their studies as it is beyond one's control. Therefore, students with an OP display a rigid persistence, even when activity engagement is inappropriate (Vallerand et al., 2003). With OP everything gravitates around one's passion, which leads to many self-regulatory challenges such as conflicts with other life domains (Séguin-Lévesque et al., 2003), susceptibility to threat and defensiveness (Donahue, Rip, & Vallerand, 2009; Rip, Vallerand, & Lafrenière, 2012), as well as frustration and rumination about the activity when prevented from engaging in it (Mageau et al., 2011; Mageau, Vallerand, Rousseau, Ratelle, & Provencher, 2005). Consequently, OP may come at a cost for students, potentially leading to less than optimal functioning within the confines of their studies because of the lack of flexibility that it entails.

Researchers have started to explore the links between perfectionism and passion. For instance, Slade and Owens (1998) have suggested that SOP is driven by a desire to attain the ideal self, whilst SPP is fueled by a fear of unwanted outcomes, such as failure. However, other researchers have argued that Slade and Owens's position is incomplete. Specifically, Flett and Hewitt (2006) suggested that SOP is also fueled by fear of failure, thus explaining the equivocal results concerning the adaptive nature of SOP. The Dualistic Model of Passion also states that HP is associated with a desire to attain the ideal self, whereas OP is related to fear of failure (Bélanger, Lafrenière, Vallerand, & Kruglanski, 2013; Bonneville-Roussy, Lavigne, & Vallerand, 2011; Vallerand et al., 2007, 2008). In light of the above, one would therefore expect links between SOP and both HP and OP, as well as between SPP and OP. Initial support for the associations between perfectionism and passion has shown that SOP leads to both HP and OP, while SPP is related to OP (Curran, Hill, Jowett, & Mallinson, 2014; Padham & Aujla, 2014). Thus, it is proposed that passion for one's studies is key in understanding the adaptive nature of perfectionism, especially when the latter stems from the self.

1.2.2. On the differential relationships between passion and outcomes

The two types of passion have been found to lead to different predictions with respect to various outcomes. Passion has also been found to relate to other outcomes, including some of importance for the realm of education. More specifically, research shows that HP is positively associated with psychological adjustment indicators such as life satisfaction, meaning in life, and vitality, while being negatively related to negative indices such as anxiety and depression; opposite relationships are observed with OP (see Vallerand, 2015 for a review). Finally, past research also suggests that both types of passion are positively related to academic performance (e.g., Bonneville-Roussy et al., 2011; Vallerand et al., 2007, 2008).

Of importance, research has also revealed that much of the effects of passion on outcomes are mediated by positive emotions. One theory that explains the role of emotions in outcomes is the Broaden-and-Build theory (Fredrickson, 2001). This theory posits that the experience of positive emotions is key in allowing individuals to reach their optimal functioning. This is because positive emotions allow the individual to

open up and broaden their perspective and consequently to have access to their full repertoire of self-processes. Over time, these repertoires and behaviors are internalized, leading one to build up adaptive resources. Consequently, past research has provided strong support for this theory in achievement-oriented domains such as academics and sports. Specifically, the experience of positive affect has been associated with indices of academic adjustment such as high levels of performance and engagement, as well as low levels of emotional distress (Gillet, Vallerand, Lafrenière, & Bureau, 2012; Halamandaris & Power, 1997; Saklofske, Austin, Mastoras, Beaton, & Osborne, 2012). In contrast, the experience of negative affect is negatively related to indicators of adjustment. In sum, past research reveals that the harmonious and obsessive passions are related to positive and negative emotions, respectively that, in turn predict adaptive and maladaptive outcomes.

1.3. The present research

In line with the above, the purpose of this research was to shed light on the different relationships between perfectionism and academic adjustment. This will be done by testing the hypothesis that such effects are due to the mediating role of two types of passion for one's studies that trigger opposite affective mediators that are related, in turn, to adaptive or maladaptive academic adjustment. The mediational sequence was proposed in this order (i.e., perfectionism → passion → affect → academic adjustment) to respect the different level of analysis at which each of the variables is situated. More precisely, perfectionism resides at the dispositional/personality level and was thus hypothesized to be an antecedent of passion, which is located at the contextual level. Curran et al. (2014) recently provided support for the perfectionism → passion sequence rather than the contrary. In a study with 249 junior athletes, Curran et al. (2014) showed that SOP was positively associated with both HP and OP, while SPP was solely and positively associated with OP. However, the study of Curran et al. (2014) only looked at the relation between perfectionism and passion. To the best of our knowledge, no studies have yet gone beyond these important, yet exploratory, findings and looked at the potential mediating effects of passion in the relation between perfectionism and outcomes in achievement-oriented domains, such as sport and academia.

Consequently, it was proposed that perfectionism and passion will influence the contextual affect of students, which in turn would influence specific academic outcomes (i.e., academic adjustment) in terms of perceived academic performance (Studies 1 and 2), dropout intentions (Study 1) and emotional distress at school (Study 2). More specifically, it was proposed that the positive relation between perfectionism (i.e., SOP) and indicators of academic adjustment would be mediated by HP and the positive affect it entails. In contrast, the negative relations between perfectionism (i.e., both SOP and SPP) and indicators of academic adjustment would be mediated by OP and the negative affect it entails. This basic model was tested in two studies. Study 1 tested the proposed model. Results were replicated in Study 2. Moreover, Study 2 further explored these associations by looking at the role of the specific facets that underlie perfectionism (Campbell & Di Paula, 2002), with the goal of better understanding why SOP sometimes leads to adaptive functioning and sometimes it does not. More precisely, it was hypothesized that some components of SOP are more adaptive (i.e., striving for perfection) and would predict a more adaptive path to academic adjustment through HP and positive affect. In contrast, another component of SOP (i.e., the importance of being perfect) would underlie a less adaptive path through its relation with OP and negative affect. It was thus proposed that the facets of perfectionism, as proposed by Campbell and Di Paula (2002), would provide a finer analysis of the relations of perfectionism with passion, emotions and indicators of academic adjustment (i.e., perceived performance and emotional distress). Overall, the present research will tend to clarify the paradox associated with perfectionism (especially SOP) by assessing the underlying motivational (i.e., passion) and emotional (i.e., affect) processes involved in the relation with important academic outcomes.

2. Study 1

The goal of this research was to uncover the mediating role of passion and affect in the relationships between perfectionism and academic adjustment. Study 1 aimed to look at the role of harmonious and obsessive passion for one's studies, that respectively trigger positive or negative emotions, to better explain why perfectionism sometimes leads to adaptive, sometimes maladaptive, academic adjustment. Undergraduate students completed instruments measuring perfectionism, passion, affect, as well as indicators of academic adjustment (i.e., perceived academic performance and dropout intentions). It was expected that SOP would be associated with both HP and OP, whereas SPP would only be associated with OP. In turn, it was hypothesized that HP would be positively related to positive affect, while OP was hypothesized to relate positively to negative affect. Finally, positive affect was proposed to relate positively to perceived academic performance, while also relating negatively to dropout intentions. In contrast, it was hypothesized that negative affect would relate negatively to perceived academic performance and positively to dropout intentions.

