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ANTECEDENTS AND OUTCOMES OF PERFECTIONISM IN ADOLESCENTS

PhD Dissertation Summary

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CHAPTER 1. PERFECTIONISM. CONCEPTUAL AND EMPIRICAL FOUNDATIONS

Perfectionism is a personality characteristic that entails striving for flawlessness, setting excessively high standards, and displaying overly critical evaluations (Frost, Marten, Lahart, & Rosenblate, 1990; Hewitt & Flett, 1991). Although the interest for the research on perfectionism was merely because of its negative consequences, today there is little doubt that perfectionism is multidimensional and entails both functional ("healthy") and dysfunctional ("unhealthy") facets (Stoeber & Otto, 2006).

1.1. Multidimensional Models of Perfectionism

The model developed by Hewitt and Flett (1991) takes into account both intrapersonal and interpersonal aspects of perfectionism. The three dimensions of the model are represented by self-oriented perfectionism, socially prescribed perfectionism, and other-oriented perfectionism. Self-oriented perfectionism refers to setting excessively high standards for oneself and by engaging in overly critical self-evaluations. Socially prescribed perfectionism is an interpersonal dimension which refers to the perceptions that one needs to attain excessively high standards imposed by others and that his/her acceptance is conditional upon meeting these standards. Other-oriented perfectionism is represented by setting excessively high standards for others and evaluating other people based upon these unrealistic standards. It has been argued that self-oriented and other-oriented perfectionism represent healthy dimensions of perfectionism whereas socially prescribed perfectionism represents an unhealthy dimension of perfectionism (Stoeber & Otto, 2006). Thus, there is strong agreement that socially prescribed perfectionism is a maladaptive form of perfectionism showing strong and consistent positive associations with indicators of psychological maladjustment such as anxiety, depression, psychological symptoms, and general negative affect (e.g., Hewitt & Flett, 1991). Self-oriented perfectionism, however, appears to be a more adaptive form of perfectionism showing associations with both negative and positive outcomes.

Further empirical developments, however, have identified four subtypes of perfectionists strarting from the two dimensions of perfectionism. The 2 × 2 model of perfectionism was recently introduced by Gaudreau and Thompson (2010) and has been the subject of a constructive scientific debate ever since (see Stoeber, 2012; Gaudreau, 2013). The model

proposes that facets (e.g., self-oriented and socially prescribed perfectionism) and dimensions (e.g., personal standards perfectionism and evaluative concerns perfectionism) of dispositional perfectionism form four subtypes of perfectionism (i.e., different within-person combinations). Similarly to the tripartite model of perfectionism (e.g., Stoeber & Otto, 2006), the 2 × 2 model is based on the idea that the facets or dimensions of perfectionism can coexist in an individual to varying degrees and thus distinct combinations can be differentiated. First, the non-perfectionism subtype represents a combination of coexisting low levels of both PSP and ECP. Second, the pure PSP subtype represents a combination of a high level of PSP and a low level of ECP. This subtype corresponds to the adaptive perfectionism subtype from the tripartite model. Third, the pure ECP subtype represents a combination of a low level of PSP and a high level of ECP. Fourth, the mixed perfectionism subtype represents a combination of coexisting high levels of both PSP and ECP (Gaudreau & Thompson, 2010). This latter subtype corresponds to maladaptive perfectionism from the tripartite model. Pure ECP and non-perfectionism, however, do not have a corresponding subtype in the tripartite model. The latter regards all individuals with low PSP as non-perfectionists and does not differentiate individuals with low PSP and low ECP from individuals with low PSP and high ECP.

1.2. Perfectionism in Adolescents

1.2.1. Development of Perfectionism in Adolescents

As posited by Flett, Hewitt, Oliver, and Macdonald (2002), childhood is a first key period for the emergence of perfectionism, but adolescence also represents a highly sensitive period. That is, self-consciousness and awareness of social standards increase in adolescence, which makes it a period of elevated susceptibility to others' achievement expectations. Theories on the development of perfectionism converged to the idea that it emerges in childhood and that parents play a key role through several possible mechanisms. One of the models that have been proposed in the literature as a mechanism through which children and adolescents develop perfectionism is the S*ocial Expectations Model* (Flett et al., 2002). According to this model, perfectionism emerges as a consequence of contingent parental approval. Namely, children whose parents disapprove when they fail to meet parental standards of performance are at risk for developing perfectionism. In addition, it was proposed that maladaptive and adaptive perfectionism emerge in different ways. On the one hand, high parental expectations in combination with lack of

satisfaction with the child's behavior would lead to maladaptive perfectionism. On the other hand, high standards in combination with flexibility would lead to adaptive perfectionism (Flett et al., 2002).

1.2.2. Stability of Perfectionism in Adolescents

Although theories of perfectionism development have described it as being a trait (i.e., stable) based on research with university students (e.g., Rice & Aldea, 2006) and adults (e.g., Cox & Enns, 2003), very few studies have inquired into the stability and change of perfectionism in children and adolescents. Although scarce there is some data in this respect. For example, in Stoeber, Otto, and Dalbert's (2009) study with adolescents aged between 14-19 years, self-oriented perfectionism proved to be very stable across time (5-8 months), with a relative stability coefficient of r = .73. Socially prescribed perfectionism proved to be also quite stable, but less than self-oriented perfectionism, with a relative stability coefficient of r = .52.

1.2.3. Measurement of Perfectionism in Adolescents

Perfectionism has been measured in children and adolescents with several scales. The most frequently used instrument is the Child–Adolescent Perfectionism Scale (CAPS; Flett, Hewitt, Boucher, Davidson, & Munro, 2000), which has been derived from the original Multidimensional Perfectionism Scale (Hewitt & Flett, 1991). The CAPS consists of two scales: self-oriented perfectionism and socially prescribed perfectionism. The other-oriented perfectionism scale from the original instrument for adults has been dropped. Studies that employed the CAPS have brought evidence that perfectionism in children and adolescents is associated with distress and maladjustment, and even with deliberate self-harm and suicide ideation (e.g., Hewitt et al., 2002; O'Connor, Rasmussen, & Hawton, 2009). In their cross-cultural study on German and Chinese adolescents, Essau, Leung, Conradt, Cheng, and Wong (2008) employed the CAPS and found good internal consistency in both samples. Both dimensions of perfectionism were significantly related with anxiety symptoms.

1.2.4. Outcomes of Perfectionism in Adolescent School Students

Research on perfectionism in adolescent school students has shown that it is associated with numerous indicators of academic success and psychological health (Stoeber & Childs, 2011). But, the two dimensions—personal standards perfectionism (PSP) and evaluative concerns perfectionism (ECP)—show differential outcomes in adolescents. On the one hand,

PSP has been found to be associated mainly with positive outcomes (e.g., academic achievement, motivation, work orientation, self-esteem, low levels of depressive symptoms, performance-approach and mastery-approach goal orientations; positive academic emotions, low levels of burnout, work engagement in school), but also with negative outcomes (e.g., depressive and anxious symptoms, performance-avoidance goal orientation). On the other hand, ECP has been found to be associated only with negative outcomes (e.g., social stress, anger supression, and outwardly directed anger, performance-avoidance goal orientation, negative academic emotions, self-handicapping strategies, burnout symptoms, low levels of work engagement in school) (see Stoeber & Childs, 2011, for a review).

1.2.5. Open Questions in the Empirical Literature of Perfectionism in Adolescents

First, since causal inferences cannot be made based on cross-sectional research, there is a need of longitudinal studies to investigate the role of parental expectations and criticism in perfectionism change. In addition, the role of parental expectations is still unclear, as it seems to be related to both self-oriented and socially prescribed perfectionism. Hence, what is the role that parental expectations and criticism play in the differential development of self-oriented and socially prescribed perfectionism is still an open question.

Second, as the 2 × 2 model of perfectionism was proposed only recently, there are few studies that have tested its assumptions. The studies conducted so far focused only on university students and athletes. To our knowledge, there is no study that has investigated the 2 × 2 model of perfectionism in a large general sample of adolescents except for the study of Cumming and Duda (2012). However, this particular study has a narrowed target, as it was focused on adolescent dancers and perfectionism relative to dance. In addition, the findings regarding positive and negative affect have been mixed (Cumming & Duda, 2012; Gaudreau & Thompson, 2010).

Third, research on the relationship between perfectionism and achievement goal orientations in the academic domain has been scarce. One limitation of the previous research is the fact that, to the best of our knowledge, no study so far has investigated the relationships between self-oriented and socially prescribed perfectionism and the 2 × 2 achievement goal orientations in adolescent high-school students. There are still very few studies that included the mastery-avoidance orientation. In addition, most of previous research in the academic domain did not control for the overlap between perfectionism dimensions and achievement goal

orientations. Hence, we know little about the unique patterns of associations between perfectionism dimensions and the different achievement goal orientations in adolescents.