2.1. Method

2.1.1. Participants and procedures

Participants were 305 undergraduate students (169 females, 129 males, 7 missing), with a mean age of 23.48 years ($SD = 5.16$ years). They were recruited at a large Canadian University. The vast majority of the participants ($n = 252$) were French Canadians. The rest of the students spoke Arabic ($n = 9$), English ($n = 6$), Spanish ($n = 4$), Chinese ($n = 4$) or Romanian ($n = 3$) as their native tongue. Others ($n = 12$) spoke one of various other languages, while the rest of the sample did not provide this information ($n = 15$). Students were enrolled in various programs of study, including political sciences ($n = 67$), communication ($n = 53$), actuarial sciences ($n = 51$), managerial sciences ($n = 41$), sociology ($n = 18$), mathematics ($n = 14$), and various other programs ($n = 61$). The final sample included first (51.9%), second (35.4%), third (10.1%), and fourth year students (2.7%). The questionnaires were completed in classrooms, at the beginning of a semester.

2.1.2. Measures

2.1.2.1. Perfectionism. Perfectionism was measured using a short form (Cox et al., 2002) of the Multidimensional Perfectionism Scale (MPS) of Hewitt and Flett (1991). This scale comprises five items capturing SOP (e.g., "One of my goals is to be perfect in everything I do"; $\alpha^1 = 0.84$) and SPP (e.g., "My family expects me to be perfect"; $\alpha = 0.88$). Items were rated using a scale ranging from 1 (*do not agree at all*) to 7 (*very strongly agree*).²

2.1.2.2. Passion. Students' passion toward their studies was assessed using the Passion Scale (Marsh et al., 2013; Vallerand et al., 2003). Participants were asked to complete the items with respect to their studies. Two 6-item subscales were used to assess harmonious (e.g., "Being a student is in harmony with other things that are part of me"; $\alpha = 0.79$) and obsessive (e.g., "I have difficulties controlling my urge to study, $\alpha = 0.67$).

2.1.2.3. Affect. Students reported the affect they generally experienced in their studies by completing the *Positive and Negative Affect Scale* (Watson, Clark, & Tellegen, 1988). This scale comprises two 10-item subscales assessing both positive (e.g., "In my studies, I feel happy"; $\alpha = 0.85$) and negative (e.g., "In my studies, I feel sad"; $\alpha = 0.83$) affect.

¹ The alphas of Cronbach (α) reported in this manuscript are specific to the present studies.

² The same 7-point Likert scale was used for all instruments throughout the manuscript.

2.1.2.4. Perceived academic performance. Students were asked to evaluate their own academic performance by completing a 5-item scale (e.g., “I meet the official performance requirements expected out of a student”, “I adequately complete assigned duties”, “I fulfill responsibilities specified (e.g., study, homework, readings, papers) in the course outline”, “I perform tasks that are expected of me” and “My performance is beyond demands”; $\alpha = 0.83$). A confirmatory factor analysis (CFA) was conducted in order to ensure the perceived academic performance scale constituted a distinct factor from the perfectionism (i.e., SOP and SPP) and passion (i.e., HP and OP) scales. Results of this factor analysis showed support for a 5-factor model where the perceived performance factor created was distinct from the SOP, SPP, HP and OP factors: χ^2 ($df = 283, N = 305$) = 517.35, $p < 0.001$, CFI = 0.930, TLI = 0.920, RMSEA = 0.052 (0.045, 0.059), SRMR = 0.068.

2.1.2.5. University dropout intentions. A 3-item scale developed by Vallerand, Fortier, and Guay (1997) was used to assess students' dropout intentions (e.g., “I intend to dropout of university”; $\alpha = 0.84$).

2.2. Results

Prior to analyses, all variables included in the subsequent path analyses were examined for accuracy of data entry, missing data, and fit between their distributions and the assumptions underlying maximum likelihood procedures (Tabachnick & Fidell, 2007). Descriptive statistics and bivariate correlation are reported in Table 1. All structural equation modeling analyses in the present study were performed on a raw data file using maximum likelihood estimation procedures with MPLUS 7.3 (Muthén & Muthén, 1998–2012). The following fit indices were thus given priority in model evaluation: the comparative fit index (CFI), Tucker-Lewis index (TLI), root mean square error of approximation (RMSEA), and standardized root mean squared residual (SRMR). According to Kline (2011) and Tabachnick and Fidell (2007), the CFI and TLI should be 0.95 or higher, while the RMSEA and SRMR should be 0.06 or lower for acceptable model fit.

2.2.1. Structural equation modeling analyses

As shown in Fig. 1, all predicted paths were statistically significant at the $p < 0.05$ level. Results revealed that SOP positively predicted both HP ($\beta = 0.15, p = 0.008$) and OP ($\beta = 0.18, p = 0.001$), while SPP positively predicted OP ($\beta = 0.34, p < 0.001$). In turn, HP was positively associated with positive affect ($\beta = 0.43, p < 0.001$) and negatively related to negative affect ($\beta = -0.27, p < 0.001$). In contrast, OP was only positively associated with negative affect ($\beta = 0.29, p < 0.001$). Finally, positive affect was positively related to academic performance ($\beta = 0.22, p < 0.001$) and negatively associated with dropout intentions ($\beta = -0.27, p < 0.001$). Conversely, negative affect was negatively associated with academic performance ($\beta = -0.24, p < 0.001$) and positively related to dropout intentions ($\beta = 0.22, p = 0.002$). Furthermore, direct relation between SOP and positive affect ($\beta = 0.30, p < 0.001$) and academic performance ($\beta = 0.19, p < 0.001$) remained significant over and beyond the effects of the mediators. Moreover, a direct relation

between HP and academic performance remained positively significant ($\beta = 0.17, p = 0.006$) after taking the statistical influence of positive affect into account. Along the same line, a direct and positive relation between SPP and negative affect ($\beta = 0.16, p = 0.012$) also remained significant. Overall, the proposed model had a good fit to the data: χ^2 ($df = 10, N = 305$) = 12.964, $p = 0.23$, CFI = 0.992, TLI = 0.979, RMSEA = 0.031 (0.000, 0.074), SRMR = 0.029.