Finally, although perfectionism has proven to be a personality disposition that plays an important role in achievement settings in general and in the school context in particular, research on perfectionism and school engagement is still scarce. Only few studies to date have investigated all three dimensions of school engagement simultaneously (i.e., behavioral, emotional, and cognitive) and also from a longitudinal perspective. As perfectionism is a highly relevant personality disposition with respect to academic outcomes, it is pertinent to infer that it might play a role in adolescent school engagement. Despite this, studies investigating this relationship are still limited.

CHAPTER 2. OUTLINE AND RESEARCH AIMS OF THE PRESENT DISSERTATION

Starting from the limitations and questions identified in the literature on perfectionism in adolescents, the present dissertation had two main objectives. **The first main objective** was to investigate the development of perfectionism in a large sample of adolescents using a longitudinal design. To address the question whether the social expectations model may explain the development of perfectionism in adolescence, the study focused on the influence of perceived parental expectations and criticism on self-oriented and socially prescribed perfectionism (Study 1). **The second main objective** was to explore how perfectionism relates to different outcomes in adolescents in terms of affect and academic outcomes. For this, we have formulated three specific aims. The first one was to reinvestigate the hypotheses of the 2 × 2 model of perfectionism with respect to positive and negative affect. Namely, we have examined whether the four subtypes of perfectionism, as proposed by the 2 × 2 model of perfectionism, are differentially predictive of current positive and negative affect (experienced in the past weeks) in a sample of adolescents (Study 2). The second aim was to investigate the relationship between perfectionism and achievement goal orientations in the 2 × 2 achievement goals framework in a sample of adolescent high-school students. For this, we have controlled for the overlap between perfectionism dimensions, as well as for the overlap between the achievement goal orientations (Study 3). The last aim was to investigate the role of perfectionism in predicting change in school engagement dimensions in a sample of adolescent school students using a longitudinal design (Study 4).

CHAPTER 3. ON THE DEVELOPMENT OF PERFECTIONISM IN ADOLESCENCE: THE ROLE OF PERCEIVED PARENTAL EXPECTATIONS (STUDY 1)[1]

3.1. Introduction

It has been suggested that different forms and dimensions of perfectionism emerge through different mechanisms (Flett et al., 2002). In particular, it has been suggested that self-oriented perfectionism develops through a social learning mechanism whereas socially prescribed perfectionism develops through a social expectations mechanism. A number of qualitative and quantitative studies have provided preliminary evidence to this effect (e.g., Appleton, Hall, & Hill, 2010; Speirs Neumeister, 2004). However, the evidence is not conclusive and not consistent, and there are a number of studies suggesting that parental expectations play a role in the development of both self-oriented and socially prescribed perfectionism (e.g., Hewitt & Flett, 2004; McArdle & Duda, 2004, 2008).

Against this background, the aim of the present study was to investigate the development of perfectionism in a large sample of adolescents using a longitudinal design with two time points spaced 7-9 months apart. To address the question whether the social expectations model may explain the development of perfectionism in adolescence, the study focused on the influence of perceived parental expectations and criticism on self-oriented and socially prescribed perfectionism in adolescents. Perceived parental expectations represent individuals' subjective beliefs that their parents set high achievement standards for them. In contrast, perceived parental criticism represents subjective beliefs that failing to meet their parents' high standards will lead to negative consequences such as disappointment and disapproval (Frost et al., 1990). Drawing on the cross-sectional studies available in the literature, we expected that both perceived parental expectations and parental criticism to be positively related to socially prescribed perfectionism and that only perceived parental expectations to be positively related to self-oriented perfectionism. In addition, based on previous findings, we expected perceived parental expectations and criticism to predict increases in socially prescribed perfectionism, but not in

[1] Part of this chapter was published in **Damian, L.**, Stoeber, J., Negru, O., & Băban, A. (2013). On the development of perfectionism in adolescence: Perceived parental expectations predict longitudinal increases in socially prescribed perfectionism. *Personality and Individual Differences, 55,* 688-693.

self-oriented perfectionism. Finally, in line with the few results in the literature, we expected both self-oriented perfectionism and socially prescribed perfectionism to show substantial stability in adolescents.

3.2. Method

3.2.1. Participants and Procedure

A sample of adolescents aged 15-19 attending high schools in Romania was recruited for a two-wave panel study with 2 time measurements spaced 7-9 months apart. Mean time elapsed between the two time points was 8.6 months (*SD* = 0.5). The sample at Time 1 comprised 483 adolescents (196 male, 278 female, 9 no data). Mean age of adolescents was 16.7 years (*SD* = 0.9; range = 15-19 years). From this sample, 381 adolescents (147 male, 234 female) also completed data collection at Time 2 (21% dropout). At both time points, adolescents completed the same paper-and-pencil questionnaire in the classroom during school hours. Adolescents received no compensation for participating in the study, which was voluntary.

3.2.2. Measures

Perceived parental expectations and criticism. To measure perceived parental expectations and criticism we used the scales capturing parental expectations (5 items; e.g., "My parents set very high standards for me") and parental criticism (4 items; e.g., "I am punished for doing things less than perfect") from the Frost Multidimensional Perfectionism Scale (Frost et al., 1990). Both scales have been used in numerous studies with adolescents where they have demonstrated reliability and validity (e.g., McArdle & Duda, 2008).

Perfectionism. To measure perfectionism we used the 22-item Child–Adolescent Perfectionism Scale (CAPS; Flett et al., 2000) capturing self-oriented perfectionism (12 items; e.g., "I try to be perfect in everything I do") and socially prescribed perfectionism (10 items; e.g., "Other people think that I have failed if I do not do my very best all the time"). The scale has been used in numerous studies with adolescents where it has demonstrated reliability and validity (e.g., Essau et al., 2008; Hewitt et al., 2002).

3.2.3. Preliminary Analyses

First, missing data were imputed with the expectation maximization algorithm (Graham, 2009; Little, Card, Preacher, & McConnell, 2009) before we computed scale scores by averaging answers across items. Next, we examined if there were differences between adolescents who

completed the questionnaire at both times (T1 and T2) and those who completed only T1. Results of the MANOVA showed no significant differences between the two groups, indicating that the adolescents forming the longitudinal sample did not differ from those who did not complete T2 regarding the T1 scores. Furthermore, four adolescents (two male, two female) showed scores with a Mahalanobis distance larger than the critical value of $\chi^2(10) = 29.58$, $p < .001$ (Tabachnick & Fidell, 2007) and were excluded from the further analyses. With this, our final longitudinal sample comprised 377 adolescents (145 males, 232 females). To examine possible gender differences in the variables and their relationships, we computed a MANOVA with gender as between-participants factor and the study variables as dependent variables which found no significant gender effects. Therefore, data were collapsed across gender, but gender was controlled for in all analyses. Finally, all scores showed satisfactory Cronbach's alphas (αs > .70).

3.3. Results

First, we computed bivariate correlations between all variables including gender and age. As expected, perceived parental expectations showed positive correlations with self-oriented and socially prescribed perfectionism within and across the two time points. In contrast, perceived parental criticism showed positive correlations only with socially prescribed perfectionism. Moreover, perceived parental expectations and parental criticism showed significant positive correlations within and across time, as did self-oriented and socially prescribed perfectionism. Finally, in line with previous findings (Stoeber et al., 2009), both forms of perfectionism showed large-sized test-retest correlations indicating relative stability. But, Steiger's (1980) $\overline{Z}_2$* showed that the stability coefficient of socially prescribed perfectionism is significantly lower than the stability coefficient of self-oriented perfectionism ($z = –2.37$, $p < .05$).

Next, we computed two hierarchical regression analyses to examine whether perceived parental expectations and criticism predicted increases in self-oriented and socially prescribed perfectionism over time (see Table 3.1). In both analyses, we examined residual changes (T2 perfectionism controlling for T1 perfectionism) and included gender and age as control variables. In Analysis 1, self-oriented perfectionism at T2 was the criterion and self-oriented perfectionism at T1 was entered in Step 1. Gender and age were entered in Step 2, and perceived parental expectation and criticism at T1 in Step 3. In Analysis 2, socially prescribed perfectionism at T2

was the criterion and socially prescribed perfectionism at T1 was entered in Step 1. Step 2 and 3 were the same as in Analysis 1. Results were in line with our expectations. Namely, as expected, neither perceived parental expectations nor perceived parental criticism predicted changes in self-oriented perfectionism over time. That is, the last regression model showed that, while controlling for self-oriented perfectionism at T1, none of the variables included in the model made a unique contribution in the prediction of self-oriented perfectionism at T2 (see Table 3.1). Hence, none of the variables included in the model could explain interindividual change in self-oriented perfectionism.