2.2.2. Indirect effects

Indirect effects were tested using the bias-corrected bootstrap method using the ML procedure of MPLUS. As recommended, the significance of indirect effects was assessed using 1000 bootstrap samples and the 95% bias-corrected confidence intervals (CIs) (Shrout & Bolger, 2002).

2.2.2.1. From SOP to academic adjustment. Regarding the relation between SOP and academic performance, results suggested the existence of three distinct significant indirect effects. First, results of indirect effects provided support for the mediating role of HP and positive affect ($\beta = 0.014$; 95% CI = 0.001 to 0.027, $p = 0.041$). A second positively significant indirect effect provided support for the mediating role of HP and negative affect ($\beta = 0.010$; 95% CI = 0.001 to 0.019, $p = 0.038$). Finally, a third indirect effect in the relation between SOP and academic performance was significant. Specifically, results showed the existence of a negative indirect effect that indicated that OP and negative affect ($\beta = -0.013$; 95% CI = -0.023 to -0.002 , $p = 0.020$) also mediated the relation between SOP and academic performance. All of these indirect effects underscore the partial mediating role of passion and affect in the relation between SOP and academic performance since the direct effect remained significant ($\beta = 0.191$; 95% CI = 0.087 to 0.296, $p < 0.001$).

Similar conclusions can be drawn for the relation between SOP and dropout intentions. Again, results provided support for the existence of three significant indirect effects. First, results of indirect effects provided support for the mediating role of HP and positive affect ($\beta = -0.017$; 95% CI = -0.034 to -0.001 , $p = 0.040$) as well as for the mediating role of HP and negative affect ($\beta = -0.009$; 95% CI = -0.018 to -0.000 , $p = 0.048$) in the negative relation between SOP and dropout intentions. Moreover, a third significant indirect provided support for the mediating role of OP and negative affect ($\beta = 0.012$; 95% CI = 0.001 to 0.022, $p = 0.034$) in the positive relation between SOP and dropout intentions, thus providing support for the mediating role of passion and affect.

2.2.2.2. From SPP to academic adjustment. Regarding SPP, results of indirect effects supported the mediating role of OP and negative affect in the negative relation between SPP and performance ($\beta = -0.023$; 95% CI = -0.039 to -0.008 , $p = 0.004$), as well as in the positive relation between SPP and dropout intentions ($\beta = 0.022$; 95% CI = 0.005 to 0.039, $p = 0.012$).

Table 1
Descriptive statistics and bivariate correlations – Study 1.

	M	SD	1	2	3	4	5	6	7
1. Self-oriented perfectionism	4.73	1.33							
2. Socially prescribed perfectionism	2.95	1.40	0.49***						
3. Harmonious passion	5.00	0.91	0.15**	-0.01					
4. Obsessive passion	2.94	1.05	0.35***	0.43***	0.19**				
5. Positive affect	4.96	0.83	0.36***	0.11	0.47***	0.25***			
6. Negative affect	2.23	0.87	0.10	0.28***	-0.22***	0.32***	0.04		
7. Perceived academic performance	5.28	0.86	0.27**	0.04	0.35***	0.02	0.36***	-0.24***	
8. Dropout intentions	1.27	0.73	-0.05	0.14*	-0.20**	0.09	-0.21***	0.23***	-0.11

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

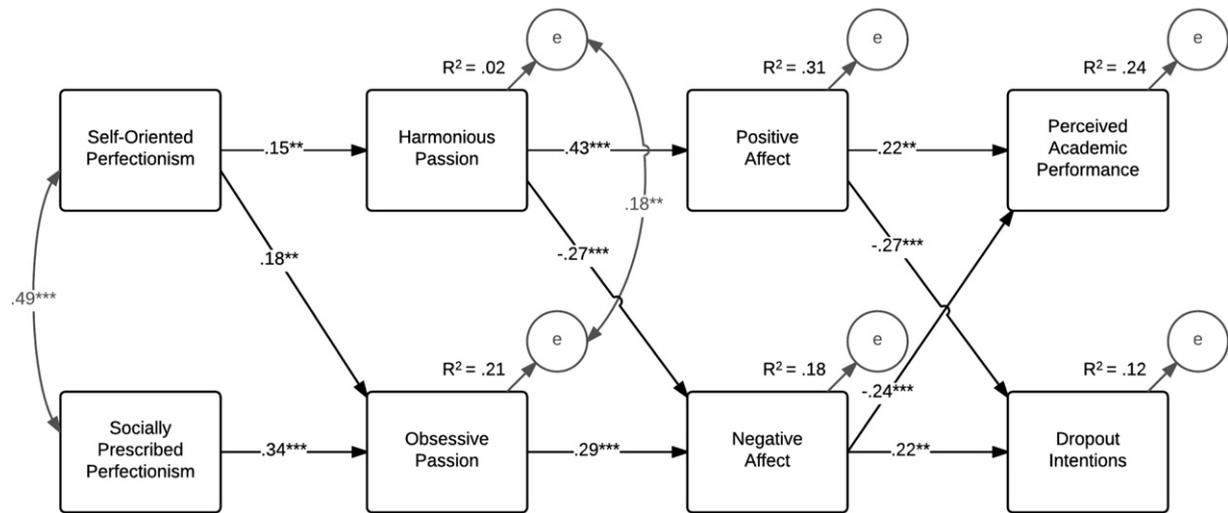


Fig. 1. Final model of the relationship involving perfectionism, passion, affect and academic adjustment: Study 1. Although not indicated in the figure, direct links between Self-Oriented Perfectionism and Positive Affect ($\beta = 0.30, p < 0.001$) and Academic Performance ($\beta = 0.19, p < 0.001$), Socially Prescribed Perfectionism and Negative Affect ($\beta = 0.16, p = 0.012$) and between Harmonious Passion and Academic Performance ($\beta = 0.17, p = 0.006$) were included in the model. Note. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

2.2.3. Brief discussion

Overall, the results of Study 1 demonstrated that passion and affect act as mediators in the relation between perfectionism and academic adjustment. On the one hand, HP and both types of affect partially mediate the positive relation between SOP and perceived academic performance and dropout intentions. These results highlight that, through its relationship with HP, SOP can lead to desirable academic outcomes through the experience of high levels of positive affect and low levels of negative affect. On the other hand, the present results show that SOP is also positively associated with OP. Combined with the experience of negative affect, OP acts as a mediator of the negative relation with academic adjustment (i.e., low levels of perceived performance and high levels of dropout intentions). Such findings are aligned with the current paradox surrounding the adaptive nature of SOP in the academic domain. More specifically, SOP can lead to adaptive outcomes when the self-imposed desire to attain perfection is associated with a HP for academia, high levels of positive affect, and low levels of negative affect. In such case, the autonomous and authentic self will be at play, thus leading to desirable outcomes in the academic domain. Conversely, when one's self-imposed search for perfection is associated with an OP, the ego-involved and defensive self will be at play consequently leading to high levels of negative affect, and thus, to undesirable educational outcomes such as low levels of academic performance and high levels of dropout intentions. In contrast, the status of SPP is much clearer. When looking to attain perfection in a socially imposed and controlled fashion, one is likely to have an OP that will consequently lead to high levels of negative affect and low levels of academic adjustment.