In line with our expectations, perceived parental expectations at T1 predicted increases in socially prescribed perfectionism from T1 to T2. However, in contrast, perceived parental criticism had no such effect. That is, the last regression model showed that, while controlling for socially prescribed perfectionism at T1, perceived parental expectations proved to be a significant positive predictor (see Table 3.1). Hence, perceived parental expectations predicted socially prescribed perfectionism over and beyond the stable variability of socially prescribed perfectionism. In other words, perceived parental expectations represented a strong predictor of interindividual change in socially prescribed perfectionism. To evaluate both directions of prediction, we also tested the model in which perceived parental expectations at time 2 was the dependent variable and dimensions of perfectionism were the independent variables, while controlling for perceived parental expectations at T1 in the first step and for age and gender in the second step. Results showed that both self-oriented perfectionism ($\beta = .03$, $p = .50$) and socially prescribed perfectionism ($\beta = .10$, $p = .10$) failed to predict change in perceived parental expectations. Hence, perceived parental expectations proved to predict change in socially prescribed perfectionism, but socially prescribed perfectionism failed to predict change in perceived parental expectations.

Table 3.1
Summary of Hierarchical Regression Analyses Predicting Self-oriented Perfectionism at Time 2 (Analysis 1) and Socially Prescribed Perfectionism at Time 2 (Analysis 2)

	Time 2			
	Self-oriented perfectionism		Socially prescribed perfectionism	
Predictor at Time 1	$\triangle R^2$	β	$\triangle R^2$	β
Step 1	.423***		.302***	
Criterion		.65***		.54***
Step 2	.005		.003	

Criterion		.65***		.54***
Gender (female)		.02		.04
Age		.06		.03
Step 3	.003		.039***	
Criterion		.62***		.34***
Gender (female)		.03		.04
Age		.07		.05
Perceived parental expectations		.06		.28***
Perceived parental criticism		–.02		–.01

Note. $N = 377$. Criterion = self-oriented perfectionism at Time 1 for Analysis 1, and socially prescribed perfectionism at Time 1 for Analysis 2 (see Results for details). Gender (female) was coded 0 = male, 1 = female. ***$p < .001$.

3.4. Discussion

In relation to predicting change in self-oriented perfectionism, the present study did not find any effect of perceived parental expectations and parental criticism. This is in line with the findings of Soenens et al. (2008) who found that parental psychological control lead to increases in maladaptive perfectionism over time, but not in adaptive perfectionism. In addition, mothers' actual use of control failed to predict their children's self-oriented perfectionism while controlling for socially prescribed perfectionism in the study conducted by Kenney-Benson and Pomerantz (2005). Thus, having the fact that very little longitudinal research has been conducted with respect to parental predictors on perfectionism change in adolescents, this study brings forward evidence that self-oriented/adaptive perfectionism seems to be less influenced by socialization with parents/social-contextual factors.

In contrast, in the present study, change in adolescents' socially prescribed perfectionism was found to be predicted by high perceived parental expectations whereas the opposite direction could not be sustained. This is also in line with the findings of Soenens et al. (2008) and Kenney-Benson and Pomerantz (2005) which showed that parental control predicts maladaptive perfectionism in adolescents and children. But, interestingly, perceived parental criticism was not a significant predictor of change in adolescents' socially prescribed perfectionism. That is, it seems that high perceived parental expectations are a strong and sufficient factor for socially prescribed perfectionism to increase in adolescence. In other words, subjective beliefs that parents set high achievement standards for adolescents predict an increase in the interpersonal dimension of perfectionism over time, by generalizing to perceptions that other people hold high standards for them and that their acceptance will depend upon meeting these standards. Hence,

socially prescribed perfectionism seemed to be less stable and more influenced by socialization factors, in line with the social expectations model.

Regarding the relative stability of perfectionism in adolescents, the present findings suggested, as expected, that both dimensions of perfectionism were quite stable over a period of 7-9 months. Furthermore, socially prescribed perfectionism was less stable than self-oriented perfectionism. One possible reason for this finding is the fact that, as previously discussed, adolescents' awareness of social standards is increased and they are more susceptible to others' expectations (Flett et al., 2002).

CHAPTER 4. PERFECTIONISM AND AFFECT IN ADOLESCENTS: AN INVESTIGATION OF THE 2 X 2 MODEL OF PERFECTIONISM (STUDY 2)[2]

4.1. Introduction

The studies investigating the 2 × 2 model of perfectionism confirmed the hypothesis that high levels of personal standards perfectionism (PSP) are mostly associated with positive outcomes when the negative influence of evaluative concerns perfectionism (ECP) is controlled for (Stoeber & Otto, 2006). However, the findings regarding positive and negative affect—which are important indicators for the question whether different forms of perfectionism are adaptive or maladaptive (e.g., Frost et al., 1993; Stoeber & Otto, 2006)—have been mixed. Furthermore, all studies investigating the 2 × 2 model of perfectionism so far have focused on university students (e.g., Douilliez & Lefèvre, 2011; Gaudreau, 2012) and athletes (e.g., Cumming & Duda, 2012; Gaudreau & Verner-Filion, 2012). No study so far has investigated the 2 × 2 model of perfectionism in a large general sample of adolescents.

Against this background, the present study aimed to reinvestigate the 2 × 2 model's hypotheses with respect to positive and negative affect. Namely, we examined whether the four subtypes (i.e., within-person combinations) of perfectionism, as proposed by the 2 × 2 model of perfectionism, differentially predict current positive and negative affect (experienced in the past weeks) in a sample of adolescents. To this aim, the study investigated a large sample of adolescents and used moderated regression analyses following the procedures detailed by

[2] Part of this chapter was submitted for publication in **Damian, L.**, Stoeber, J., Negru, O., & Băban, A. "Positive and negative affect in adolescents: An investigation of the 2 × 2 model of perfectionism". *Cognition, Brain, Behavior. An Interdisciplinary Journal.*

Gaudreau (2012). The present study used SOP and SPP as indicators of PSP and ECP. We investigated differences in positive and negative affect between pure SOP (high SOP, low SPP), pure SPP (low SOP, high SPP), mixed perfectionism (high SOP, high SPP), and non-perfectionism (low SOP, low SPP). Hence, we examined the hypotheses of the 2 × 2 model with pure SOP and pure SPP representing pure PSP and pure ECP, respectively. We based our expectations on the hypotheses postulated within the 2 × 2 model of perfectionism and on previous findings from the aforementioned studies with university students and athletes. That is, we expected pure self-oriented perfectionism to be associated with higher positive affect compared to non-perfectionism (Hypothesis 1a) and to mixed perfectionism (Hypothesis 4); we also expected it to be associated with a lower level of negative affect compared to mixed perfectionism (Hypothesis 4). In addition, we expected pure socially prescribed perfectionism to be associated with lower positive affect and higher negative affect compared to all other subtypes of perfectionism (Hypothesis 2) and, implicitly, also compared to mixed perfectionism (Hypothesis 3).

4.2. Method

4.2.1. Participants and Procedure

A sample of 576 adolescents (204 male, 336 female, 36 no gender information) was recruited at four high schools near the first author's university. Mean age of adolescents was 17.08 years (*SD* = 1.14; range = 15-19 years). Participation was voluntary and adolescents received no compensation for their participation. Participants were asked to complete a paper-and-pencil questionnaire in the classroom during school hours.

4.2.2. Measures

Perfectionism. To measure perfectionism, we used the same measure as in Study 1 (see Chapter 3.2.2.).

Affect. To measure general current affect, we used the Positive and Negative Affect Schedule (PANAS; Watson, Clark, & Tellegen, 1988) capturing positive affect (10 items; e.g., "interested," "excited") and negative affect (10 items; e.g., "distressed," "afraid"). The PANAS is a widely-used reliable and valid measure of general affect (e.g., Crawford & Henry, 2004). Participants were asked to rate the extent to which they experienced each of the 20 emotions "within the past weeks" using a scale from 1 (*not at all*) to 5 (*very much*).

4.2.3. Preliminary Analyses

First, we imputed the missing values with the expectation maximization algorithm (Graham, 2009) and then computed scale scores by averaging responses across items. None of the participants showed scores with a Mahalanobis distance larger than the critical value of $\chi^2(6) = 22.46$, $p < .001$ (Tabachnick & Fidell, 2007). Hence, all participants were included in the data analyses. Finally, all scores showed satisfactory Cronbach's alphas > .70.

4.3. Results

First, we computed correlations between all variables including gender and age. Self-oriented perfectionism showed positive correlations with both positive and negative affect whereas socially prescribed perfectionism showed a positive correlation only with negative affect. Female gender (effect coded as +1 = female, –1 = male) showed a positive correlation with negative affect and a negative correlation with positive affect. This indicates that female adolescents experienced lower positive and higher negative affect in the past weeks compared to male adolescents. In addition, age showed a positive correlation with negative affect. This indicates that older adolescents experienced higher negative affect in the past weeks compared to younger adolescents.

Next, following Gaudreau (2012), we conducted two moderated regression analyses with self-oriented and socially prescribed perfectionism as predictors and positive and negative affect as dependent variables. In this, SOP and SPP were standardized ($M = 0$; $SD = 1$) to simplify the production of figures when plotting the results. The regression analyses comprised three steps. When gender and age were entered simultaneously in Step 1 of the regression analyses, only gender had a significant effect on affect, suggesting that the positive correlations between age and negative affect was significant only because age showed a positive correlation with gender. Therefore, we did not include age in the regression analyses. Hence, in Step 1, we entered effect coded gender (coded –1 = male, 1 = female) to control for the effect of gender. In Step 2, we entered the standardized predictors, namely self-oriented and socially prescribed perfectionism and in Step 3, we entered the product of the two. Table 4.1 shows the results. For both positive and negative affect the interaction was not significant.

Because the interaction terms were not significant in both cases and found main effects of perfectionism on affect, we next followed Gaudreau's (2012) suggestions. That is, we dropped

the non-significant interaction from the models and recomputed two hierarchical regression analyses with the unstandardized variables, to estimate the main effects of self-oriented and socially prescribed perfectionism on positive and negative affect. Again, Table 4.1 shows the results. Self-oriented perfectionism was a positive predictor for positive affect whereas socially prescribed perfectionism was a negative predictor for positive affect. Moreover, socially prescribed perfectionism was a positive predictor of negative affect. Self-oriented perfectionism was not a significant predictor of negative affect, indicating that the significant overlap with SPP ($r = .42$, $p < .001$) was responsible for the positive bivariate correlation that self-oriented perfectionism showed with negative affect.

To test the hypotheses of the 2 × 2 model of perfectionism, we took two steps, following Gaudreau (2012). First, we calculated the predicted values of positive and negative affect across low and high values of self-oriented and socially prescribed perfectionism. Namely, we considered low and high values as one standard deviation below and above the mean of self-oriented and socially prescribed perfectionism, respectively. To calculate the predicted values for positive and negative affect, we used the regression equations described by Gaudreau.[3] Predicted values are depicted in Figure 1 for positive affect and in Figure 2 for negative affect. Second, we estimated standardized effect sizes (Cohen's *d*) using the standard deviation of the dependent variable (positive and negative affect, respectively) and the predicted values of each perfectionism subtype. Regarding positive affect, results showed that pure SOP was associated with higher levels of positive affect compared to non-perfectionism ($d = 0.74$) and mixed perfectionism ($d = 0.35$), supporting Hypothesis 1a and 4, respectively. In contrast, pure SPP was associated with lower levels of positive affect compared to non-perfectionism ($d = –0.34$), mixed perfectionism ($d = –0.72$), and pure SOP ($d = –1.08$), supporting Hypothesis 2 (and thus also Hypothesis 3). In addition, mixed perfectionism was associated with higher levels of positive

[3](1) $\hat{Y}$ of non-perfectionism = Intercept + ($B_{SOP} * Low_{SOP}$) + ($B_{SPP} * Low_{SPP}$).
(2) $\hat{Y}$ of pure SOP = Intercept + ($B_{SOP} * High_{SOP}$) + ($B_{SPP} * Low_{SPP}$).
(3) $\hat{Y}$ of pure SPP = Intercept + ($B_{SOP} * Low_{SOP}$) + ($B_{SPP} * High_{SPP}$).
(4) $\hat{Y}$ of mixed perfectionism = Intercept + ($B_{SOP} * High_{SOP}$) + ($B_{SPP} * High_{SPP}$).
Where $\hat{Y}$ = predicted value of criterion (i.e., positive or negative affect).
Low_{SOP} = one standard deviation below the mean of self-oriented perfectionism.
Low_{SPP} = one standard deviation below the mean of socially prescribed perfectionism.
$High_{SOP}$ = one standard deviation above the mean of self-oriented perfectionism.
$High_{SPP}$ = one standard deviation above the mean of socially prescribed perfectionism.

affect compared to non-perfectionism (d = 0.38). Regarding negative affect, results showed that pure SOP was associated with lower levels of negative affect compared to mixed perfectionism (d = –0.44) but not compared to non-perfectionism (d = –0.02), supporting Hypothesis 4 but not Hypothesis 1a (or 1b). In contrast, pure SPP was associated with higher levels of negative affect compared to non-perfectionism (d = 0.44) and pure SOP (d = 0.45) but not compared to mixed perfectionism (d = 0.02), failing to support Hypotheses 2 and 3.

Table 4.1

Summary of Moderated Regression Analyses Predicting Positive and Negative Affect

	Positive affect			Negative affect		
Predictor	$\triangle R^2$	*B*	β	$\triangle R^2$	*B*	β
Step 1: Gender (female)	.021**			.051***		
Gender		–.10**	–.14**		.15***	.23***
Step 2: 2 × 2 model main effects	.111***			.049***		
Gender		–.11***	–.16***		.15***	.23***
Self-oriented perfectionism (SOP)		.42***	.37***		–.01	–.01
Socially prescribed perfectionism (SPP)		–.17***	–.17***		.22***	.22***
Step 3: 2 × 2 model interaction effect	.006			.002		
Gender		–.11***	–.16***		.15***	.23***
SOP		.24***	–		–.01	–
SPP		–.11***	–		.15***	–
SOP × SPP		–.04	–		.03	–

Note. N = 540 (listwise exclusion of participants with no gender information). Gender (female) was effect coded as +1 = female, –1 = male (see Footnote 4). B = unstandardized regression weight; β = standardized regression weight. "–" not applicable/interpretable (see Cohen et al., 2003). **p < .01. ***p < .001.

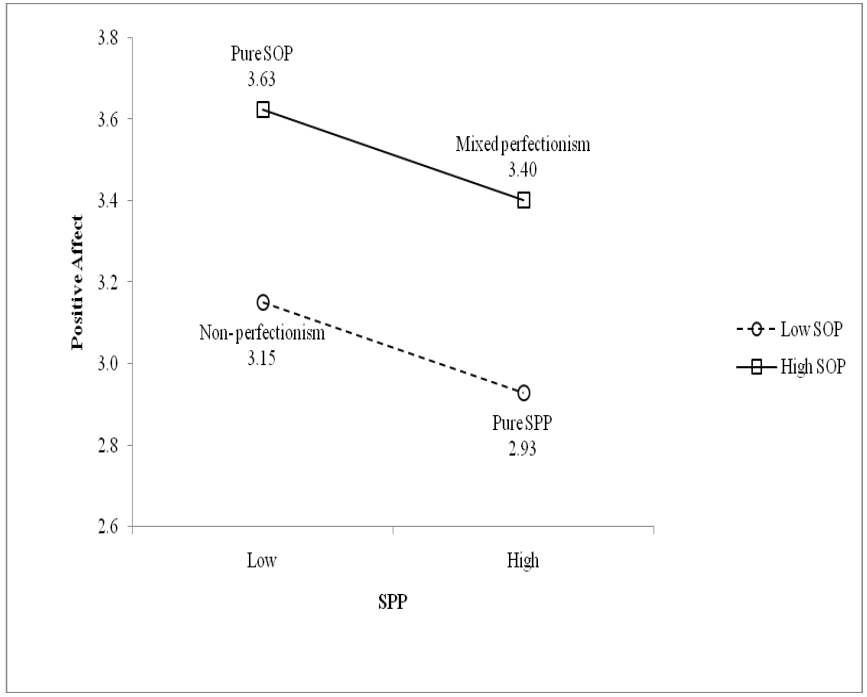

Figure 4.1. Predicted values of positive affect for the four subtypes of perfectionism. SOP = self-oriented perfectionism (indicating personal standards perfectionism [PSP]); SPP = socially prescribed perfectionism (indicating evaluative concerns perfectionism [ECP]). All differences between subtypes were significant (pure SOP > mixed perfectionism > non-perfectionism > pure SPP).

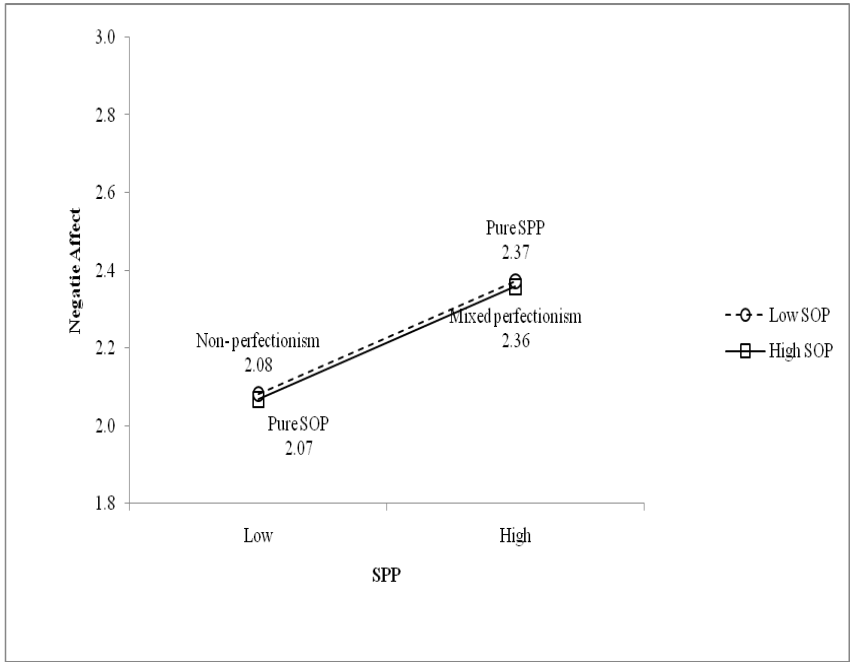

Figure 4.2. Predicted values of negative affect for the four subtypes of perfectionism. SOP = self-oriented perfectionism (indicating personal standards perfectionism [PSP]); SPP = socially prescribed perfectionism (indicating evaluative concerns perfectionism [ECP]). Pure SPP and mixed perfectionism differed significantly from non-perfectionism and pure SOP (pure SPP, mixed perfectionism > non-perfectionism, pure SOP).