3. Study 2

There were three main purposes to Study 2. First, we sought to replicate the results of Study 1. The second goal of Study 2 was to deepen our analysis of the effects of perfectionism on academic adjustment with the specific aim of better understanding why SOP sometimes leads to adaptive functioning and sometimes it does not. We did this by looking at the role of the specific facets that underlie perfectionism (Campbell & Di Paula, 2002). Interestingly, past research has demonstrated that the dimensions of SOP and SPP are not homogenous constructs (Campbell & Di Paula, 2002; Stoeber & Childs, 2010). According to Campbell and Di Paula (2002), SOP and SPP contain two facets each. More specifically, striving for perfection and the importance of being perfect are comprised in SOP, whereas the belief that others

hold high standards for oneself and that others' acceptance is conditional on the attainment of those standards (i.e., conditional acceptance) are comprised in SPP. Of importance is the fact that these facets are differentially related to adjustment outcomes. More specifically, striving for perfection, which can be viewed as autonomous in nature and emanating from the self, has been positively related to adaptive outcomes such as positive affect and self-esteem (Stoeber & Childs, 2010). Conversely, the importance of being perfect originates from self-imposed pressure to attain perfection and has been related to maladaptive outcomes such as negative affect and burnout (Stoeber & Childs, 2010). It would then be hypothesized that striving for perfection and the importance of being perfect would respectively predict the more adaptive and less adaptive roads to academic adjustment emanating from SOP.

With respect to SPP, the facet of conditional acceptance is expected to predict negative outcomes as one must live up to others' expectations in order to get their acceptance. Failing to do so can have an important impact on feelings of self-worth, competence, and well-being. Indeed, the perception of conditional acceptance has typically been associated with variables such as low levels of self-esteem and life satisfaction, as well as high levels of depressive symptoms and burnout (Stoeber & Childs, 2010). In comparison, the facet that others hold high standards for oneself should be much less detrimental as high standard expectations are not necessarily contingent on being accepted by others. Research provides some support for these hypotheses as this facet has been found to be unrelated to indices of psychological adjustment such as positive affect, life satisfaction, depressive symptoms and burnout (Stoeber & Childs, 2010). Thus, conditional acceptance would be expected to have the most negative effects on academic adjustment through its relationship with OP and negative affect while the other facet (other's high standards) should be unrelated to passion, affect, and outcomes.

The third purpose of Study 2 was to extend the findings of Study 1 by looking at students' emotional distress. Indeed, past research has shown that emotional distress is an important indicator of academic maladjustment (Rice, Leever, Christopher, & Porter, 2006; Wood, 2006). Henry and Crawford (2005), in line with the tripartite model of Clark and Watson (1991), argue that all three dimensions of emotional distress (i.e., depression, anxiety, and stress) are related, but nevertheless represent distinct factors from negative affect. In Study 2, it is proposed that passion toward one's studies mediates the relation between perfectionism and emotional distress through the affect it generates.

In sum, two models were tested in Study 2. In the first, we sought to replicate the model of Study 1. The second model aimed at testing the

role of the facets of perfectionism, as defined by Campbell and Di Paula (2002). It was expected that the striving for perfection facet of SOP would be uniquely and positively associated with HP. In contrast, the importance of being perfect facet of SOP was expected to positively related to OP. As for the facets of SPP, the conditional acceptance facet should be positively associated with OP, while the others hold high standards for oneself facet was not expected to be associated with any of the two forms of passion. In turn, as in Study 1, it was hypothesized that HP would be positively associated with positive affect and negatively related to negative affect. In contrast, OP would be positively associated with negative affect. Finally, positive affect was expected to be positively associated with academic performance, whereas negative affect should be positively and negatively associated with emotional distress and academic performance, respectively.

3.1. Method

3.1.1. Participants and procedures

Participants were 263 undergraduate students (145 females, 109 males, 8 missing), with a mean age of 22.59 years ($SD = 4.13$ years). They were recruited at a large Canadian University. The vast majority of the participants ($n = 214$) were French Canadians. Other participants spoke English ($n = 13$), Arabic ($n = 5$), Spanish ($n = 5$), or one of other various languages ($n = 14$) as their native tongue. The rest of the sample did not provide this information ($n = 10$). Students were enrolled in various programs of study, including political sciences ($n = 81$), education ($n = 46$), sociology ($n = 29$), actuarial sciences ($n = 24$), communication ($n = 18$), and various other programs ($n = 63$). The final sample included first (66.3%), second (18.7%), third (11.9%), and fourth year students (3.2%). As in Study 1, the questionnaires were completed in classrooms, at the beginning of a semester.

3.1.2. Measures

3.1.2.1. Perfectionism. Perfectionism was measured using the *Multidimensional Perfectionism Scale* (Hewitt & Flett, 1991). As suggested by Campbell and Di Paula (2002), both SOP and SPP are multidimensional and multifaceted concept. The two 5-item subscales comprised in the measurement SOP are striving for perfection, which reflects the perception that one actively strives for perfection (e.g., "I strive to be as perfect as I can be", $\alpha = 0.78$), and the importance of being perfect, which reflects the belief that it is important to be perfect (e.g., "It is very important that I am perfect in everything I attempt" $\alpha = 0.81$). The two subscales comprised in the measurement of SPP are the 6-item subscale of others' high standards, which measures the belief that other people hold high standards or expectations for the self (e.g., "People expect nothing less than perfectionism from me", $\alpha = 0.74$), and the 5-item subscale of conditional acceptance, which reflects the belief that being loved and accepted by others is contingent on high achievement (e.g., "Others will like me even if I don't excel at everything", reversed item, $\alpha = 0.65$). A CFA was conducted in order to confirm the four-factor structure of the scale. Results of the CFA provided support for the distinction between all four facets, as defined by Campbell and Di Paula (2002): χ^2 ($df = 168, N = 261$) = 283.23, $p > 0.001$, CFI = 0.934, TLI = 0.917, RMSEA = 0.055 (0.044, 0.066), SRMR = 0.060.

3.1.2.2. Passion. As in Study 1, students' passion toward their studies was assessed using the Passion Scale (Marsh et al., 2013; Vallerand et al., 2003). Both the HP ($\alpha = 0.79$) and OP ($\alpha = 0.70$) subscales showed adequate reliability.

3.1.2.3. Affect. Students reported the affect they generally experienced in their studies by completing the short version of *Positive and Negative Affect Scale* (Watson et al., 1988). The positive and negative affect subscales each comprised 5 items and showed adequate reliability ($\alpha = 0.71$ and $\alpha = 0.74$, respectively).

3.1.2.4. Perceived academic performance. Students were asked to evaluate their own academic performance by completing the same 5-item scale as in Study 1 ($\alpha = 0.87$).

3.1.2.5. Emotional distress. Emotional distress was assessed using the Depression, Anxiety, and Stress Scale (DASS-21; Henry & Crawford, 2005). When answering, participants were asked to refer to their experience in their studies over the last week. Three 7-item subscales were used to assess depression (e.g., "I couldn't seem to experience any positive feeling at all", $\alpha = 0.90$), anxiety (e.g., "I felt I was close to panic", $\alpha = 0.87$) and stress (e.g., "I found it hard to wind down", $\alpha = 0.92$). The three subscales were subsequently averaged to create a single indicator of emotional distress ($\alpha = 0.95$).

3.2. Results

The analytical and statistical procedures described in Study 1 were also used in Study 2. Descriptive statistics and bivariate correlation are reported in Table 2. Two participants were identified as multivariate outliers and were thus removed from the final sample ($n = 261$).

3.2.1. Structural equation modeling analyses – replicating Study 1

The first goal of Study 2 was to replicate the findings of Study 1 with respect to the relation between perfectionism and passion. As shown in Fig. 2, Study 2 replicated the basic model of Study 1. As in Study 1, SOP was positively related to both HP ($\beta = 0.32, p < 0.001$) and OP ($\beta = 0.35, p < 0.001$), while SPP was positively related to OP ($\beta = 0.19, p = 0.001$). Contrary to Study 1, however, SPP was also negatively related to HP ($\beta = -0.29, p < 0.001$). In turn, HP was related to positive affect ($\beta = 0.37, p < 0.001$), while OP was related to negative affect ($\beta = 0.25, p < 0.001$). Although in the same direction, the negative relation between HP and negative affect was not significant ($\beta = -0.08, p = 0.224$), contrary to Study 1. Next, positive affect was related to academic performance ($\beta = 0.42, p < 0.001$). Finally, negative affect was associated with both academic performance ($\beta = -0.18, p = 0.002$) and emotional distress ($\beta = 0.50, p < 0.001$). Direct links between SOP and positive affect ($\beta = 0.39, p < 0.001$) and academic performance ($\beta = 0.17, p = 0.010$), between SPP and negative affect ($\beta = 0.24, p < 0.001$), as well as between OP and emotional distress ($\beta = 0.26, p < 0.001$) were also included in the model. Overall, the proposed model had a good fit to the data: χ^2 ($df = 12, N = 261$) = 20.22, $p = 0.06$, CFI = 0.979, TLI = 0.953, RMSEA = 0.051 (0.000, 0.089), SRMR = 0.040.

3.2.2. Structural equation modeling analyses – the facets of perfectionism

As mentioned previously, the second aim of Study 2 was to go further and looking at the specific role of the facets of perfectionism as defined by Campbell and Di Paula (2002). Results are illustrated in Fig. 3. Overall, results revealed both facets of SOP were related to passion in a differential manner. Specifically, striving for perfection positively predicted HP ($\beta = 0.27, p < 0.001$) while the importance of being perfect positively predicted OP ($\beta = 0.36, p < 0.001$). Regarding the facets of SPP, conditional acceptance positively predicted OP ($\beta = 0.18, p = 0.002$) and also negatively predicted HP ($\beta = -0.27, p < 0.001$). As expected, others' high standards was unrelated to both types of passion. Next, HP was positively associated with positive affect ($\beta = 0.34, p < 0.001$), whereas OP was positively related to negative affect ($\beta = 0.24, p < 0.001$). In contrast with Study 1, HP was not significantly associated with negative affect ($\beta = -0.06, p = 0.372$). Subsequently, positive affect was positively associated with academic performance ($\beta = 0.37, p < 0.001$). Conversely, negative affect was negatively related to academic performance ($\beta = -0.17, p = 0.004$) and positively associated with emotional distress ($\beta = 0.50, p < 0.001$). Of interest, the direct relation between striving for perfection and positive affect ($\beta = 0.43, p < 0.001$) and perceived academic performance ($\beta = 0.23, p < 0.001$) remained significant over and beyond the effects of the mediators.

Table 2
Descriptive statistics and bivariate correlations – Study 2.

	M	SD	1	2	3	4	5	6	7	8	9
1. Striving for perfection	5.02	1.22									
2. Importance of being perfect	4.01	1.32	0.77***								
3. Others' high standards	3.80	1.10	0.27***	0.41***							
4. Conditional acceptance	2.47	0.97	0.09	0.29***	0.51***						
5. Harmonious passion	4.88	1.08	0.23**	0.14*	-0.10	-0.27***					
6. Obsessive passion	2.99	1.14	0.34***	0.41***	0.17**	0.24***	0.18*				
7. Positive affect	5.08	0.89	0.50***	0.34***	0.02	-0.10	0.41***	0.25***			
8. Negative affect	2.92	1.14	0.10	0.26***	0.28***	0.41***	-0.11	0.34***	0.09		
9. Perceived academic performance	5.25	0.98	0.41***	0.19**	0.00	-0.19**	0.23*	0.06	0.47***	-0.14*	
10. Emotional distress	2.66	1.35	0.21**	0.32***	0.26***	0.33***	-0.09	0.43***	0.14*	0.60***	-0.05

* $p < 0.05$.
** $p < 0.01$.
*** $p < 0.001$.

Finally, the direct relation between conditional acceptance and negative affect ($\beta = 0.27, p < 0.001$) and between OP and emotional distress ($\beta = 0.26, p < 0.001$) also remained significant. Overall, the proposed model had good fit to the data: $\chi^2 (df = 24, N = 261) = 31.46, p = 0.14, CFI = 0.988, TLI = 0.978, RMSEA = 0.035 (0.000, 0.065), SRMR = 0.035$.

3.2.3. Indirect effects

As in Study 1, indirect effects were tested using the bias-corrected bootstrap method using the ML procedure of MPLUS.

3.2.3.1. From the facets of SOP to academic adjustment. Regarding the facets of SOP, the presence of a positively significant indirect effect of striving for perfection on academic performance through the combined effects of HP and positive affect ($\beta = 0.035, 95\% CI = 0.011$ to $0.060, p = 0.004$) provided support for the mediating role of HP and positive affect in the relation between striving for perfection and perceived academic performance. However, the presence of the significant direct association between striving for perfection and perceived academic performance ($\beta = 0.234, 95\% CI = 0.105$ to $0.362, p < 0.001$) suggests that the mediating effects are partial rather than complete. Second, a significant negative indirect effect ($\beta = -0.014, 95\% CI = -0.027$ to $-0.001, p = 0.040$) provides support for the mediating role of OP and negative affect in the relation between the importance of being perfect and perceived academic performance. Moreover, the presence of a positively significant indirect effect ($\beta = 0.043; 95\% CI = 0.014$ to $0.067, p = 0.004$) offers support the mediating role of OP and negative affect

in the relation between the importance of being perfect and emotional distress.