4.4. Discussion

Pure self-oriented perfectionism was associated with the most positive outcomes, as expected. That is, of all subtypes of perfectionism, it showed the highest level of positive affect and the lowest level of negative affect. Regarding positive affect, pure self-oriented perfectionism showed a higher level compared to non-perfectionism, which is in line with the findings of Cumming and Duda (2012) in vocational dancers and the findings of Gaudreau and Thompson (2010) in university students. However, Gaudreau and Verner-Filion (2012), in their study with athletes, did not find a significant difference between self-oriented perfectionism and non-perfectionism with respect to the three dimensions of well-being they investigated. In addition, pure self-oriented perfectionism showed a higher level compared to mixed perfectionism, which is in line with the findings of Gaudreau and Thompson. Gaudreau and Verner-Filion also found a significant difference between pure self-oriented perfectionism and mixed perfectionism with respect to one dimension of well-being, namely life satisfaction. Regarding negative affect, pure self-oriented perfectionism did not show a different level compared to non-perfectionism, which is, again, in line with the findings of Cumming and Duda (2012) and of Gaudreau and Thompson (2010). It is also in line with the findings of Douilliez and Lefèvre (2011) who investigated depressive symptoms in university students. However, this non-significant finding should be interpreted with caution (Gaudreau, 2013; Stoeber, 2012). That is, one can only argue that there is no evidence to support that pure self-oriented perfectionism is associated with a higher, nor a lower level of negative affect compared to non-perfectionism. Conversely, when compared to mixed perfectionism, pure self-oriented perfectionism showed a lower level of negative affect. This is in line with the findings of Cumming and Duda, Douilliez and Lefèvre, and of Gaudreau and Thompson.

Pure socially prescribed perfectionism was associated with the most negative outcomes, as expected. That is, of all subtypes of perfectionism, it showed the lowest level of positive affect and the highest level of negative affect. Regarding positive affect, pure socially prescribed perfectionism showed a lower level compared to both non-perfectionism and mixed perfectionism, which is in line with findings of Gaudreau and Thompson (2010) and of Gaudreau and Verner-Filion (2012). However, Cumming and Duda (2012) did not find significant

differences between pure evaluative concerns perfectionism, on the one hand, and non-perfectionism and mixed perfectionism, on the other hand. Their different finding could be explained by the fact that they employed a cluster analysis, which is a sample dependent procedure and thus more sensitive to sample characteristics (i.e., vocational dancers). Regarding negative affect, pure socially prescribed perfectionism showed a higher level compared to non-perfectionism, but not compared to mixed perfectionism. This is in line with the findings of Cumming and Duda (2012) and of Douilliez and Lefèvre (2011). However, the study of Gaudreau and Thompson (2010) was the only one to find that pure socially prescribed perfectionism showed a significant higher level of negative affect compared to mixed perfectionism.

In sum, corroborating the present results with the findings in the literature, it can be stated that pure self-oriented perfectionism has consistently shown more positive affect whereas pure socially prescribed perfectionism has consistently shown less positive affect than all subtypes of perfectionism. However, so far there is no supportive evidence that there is a difference between pure self-oriented perfectionism and non-perfectionism with respect to negative affect. Moreover, there is not sufficient supportive evidence for a difference between pure socially prescribed perfectionism and mixed perfectionism with respect to negative affect. But, there is growing evidence that pure self-oriented perfectionism shows a lower level of negative affect compared to mixed perfectionism and that pure socially prescribed perfectionism shows a higher level of negative affect compared to non-perfectionism.

CHAPTER 5. PERFECTIONISM AND ACHIEVEMENT GOAL ORIENTATIONS IN HIGH-SCHOOL ADOLESCENTS (STUDY 3)[4]

5.1. Introduction

A number of studies have shown that perfectionism predicts individual differences in achievement goal orientations in academic contexts and sports (see Stoeber, 2011, for a review), but our understanding of the relationships between perfectionism and goal orientations in

[4] Part of this chapter was submitted for publication in **Damian, L.**, Stoeber, J., Negru, O., & Băban, A. "Perfectionism and achievement goal orientations in school students". *Psychology in the Schools. (Special Issue on Perfectionism).*

academic contexts is still limited. The reason is that, in academic contexts, relationships between perfectionism and goal orientations have mostly been investigated in the trichotomous framework and with university students (see Fletcher & Speirs Neumeister, 2012, for a review). No study has so far investigated how self-oriented and socially prescribed perfectionism are related to the 2 × 2 achievement goal orientations in school students. That is, there are still very few studies that included the mastery-avoidance orientation. In addition, most of previous research in the academic domain did not control for the overlap between perfectionistic strivings and perfectionistic concerns, which has proven to shed more light on these relationships in the sports domain (see Stoeber, 2011), as well as for the overlap between the achievement goal orientations. One reason why some studies found different forms and dimensions of perfectionism to be positively associated with all types of goal orientation may be that the different forms and dimensions of perfectionism, as well as the different types of goal orientations, show positive intercorrelations (see Fletcher et al., 2012). Because the studies did not control for this overlap, they may have failed to find different forms and dimensions of perfectionism to show unique patterns of relationships with the different achievement goal orientations.

Against this background, the aim of the present research was to conduct a first study examining the unique relationships of self-oriented and socially prescribed perfectionism and the 2 × 2 achievement goal orientations in adolescent school students using multiple regression analyses to control for the overlap between goal orientations. To this aim, the study investigated a large sample of adolescent high school students attending Grades 9-12 and used multiple regression analyses to examine what unique contribution the two forms of perfectionism made in predicting individual differences in adolescent school students' achievement goal orientations. Based on previous findings from studies with university and school students following the tripartite model, we expected self-oriented perfectionism to show positive correlations with all achievement goals and socially prescribed perfectionism to show positive correlations with performance goals. Else, because this was the first study examining the two forms of perfectionism in adolescent school students including mastery-avoidance orientation and no previous study has examined unique relationships, all other analyses were mainly exploratory.

5.2. Method

5.2.1. Participants and Procedure

A sample of 584 adolescent students (207 male, 340 female, 37 without gender information) was recruited at four high schools near the first author's university at the end of the second semester of 2011. Of the 584 adolescent students, 34% attended Grade 9, 28% Grade 10, 20% Grade 11, and 17% Grade 12. Mean age of adolescent students was 17.1 years (*SD* = 1.2; range = 15-20 years). Participation was voluntary. Adolescent students were asked to complete a paper-and-pencil questionnaire in the classroom during school hours.

5.2.2. Measures

Perfectionism. To measure perfectionism we used the same measure as in Study 1 (Chapter 3.2.2.).

Achievement goal orientations. To measure the 2 × 2 achievement goal orientations, we used the three personal achievement goal scales from the Patterns of Adaptive Learning Scales (PALS; Midgley et al., 2000) plus the mastery-avoidance goal scale from Bong (2009). The three PALS scales capture performance-approach orientation (5 items; e.g., "My goal is to look smart in comparison to the other students in my class"), performance-avoidance orientation (4 items; e.g., "My goal in class is to avoid looking like I have trouble doing the work"), and mastery-approach orientation (5 items; e.g., "My goal is to master a lot of new skills this year"). Because the PALS scales were developed following the trichotomous framework, they do not capture mastery-avoidance goals. Hence, we added Bong's measure of mastery-avoidance orientation (6 items; e.g., "My goal is to avoid the possibility of not learning at school") which has been successfully used in combination with the PALS scales in her study with school students (see Bong, 2009, for further details). The PALS are a widely-used reliable and valid measure of achievement goal orientations in school students (e.g., Cheng & Lam, 2013; Midgley et al., 2000).

Self-reported GPA. Because we wanted to control for individual differences in students' academic achievement but had no access to the official school records, we asked participants to self-report the grade point average (GPA) they had achieved in the previous semester.

5.2.3. Preliminary Analyses

First, we imputed the missing values with the expectation maximization algorithm (see Graham, 2009) and then computed scale scores by averaging responses across items. Three male students showed scores with a Mahalanobis distance larger than the critical value of $\chi^2(8) = 26.12$, $p < .001$ (Tabachnick & Fidell, 2007) and were excluded from the further analyses. With this, our final sample comprised 581 adolescent students (204 male, 340 female, 37 without gender information). Finally, we inspected the reliability (internal consistency) of all scale scores by computing Cronbach's alphas. Performance-avoidance scores showed a Cronbach's alpha < .70 in combination with a very large correlation with performance-approach scores ($r = .72$, $p < .001$) suggesting problems with the scores' reliability and validity. Therefore, we performed an exploratory factor analysis to examine the factor structure of the 20 achievement goal orientations items using principal axis factoring (Russell, 2002). Because only three eigenvalues were > 1 and both scree test and parallel analysis (see Zwick & Velicer, 1986) suggested to retain three factors, a three-factor solution with oblique rotation (promax; Russell, 2002) was examined. Results showed that—whereas the mastery-approach and mastery-avoidance items loaded on separate factors—the performance-approach and performance-avoidance items loaded on the same factor, indicating that participants did not differentiate between performance-approach and performance-avoidance orientations. Consequently, the scores of the two scales were combined to a single score capturing performance goal orientation without differentiating approach and avoidance. With this, all scores now showed satisfactory reliabilities (Cronbach's alphas > .70).

5.3. Results

First, we computed correlations between all variables including gender, grade, and self-reported GPA. Both self-oriented perfectionism and socially prescribed perfectionism showed positive correlations with all three achievement goal orientations. In addition, gender, grade, and self-reported GPA showed significant correlations. That is, female students reported higher levels of mastery-approach orientation and higher self-reported GPA. Adolescent students in higher grades reported lower levels of performance and mastery-avoidance orientations, and higher self-reported GPA. Self-reported GPA correlated positively with high self-oriented perfectionism and with mastery-approach and mastery-avoidance orientations. Therefore,

gender, grade, and self-reported GPA were included as control variables in the regression analyses.

Moreover, as was expected, the two forms of perfectionism showed a significant positive correlation, and all three achievement goal orientations showed positive intercorrelations, indicating significant overlap between the forms of perfectionism and types of achievement goal orientations. Hence, we refrained from interpreting the correlations and instead turned to multiple regression analyses with the aim to examine the unique relationships the two forms of perfectionism would show with the three achievement goal orientations.

To this aim, we conducted two sets of three hierarchical regression analyses. In the first set, we investigated whether perfectionism predicted the three achievement goal orientations while controlling for gender, grade, and self-reported GPA. The regression analyses comprised two steps. In Step 1, we entered gender, grade, and self-reported GPA. In Step 2, we entered the two forms of perfectionism. Focusing on Step 2 of the analyses, results showed that the performance orientation was predicted by high self-oriented and high socially prescribed perfectionism. Conversely, mastery-approach and mastery-avoidance orientations were only predicted by high self-oriented perfectionism.

In the second set (Model 2 depicted in Table 5.1), we investigated whether the results changed when additionally controlling for the overlap between the three achievement goal orientations. Hence, the regression analyses comprised three steps. In Step 1, we again entered gender, grade, and self-reported GPA. In Step 2, we entered the other achievement goal orientations. In Step 3, we entered the two forms of perfectionism. Focusing on Step 3 of the analyses, results showed that the performance orientation was predicted only by high socially prescribed perfectionism, and not self-oriented perfectionism, as in the previous analyses. The mastery-approach orientation was predicted by high self-oriented perfectionism and by low socially prescribed perfectionism. Finally, the mastery-avoidance orientation was predicted by high self-oriented perfectionism.

Table 5.1

Summary of Hierarchical Regression Analyses Predicting Achievement Goal Orientations: Model 2 (Controlling for Overlap Between Orientations)

	Performance		Mastery-approach		Mastery-avoidance	
Predictor	$\triangle R^2$	β	$\triangle R^2$	β	$\triangle R^2$	β

Step 1: Control variables	.027**		.055***		.093***	
Gender (female)		–.04		.17***		–.06
Grade		–.16***		–.09*		–.15***
Self-reported GPA		–.01		.12**		.29***
Step 2: Goal orientations	.201***		.136***		.236***	
Gender (female)		–.04		.19***		–.09*
Grade		–.09*		–.02		–.07
Self-reported GPA		–.14**		.03		.26***
Performance		–		.12**		.36***
Mastery-approach		.12**		–		.26***
Mastery-avoidance		.41***		.31***		–
Step 3: Perfectionism	.078***		.099***		.007	
Gender (female)		–.03		.18***		–.08*
Grade		–.11**		–.03		–.07
Self-reported GPA		–.12**		–.02		.24***
Performance		–		.07		.36***
Mastery-approach		.07		–		.23***
Mastery-avoidance		.37***		.24***		–
Self-oriented perfectionism		.08		.37***		.10*
Socially prescribed perfectionism		.25***		–.09*		–.06

Note. N = 544. All scores are mean scores. Performance = combination of performance-approach and performance-avoidance (see Method for details). Gender (female) was coded 0 = male, 1 = female. "–" = not applicable. *p < .05. **p < .01. ***p < .001.

5.4. Discussion

Interpreted within the 2 × 2 framework (Elliot & McGregor, 2001), the finding that self-oriented perfectionism positively predicted mastery goal orientations suggests that perfectionistic adolescent school students, whose perfectionism is primarily internally motivated and focused on the self and personal standards, tend to follow absolute/intrapersonal (mastery) rather than normative (performance) definitions of achievement goals. That is, they are oriented towards self-improvement and task mastery at school. In this, however, they show positively and negatively valenced orientations because they aim to both approach success (mastery-approach) and avoid failure (mastery-avoidance). A mastery-approach orientation has been associated with positive characteristics, processes, and outcomes in academic contexts, whereas mastery-avoidance orientation has been associated with both positive and negative characteristics, processes, and outcomes (Moller & Elliot, 2006). Thus, mastery-approach goals can be regarded a positive motivational force in academic contexts, whereas mastery-avoidance goals are rather ambivalent. Consequently, the finding that self-oriented perfectionism positively predicted both

mastery-approach and mastery-avoidance goals dovetails with previous findings that have shown self-oriented perfectionism to be an ambivalent form of perfectionism associated with both positive and negative characteristics, processes, and outcomes.

By comparison, the finding that socially prescribed perfectionism positively predicted performance goals and negatively predicted mastery-approach goals suggests that perfectionistic adolescent school students, whose perfectionism is primarily externally motivated and focused on what others expect of them and how others evaluate them, tend to follow normative (performance) definitions of achievement goals. That is, they are orientated towards outperforming others and the demonstration of ability (performance-approach) while avoiding being outperformed by others and demonstrating incompetence relative to others. At the same time, they disregard absolute/intrapersonal definitions of achievement goals focused on self-improvement and task mastery that are positively valenced (mastery-approach). Performance goals (combining performance-approach and performance-avoidance goals) can be regarded an ambivalent motivational force because they have been associated with positive and negative characteristics, processes, and outcomes in academic contexts (Moller & Elliot, 2006). Conversely, mastery-approach goals can be regarded a positive motivational force, rendering lack of mastery-approach orientation a negative characteristic. With this, the present finding dovetails with previous findings that have shown socially prescribed perfectionism to be a maladaptive form of perfectionism associated predominantly with negative characteristics, processes, and outcomes.

CHAPTER 6. PERFECTIONISM AND SCHOOL ENGAGEMENT IN ADOLESCENTS: A LONGITUDINAL STUDY (STUDY 4)

6.1. Introduction

The concept of school engagement has received increasing attention from researchers, as it has proven to play a key role in predicting academic and health outcomes in school students. The majority of researchers have agreed that the construct is multidimensional. A more recent multidimensional conceptualization of school engagement has received more attention in the literature and comprises three dimensions: behavioral engagement, emotional engagement, and cognitive engagement (Fredricks, Blumenfeld, & Paris, 2004). To foster school engagement in

students, we first need to understand how it emerges and develops. It has been proposed that school engagement is influenced by numerous factors such as culture, community, family, educational, and individual factors (cf. Fredricks et al., 2004). Although perfectionism has proven to be a personality disposition that plays an important role in achievement settings in general and in the school context in particular, research on perfectionism and engagement is still very scarce. We identified only two cross-sectional studies with adolescent eight graders, Shih (2011, 2012) which investigated perfectionism dimensions in relation to engagement dimensions.

In sum, only few studies so far have investigated all three dimensions of school engagement simultaneously (i.e., behavioral, emotional, and cognitive) and from a longitudinal perspective. To understand how school engagement develops, longitudinal studies are needed. Furthermore, research on individual factors as antecedents of school engagement is still very scarce. As perfectionism is a highly relevant personality disposition with respect to academic outcomes (see Chapter 1.2.4), it is pertinent to posit that it might play a role in adolescent students' school engagement.