3.2.3.2. From the facets of SPP to academic adjustment. Regarding the facets of SPP, the presence of a significantly negative indirect effect provided support for the mediating role of HP and positive affect ($\beta = -0.035; 95\% CI = -0.060$ to $-0.009, p = 0.007$) in the relation between conditional acceptance and perceived academic performance. However, the indirect effects of OP and negative affect ($\beta = -0.007; 95\% CI = -0.015$ to $0.001, p = 0.078$) in the relation between conditional acceptance and perceived academic performance were not significant. Finally, a significantly positive indirect effect ($\beta = 0.021; 95\% CI = 0.004$ to $0.036, p = 0.017$) provided support for the mediating role of OP and negative affect in the relation between conditional acceptance and emotional distress.

3.2.4. Brief discussion

There were three purposes to Study 2. The first aim was to replicate the findings of Study 1. Second, we sought to pursue our analysis of the effects of perfectionism by looking at the role of the specific facets that underlie perfectionism (Campbell & Di Paula, 2002). The third purpose of Study 2 was to extend the findings of Study 1 by looking at emotional distress in the academic domain. Overall, strong support was obtained for all aims of this second study. Indeed, the results of Study 2 not only essentially replicated those of Study 1, but they also highlight the importance of considering the specific influence of both facets of SOP and SPP, as defined by Campbell and Di Paula (2002), when looking at

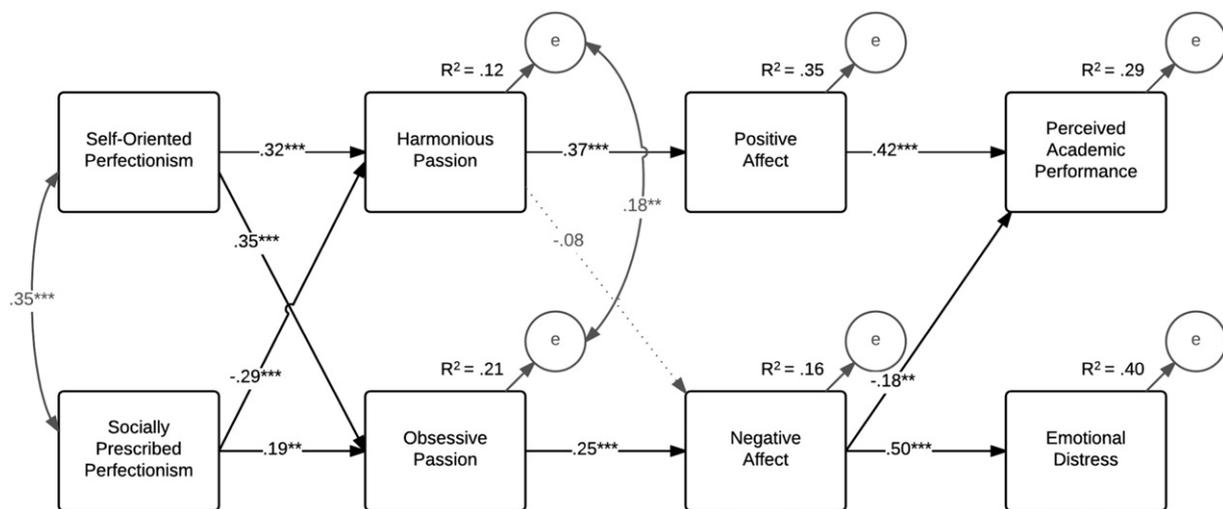


Fig. 2. Model of the relationship involving perfectionism, passion, affect and academic adjustment: Study 2. Although not indicated in the figure, direct links between Self-Oriented Perfectionism and Positive Affect ($\beta = 0.39, p < 0.001$) and Academic Performance ($\beta = 0.17, p = 0.010$), Socially Prescribed Perfectionism and Negative Affect ($\beta = 0.24, p < 0.001$) and between Obsessive Passion and Emotional Distress ($\beta = 0.26, p < 0.001$) were included in the model. Note. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

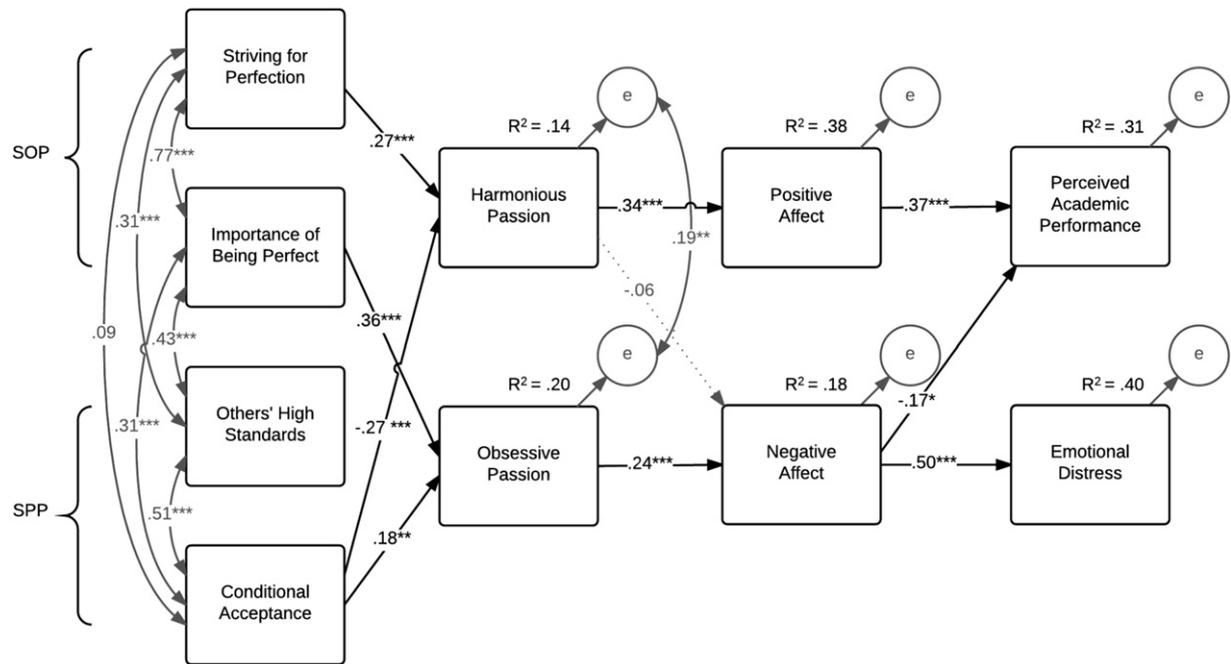


Fig. 3. Final model of the relationship involving the facets of perfectionism, passion, affect, and academic adjustment: Study 2. Although not indicated in the figure, direct links between Striving for Perfection and Positive Affect ($\beta = 0.43, p < 0.001$) and Academic Performance ($\beta = 0.23, p < 0.001$), Conditional Acceptance and Negative Affect ($\beta = 0.27, p < 0.001$), and between Obsessive Passion and Emotional Distress ($\beta = 0.26, p < 0.001$) were included in the model. Note. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

the adaptive nature of perfectionism. These findings shed light on the paradox of SOP's role in outcomes by demonstrating that the two facets of this construct, namely striving for perfection and the importance of being perfect, lead to different types of passion, emotions and educational outcomes. The results suggest that striving for perfection is the most adaptive facet of SOP as it leads to better perceived academic performance through the combined effects of HP and positive affect. This is because this facet of SOP emanates from the self and is the most autonomous in nature. The importance of being perfect also stems from the self. However, this facet entails searching for perfection in order to satisfy intrapersonal contingencies, such as self-worth or competence. Consequently, it leads to lesser academic adjustment (both lower perceived performance and higher emotional distress) through the effects of OP and negative affect.

With regards to SPP, the results show that the perception of conditional acceptance is key in understanding why SPP is more likely to lead students to low levels of academic adjustment. With the perception conditional acceptance, students must bear the heavy burden of reaching perfection in order to feel accepted by significant others, such as teachers, parents and peers. In contrast, the second facet of SPP, other's high standards, was unrelated to academic passion, affect and academic adjustment.

4. General discussion

4.1. The paradox of perfectionism

Perfectionistic students dedicate themselves to reach for perfection by spending a great amount of time and effort in their various academic tasks. While this dedication may lead to great achievements and performance, it is not necessarily beneficial for students' well-being (Flett & Hewitt, 2005). Although this hypothesis makes sense, there is a problem: the academic literature on this issue has provided mixed evidence, especially when perfectionism emanates from the self. The paradoxical results obtained in past research, whereby SOP is sometimes beneficial and sometimes detrimental to students' academic adjustment, could stem from the fact that SOP is not a homogeneous concept. As proposed by Campbell and Di Paula (2002), SOP contains two facets (striving for

perfection and importance of being perfect) that trigger different processes and consequently led to different consequences in term of academic adjustment. Specifically, research has shown that SOP in students can lead to higher levels of performance (Bong et al., 2014; Cox et al., 2002; Verner-Filion & Gaudreau, 2010), while being either positively (Hewitt & Flett, 1991), negatively (Ashby et al., 2012), or even unrelated (Bieling et al., 2004) to indicators of emotional distress such as depression, anxiety and stress.

The main objective of this research was to shed light on the paradox surrounding the role of perfectionism in educational outcomes by focusing on the mediating role of passion and affective processes. Specifically, it was hypothesized that the main reason why perfectionism is sometimes related to positive educational outcomes and at other times related to negative outcomes is that perfectionism may trigger different types of passion (harmonious and obsessive) that leads to positive or negative affect and associated outcomes. Results from the present research provided support for this main hypothesis. Specifically, due to its positive relationship with positive affect, HP mediates the positive relation between SOP and academic adjustment. In contrast, OP, because it is associated with negative affect, mediates the negative relationship between SOP and academic adjustment. Moreover, the negative relation between SPP and academic adjustment was also mediated by OP and negative affect.

4.1.1. On the importance of passion in the relation between SOP and academic adjustment

A first implication is that the results provided empirical evidence for the mediating role of passion and affect in the relation between perfectionism and indices of academic adjustment in university student. Indeed, passion toward academia explains why perfectionism leads to both positive and negative outcomes in the academic domain. More specifically, positive outcomes occur when perfectionism (SOP) leads to HP, and subsequently to positive affect. In contrast, negative outcomes occur when perfectionism (both SOP and SPP) leads to OP, and subsequently to negative affect. The present results show that SOP was positively related to both HP and OP, whereas SPP was positively related to OP (and negatively to HP, Study 2). Consequently, both

types of passion were differentially related to affect and then to indices of academic adjustment.

Overall, these results highlight the importance of understanding how students pursuing perfection integrate their passion for academic in their identity, especially when this search for perfection emanates from the self (i.e., SOP). In fact, the type of passion one holds qualifies the relation that SOP holds with academic adjustment through the type of affect (i.e., positive vs. negative) experienced in the academic domain. More precisely, when autonomously internalized in the self through a HP, SOP leads to positive and adaptive educational outcomes. This is because, with HP, individuals are likely to engage in their studies with a sense of openness that is conducive to the experience of positive emotions. Furthermore, since HP is associated with a flexible engagement in the activity, one is likely to know when it is appropriate to engage in the activity and when it is not, thus preventing from rumination and conflict with other important life activities such as work, family and friends (Carpentier, Mageau, & Vallerand, 2012; Séguin-Lévesque et al., 2003).

However, SOP can lead to negative academic outcomes when the search for perfection leads to a controlled internalization of the activity through an OP. In such cases, individuals will chase perfection because feelings of self-worth and competence are on the line. This type of involvement thus leads to the experience of negative affect. It can further be associated with a rigid persistence, rumination and conflict with other life domains (Carpentier et al., 2012; Séguin-Lévesque et al., 2003). When pursued in this fashion, SOP is conducive to the experience of negative educational outcomes, such as low levels of academic performance (Studies 1 and 2), high levels of intent to drop out of university (Study 1), and high levels of emotional distress (Study 2).

Concerning SPP, the results demonstrate that pursuing perfection because of standards imposed by parents, teachers, or peers is positively associated with OP (Study 1 and 2), and negatively associated with HP (Study 2). With SPP, individuals are more likely to pursue the standards set by others with a rigid persistence that is characteristic of OP. This is because feelings of social acceptance and self-worth are contingent with the attainment of these standards, thus leading to low levels of academic adjustment.