Against this background, the aim of the present study was to investigate the role of perfectionism in predicting change in school engagement dimensions in a sample of adolescent school students using a longitudinal design with two time points spaced 5 months apart. Based on previous findings, we expected that self-oriented perfectionism will predict increases in adolescents' school engagement whereas socially prescribed perfectionism will not. Because we did not find sufficient evidence in the literature, we did not formulate specific hypotheses regarding the three separate dimensions of school engagement (i.e., behavioral, emotional, and cognitive) and regarded the study as rather exploratory in this respect.

6.2. Method

6.2.1. Participants and Procedure

A sample of adolescents aged 12-19 attending high schools in Romania was recruited for a two-wave panel study. Data collection for Time 1 (T1) took place in June 2012 (at the end of the second semester of the school year 2011-2012) and data collection for Time 2 (T2) 5 months later, in November 2012 (in the first semester of the school year 2012-2013). The sample at T1 comprised 386 adolescents (170 male, 216 female). Of the 386 adolescent students, 14%

attended Grade 6, 18% Grade 7, 25% Grade 9, 26% Grade 10, and 17% Grade 11. Mean age of adolescents was 15.75 years (*SD* = 1.80; range = 12-19 years). From this sample, 299 adolescents (130 male, 169 female) also completed data collection at T2. At both time points, adolescents completed the same paper-and-pencil questionnaire in the classroom during school hours. Adolescents received no compensation for participating in the study, which was voluntary.

6.2.2. Measures

Perfectionism. To measure perfectionism we used the same measure as in Study 1 (Chapter 3.2.2.).

School engagement. To measure school engagement we used the 19-item School Engagement Measure (SEM; Fredricks et al., 2005) capturing behavioral engagement (5 items; e.g., "I pay attention in class"), emotional engagement (6 items; e.g., "I feel excited by my work at school"), and cognitive engagement (8 items; e.g., "When I read a book, I ask myself questions to make sure I understand what it is about"). The scale has been used in numerous studies with school students where it has demonstrated reliability and validity (e.g., Blumenfeld et al., 2005; Goldschmidt, 2008). Participants were instructed to think of themselves as a student at school when rating the affirmations and responded to all items on a scale from 1 (*always false for me*) to 5 (*always true for me*).

Self-reported GPA. See Chapter 5.2.2.

6.2.3. Preliminary Analyses

First, missing data were imputed with the expectation maximization algorithm (Graham, 2009; Little et al., 2009) before we computed scale scores by averaging answers across items. Next, we examined if there were differences between adolescents who completed the questionnaire at both times (T1 and T2) and those who completed only T1. Results of the MANOVA showed no significant differences between the two groups. Four adolescents (one male, three female) showed scores with a Mahalanobis distance larger than the critical value of $\chi^2(14) = 36.12$, $p < .001$ (Tabachnick & Fidell, 2007) and were excluded from the further analyses. With this, our final longitudinal sample comprised 295 adolescents (129 male, 166 female). To examine possible gender differences in the variables and their relationships, we

conducted a MANOVA with gender as between-participants factor and the study variables as dependent variables which found a significant overall effect of gender, $F(12, 282) = 3.22$, $p < .001$. Therefore, gender was controlled for in all analyses. Finally, all scores showed satisfactory Cronbach's alphas (αs > .70).

6.3. Results

First, we computed bivariate correlations between all variables including gender, grade, and self-reported GPA, within and across the two time points. As expected, self-oriented perfectionism showed positive correlations with all three dimensions of school engagement within and across the two time points with only one exception. That is, the correlation between Time 2 self-oriented perfectionism and Time 1 emotional engagement was positive, but did not reach statistical significance. In contrast, socially prescribed perfectionism at Time 1 was not related with school engagement dimensions at Time 1 nor at Time 2. But, socially prescribed perfectionism at Time 2 negatively correlated with behavioral engagement at both time points. In addition, surprisingly, within Time 2, socially prescribed perfectionism correlated positively with cognitive engagement. Gender correlated positively with self-reported GPA and with behavioral engagement at both time points indicating that girls reported higher GPA and higher levels of behavioral engagement than boys. Grade correlated negatively with behavioral engagement at both time points indicating that adolescent students in higher grades reported lower levels of behavioral engagement than adolescent students in lower grades. Self-reported GPA correlated positively with self-oriented perfectionism, behavioral engagement, and cognitive engagement at both time points and with Time 2 emotional engagement. Finally, both perfectionism and school engagement dimensions showed large-sized test-retest correlations indicating relative stability. Again (see Chapter 3), socially prescribed perfectionism showed a smaller test-retest correlation than self-oriented perfectionism, $z = -2.92$, $p < .05$ ($\bar{Z}_2$*; see Steiger, 1980).

Next, following the procedures described by Little et al. (2009) regarding analyses of longitudinal panel data, we computed three hierarchical regression analyses to examine whether self-oriented and socially prescribed perfectionism predicted increases in school engagement over time (see Table 6.1). In all three analyses, we examined residual changes (T2 school engagement controlling for T1 school engagement) and included gender, age, and self-reported

GPA as control variables. In Analysis 1, behavioral engagement at T2 was the criterion and behavioral engagement at T1 was entered in Step 1. Gender, grade, and self-reported GPA were entered in Step 2, and self-oriented and socially prescribed perfectionism at T1 in Step 3. In Analysis 2, emotional engagement at T2 was the criterion and emotional engagement at T1 was entered in Step 1. In Analysis 3, cognitive engagement at T2 was the criterion and cognitive engagement at T1 was entered in Step 1. Step 2 and 3 of Analyses 2 and 3 were the same as in Analysis 1. As expected, results showed that, after controlling for the positive effect of academic achievement, self-oriented perfectionism predicted relative increases in cognitive engagement in school whereas socially prescribed perfectionism had no such effect. However, perfectionism did not significantly predict change in behavioral and emotional engagement. Relative increases in behavioral engagement were predicted by female gender whereas relative increases in emotional engagement were predicted by grade.

In addition, we also tested for the bidirectionality of associations and did not find significant effects of school engagement at Time 1 on self-oriented perfectionism at Time 2 over and beyond the positive effect of self-reported GPA which predicted relative increases in self-oriented perfectionism (see Table 6.2) (Little et al., 2009). But, surprisingly, behavioral engagement at Time 1 predicted relative decreases in socially prescribed perfectionism.

Table 6.1

Summary of Hierarchical Regression Analyses Predicting Behavioral Engagement (Analysis 1), Emotional Engagement (Analysis 2), and Cognitive Engagement (Analysis 3) at Time 2

	Time 2					
	Behavioral engagement		Emotional engagement		Cognitive engagement	
Predictor at Time 1	$\triangle R^2$	β	$\triangle R^2$	β	$\triangle R^2$	β
Step 1	.561***		.434***		.405***	
Criterion		.75***		.66***		.64***
Step 2	.016*		.013		.015	
Criterion		.70***		.66***		.62***
Gender (female)		.08*		–.00		.00
Grade		–.05		.09*		.01
Self-reported GPA		.07		.07		.12*
Step 3	.001		.001		.014*	
Criterion		.69***		.66***		.57***
Gender (female)		.08*		–.00		.01

Grade	–.05	.09*	–.01
Self-reported GPA	.06	.07	.10*
Self-oriented perfectionism	.04	.02	.13*
Socially prescribed perfectionism	–.01	.02	.01

Note. N = 295. Criterion = behavioral engagement at Time 2 for Analysis 1, emotional engagement at Time 2 for Analysis 2, and cognitive engagement at Time 2 for Analysis 3 (see Results for details). Gender (female) was coded 0 = male, 1 = female. Grade = grade at Time 1. *p < .05. ***p < .001.

Table 6.2

Summary of Hierarchical Regression Analyses Predicting Self-oriented Perfectionism (Analysis 1) and Socially Prescribed Perfectionism (Analysis 2) at Time 2

	Time 2			
	Self-oriented perfectionism		Socially prescribed perfectionism	
Predictor at Time 1	$\triangle R^2$	β	$\triangle R^2$	β
Step 1	.536***		.367***	
Criterion		.73***		.61***
Step 2	.016*		.002	
Criterion		.70***		.60***
Gender (female)		–.05		–.03
Grade		–.01		–.01
Self-reported GPA		.13**		.04
Step 3	.006		.015	
Criterion		.69***		.59***
Gender (female)		–.05		–.01
Grade		–.02		–.03
Self-reported GPA		.14**		.08
Behavioral engagement		–.05		–.15*
Emotional engagement		–.03		–.01
Cognitive engagement		.09		.05

Note. N = 295. Criterion = self-oriented perfectionism at Time 2 for Analysis 1, and socially prescribed perfectionism at Time 2 for Analysis 2 (see Results for details). Gender (female) was coded 0 = male, 1 = female. Grade = grade at Time 1. *p < .05. **p < .01. ***p < .001.