4.1.2. *On the importance of the different facets of perfectionism*

The results of Study 2 allow for a finer analysis of the conclusions drawn in Study 1. Specifically, the two facets of SOP proposed by Campbell and Di Paula (2002), namely striving for perfection and the importance of being perfect, are uniquely related to HP and OP, respectively. These results highlight the importance of considering the effects of both facets when looking at the adaptive nature of SOP. Striving for perfection is defined as being the most autonomous form of perfectionism. Consequently, it leads to the most adaptive consequences, compared to other facets of perfectionism (Campbell & Di Paula, 2002; Stoeber & Childs, 2010). In contrast, the importance of being perfect stems for internal pressures to attain perfection. Although both facets emanate from the self, the importance of being perfect is a much more controlled form of perfectionism and consequently is typically associated with much less desirable outcomes compared to striving for perfection (Stoeber & Childs, 2010). As suggested by past research, this may be due to the fact that setting high personal standards (i.e., SOP) will relate to negative educational outcomes only when meeting these standards is a necessary condition for a sense of self-worth (DiBartolo, Frost, Chang, LaSota, & Grills, 2004). In such cases, perfectionism is pursued in a defensive, ego-involved fashion that is conducive to the development of an OP, high levels of negative affect, and subsequently to the experience of low levels of academic adjustment.

The present research highlights the importance of understanding the reason/rationale behind one's quest for perfection. When such an endeavour is fueled by an aspiration to strive for perfection that emanates from oneself, it can lead to desirable academic outcomes, through the combined effects of HP and positive affect. However, when students

try to attain self-imposed standards of perfection because they believe it is important and in order to maintain their feelings of self-worth, it can lead to detrimental consequences in the academic domain. Teachers, peers and educators should be aware of the differences between the two subtypes of self-oriented perfectionism in order to better recognize when it can help or hinder students' adjustment in the academic domain.

With regard to SPP, only the facet of conditional acceptance was related to passion. Specifically, this facet is the least adaptive form of perfectionism, as it stems from external pressure to attain perfection in order to gain or keep others acceptance. In such cases, feelings of self-worth, competence and relatedness are highly contingent with the attainment of perfection, thus leading to a controlled internalization of the passionate activity in the self, in the form of an OP. Furthermore, this facet of SPP was also negatively related to HP in Study 2, thus reinforcing the fact that this facet is considered as the least adaptive form of perfectionism by past research (Stoeber & Childs, 2010). In contrast, the facet of other's high standards was not related to any form of passion. This is because the mere fact that others hold high standards for oneself might not be sufficient to develop a strong inclination toward an activity that is important, liked, and in which a significant amount of time and energy is invested (i.e., the definition of passion).

4.2. *Implications for the dualistic model of passion*

Another implication from this research pertains to the support it provides for the DMP (Vallerand, 2015; Vallerand et al., 2003). The present findings provide further evidence of the differential relation between harmonious and obsessive passion and indices of academic adjustment. The present findings suggest that HP not only leads to higher perceived performance, but also to low levels of dropout intentions, when one is engaged in the pursuit of perfection in the academic setting. Conversely, OP leads to high levels of dropout intention and emotional distress, as demonstrated in past research (Mageau et al., 2005; Ratelle, Vallerand, Mageau, Rousseau, & Provencher, 2004). Moreover, the present findings have uncovered a new personal determinant of passion, namely perfectionism. Past research on passion has typically focused on the consequences of passion (Vallerand, 2015). Most of the research on the determinants of passion has focused on the influence of others in the form of autonomy support (Mageau et al., 2009). Moreover, past studies have shown that having an autonomous personality style leads to HP and a controlled personality style to OP (Vallerand et al., 2006). The present findings thus add to this literature by demonstrating that perfectionism is an important antecedent of passion.

4.3. *Limitations and future research*

The present findings have some limitations, however. First, although the results of the present studies are consistent with causal interpretation, the correlational design used prevents such an inference. The use of a longitudinal or preferably experimental design would be important in order to clearly define the causal relation between perfectionism and passion. Second, the present research relied exclusively on self-report data. It would be important to replicate these studies with other types of measures, such as objective measures (e.g., GPA, dropout rates) or physiological assessment (e.g., cortisol levels), or with indications from informants such as parents, teachers, and peers.

Moreover, alternative instruments could have been used to assess perfectionism. Specifically, much research on perfectionism has been conducted using a scale developed by Frost, Marten, Lahart, and Rosenblate (1990), or a combination of both Hewitt and Flett's (1991) and Frost et al.' (1990) scales (see Gaudreau & Antl, 2008; Gaudreau & Thompson, 2010; Hill & Davis, 2014, for examples). Future research should be conducted in order to replicate the present findings with different measures of perfectionism. Along the same line, it is worth noting that the distinction between the facets of perfectionism as defined by

Campbell and Di Paula (2002) is mainly theoretical. To the best of our knowledge, Study 2 is the first to provide empirical distinction between the facets of perfectionism as defined by Campbell and Di Paula (2002) using a CFA. Further research is required to provide stronger empirical support for the distinction among all four facets of perfectionism. It is important to keep in mind that striving for perfection and the importance of being perfect both are integral components of SOP. Thus, the present findings should not be interpreted as an attempt to demonstrate that SOP is inherently adaptive in students. Rather, the results presented herein show that analyzing the specific effects of the different facets of SOP (i.e., striving for perfection and the importance of being perfect) provides a more refined understanding of the motivational and emotional processes underlying SOP in order to better explain the equivocal results of past research.

Another limitation of the present studies relies on the fact that it only focused on intrapersonal variables. Consequently, it does not provide information as to how social agents may produce some changes in perfectionism, passion, emotions and academic adjustment. One promising direction is that of parents' and teachers' interpersonal styles. Indeed, previous research has shown that by adopting autonomy supportive behaviors, parents and teachers facilitate the development of a HP, while controlling behaviors result in the development of a more OP toward a given activity (Mageau et al., 2009). Since SOP has been shown to lead to both HP and OP, teachers' and parents' interpersonal styles may prove to be a key variable in better understanding how students with SOP develop either a harmonious or an obsessive passion for their studies. Thus, autonomy supportive interactions from teachers and parents may be quite instrumental in helping students with SOP develop HP rather than OP toward academics by orienting students toward striving for perfection rather than the importance of being perfect. This would help students to reach and maintain high levels of academic adjustment. Future research is needed on this issue.

In sum, the present research underlines the importance of the role of passion and affect in the interplay between perfectionism and indices of academic adjustment. Specifically, the present research helps differentiating the motivational, emotional, and self-related processes through which perfectionism can lead to either positive or negative educational consequences. The present findings are the first to show that harmonious and obsessive passion, as well as positive and negative affect, mediates the relation between perfectionism and academic adjustment. Future research is important in order to further test the implications of these findings for other areas of the field of education.

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Appendix A. Supplementary files

Supplementary files to this article, showing the unstandardized beta, standard error, 95% intervals of confidence (CI), standardized beta, and *p* value of all direct paths for Studies 1 and 2, can be found online at <http://dx.doi.org/10.1016/j.lindif.2016.07.018>.

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