6.4. Discussion

The study findings show that self-oriented perfectionism—which is regarded as a more ambivalent form of perfectionism—exerts positive effects on adolescent students' cognitive engagement in school. This means that adolescent students who hold internally motivated beliefs

that striving for perfection and being perfect are important tend to increase their cognitive engagement in time, by putting increasing effort in understanding the material taught in school, seeking to expand their knowledge, and using metacognitive strategies in their learning. In addition, self-oriented perfectionism was associated positively with behavioral and emotional engagement. This finding is similar with other findings in the literature showing that indicators of personal standards perfectionism (PSP) are associated with positive outcomes in the academic domain such as academic achievement, motivation, work orientation, better coping resources in the face of academic stressors, and more effort (e.g., Accordino, Accordino, Slaney, 2000; Einstein, Lovibond, & Gaston, 2000). From a theoretical perspective, this finding has important implications because it is the first study to show that perfectionism predicts longitudinal increases in cognitive engagement. That is, it shows that personality dispositions are individual factors that also contribute to the development of school engagement. From a practical perspective, the present study provides insight with respect to how high personal standards motivate students in being more cognitively engaged in schoolwork. That is, it suggests that increasing students' internal standards of performance could help them increase their cognitive engagement in school. However, this hypothesis should be further tested in experimental studies, where a causal relationship would be better supported.

Not surprisingly, socially prescribed perfectionism—which is regarded as a purely maladaptive form of perfectionism—did not exert any effects on adolescent students' school engagement. Moreover, it showed only few associations with school engagement dimensions: a negative association with behavioral engagement and a surprisingly positive association with emotional engagement. This means that adolescent students who hold externally motivated beliefs that striving for perfection and being perfect are important to others tend to show lower levels of behavioral engagement, by not respecting the rules in school, getting into trouble, not paying attention in class, not doing their schoolwork on time. These findings are generally similar with other findings in the literature showing that indicators of evaluative concerns perfectionism (ECP) are not associated with positive outcomes in the academic domain (e.g., Accordino et al., 2000; Einstein et al., 2000) or negatively associated with such outcomes (e.g., Shih, 2012).

Furthermore, although beyond the scope of the present research, we also found significant predictors of change in both self-oriented and socially prescribed perfectionism. That is, increases in self-oriented perfectionism were predicted by high self-reported GPA at Time 1. This means that adolescents who reported high academic achievement at Time 1 tended to increase their internally motivated beliefs that striving for perfection and being perfect are important, hence their perfectionistic personal standards. The most surprising finding was the longitudinal negative effect of behavioral engagement on socially prescribed perfectionism. This means that adolescent students who respect the rules in school, do not get into trouble, pay attention in class, and do their schoolwork on time tend to decrease in their externally motivated beliefs and perceptions that others expect them to be perfect and that their acceptance is dependent upon fulfilling these external expectations.

CHAPTER 7. CONCLUSION

7.1. Summary of the Main Findings

Addressing the question whether social expectations play a role in the development of perfectionism in adolescence, we used a longitudinal design (Study 1). In short, results showed that perceived parental expectations predicted longitudinal increases in socially prescribed perfectionism (SPP): Adolescents who perceived that their parents had high expectations of them at Time 1 showed increased socially prescribed perfectionism from Time 1 to Time 2 compared to adolescents who did not perceive their parents' having such high expectations. The present findings also suggested that both dimensions of perfectionism were quite stable over a period of 7-9 months. However, socially prescribed perfectionism was found to be less stable than self-oriented perfectionism (SOP) (please see Chapter 3).

Addressing the question regarding the outcomes of perfectionism in a general sample of adolescents, we conducted three studies: Study 2, Study 3, and Study 4. Results of Study 2 showed that pure self-oriented perfectionism was associated with higher positive affect compared to non-perfectionism (Hypothesis 1a) and mixed perfectionism (Hypothesis 4). Socially prescribed perfectionism was associated with lower positive affect compared to all other subtypes of perfectionism (Hypotheses 2 and 3). In the case of negative affect, results showed that self-oriented perfectionism was associated with a lower level of negative affect compared to

mixed perfectionism, thus supporting Hypothesis 4. Socially prescribed perfectionism was associated with a higher level of negative affect compared to non-perfectionism, but with a similar level of negative affect compared to mixed perfectionism, thus failing to support Hypotheses 2 and 3 (please see Chapter 4).

Results of Study 3 showed that, when multiple regressions were computed controlling for the overlap between the two forms of perfectionism and the three goal orientations (as well as the influence of gender, grade, and grade point average), a unique pattern of relationships emerged. Self-oriented perfectionism positively predicted mastery-approach and mastery-avoidance orientations. In contrast, socially prescribed perfectionism positively predicted performance orientation and negatively predicted mastery-approach orientation (please see Chapter 5).

Results of Study 4 showed that self-oriented perfectionism predicted relative increases in cognitive engagement in school whereas socially prescribed perfectionism had no such effect. That is, high self-oriented perfectionism at Time 1 predicted increases from Time 1 to Time 2 in the level of cognitive engagement at school. Conversely, socially prescribed perfectionism did not yield any effects on school engagement longitudinally (please see Chapter 6).

7.2. Limitation

First, the present research relied exclusively on adolescents' self-reports on the different variables investigated in the studies. Although this is a widely used method, future studies should take into account both parents' and adolescents' reports, as well as actual GPA, and observation and teacher reports to measure school engagement. Second, Studies 2 and 3 employed a cross-sectional design. Hence, the findings from the multiple regression analyses showing that self-oriented and socially prescribed perfectionism predicted individual differences in adolescents' general positive and negative affect and their achievement goal orientations cannot be interpreted in a causal or temporal sense. Future studies may profit from employing longitudinal correlational designs which present a much stronger case of support regarding the potential causality of demonstrated effects. In this respect, Studies 1 and 4 followed longitudinal panel designs. But, although longitudinal research brings further evidence for the causality of events, analysis of panel models cannot conclusively demonstrate causality either, because some alternative explanations cannot be ruled out. Although we have tested for the direction of

causality, the findings still needs to be regarded with caution (see Little et al., 2009). That is, it cannot be guaranteed that (a) the time span of influence between measurements of the two variables is equal and that (b) no third variable causes both variables. Hence, the present findings are limited to the particular ages (i.e., 15-19 years in Studies 1-3; 12-19 years in Study 4) and time spans investigated (i.e., 7-9 months in Study 1; 5 months in Study 4). In this respect, future studies should investigate perfectionism and associated antecedents or outcomes also at younger ages and at more time points and with different time distance between them. Third, the present research focused only on two dimensions of the Hewitt and Flett's (1991) multidimensional perfectionism model. Hence, we cannot draw conclusions regarding the other facets of intrapersonal maladaptive perfectionism like concern over mistakes, doubts about actions (Frost et al., 1990) or feelings of discrepancy (Slaney, Rice, Mobley, Trippi, & Ashby, 2001). Finally, future studies need to examine whether the findings generalize to other nationalities and cultures.

7.3. Contributions of the Present Dissertation

Notwithstanding these limitations, the present dissertation makes a significant contribution to our understanding of how perfectionism develops in adolescence and how it relates to different outcomes in this age group, by employing both cross-sectional and longitudinal designs across the four studies. First, the present research brought evidence with respect to antecedents of perfectionism in adolescence. That is, it showed that self-oriented perfectionism—which is regarded as a more ambivalent form of perfectionism—is a more stable personality disposition, which does not seem to be influenced by parental expectations and criticism in adolescence. In addition, although not targeted, high academic achievement proved to predict longitudinal increases in self-oriented perfectionism. In contrast, the present research showed that socially prescribed perfectionism—which is regarded as a maladaptive form of perfectionism—is a less stable personality disposition, which seems to be influenced by parental expectations and criticism in adolescence. In addition, high behavioral engagement in school predicted longitudinal decreases in socially prescribed perfectionism.

Second, the present research brought evidence with respect to outcomes of perfectionism in adolescence. That is, it showed that self-oriented perfectionism is related to more positive and less negative affect, more adaptive achievement goal orientations, and to higher levels of school

engagement, as well as academic achievement. In contrast, socially prescribed perfectionism was related to less positive and more negative affect, less adaptive achievement goal orientations, and lower levels of behavioral engagement.

The present results could be brought forward through the methodology we used, with a cross-sectional approach that was doubled by a longitudinal one. In addition, we controlled for the overlap between perfectionism dimensions, as well as between achievement goals, which show substantial intercorrelations. This made possible to identify unique relationships for each perfectionism dimension and achievement goal orientation.

From a theoretical perspective, the studies add to the literature on the development of perfectionism, as well as on outcomes of perfectionism in adolescents. They bring further supportive evidence for the multidimensional perfectionism model developed by Hewitt and Flett (1991). That is, they show that the two dimensions of perfectionism—the intrapersonal and adaptive one and the interpersonal and maladaptive one—develop in different ways and have different outcomes in terms of affect, cognitions, and behaviors. In addition, they bring further supportive evidence with respect to the 2 × 2 model of perfectionism, by confirming its hypotheses in the case of positive affect, but not in the case of negative affect. This result raises questions for future research in relation to the hypotheses of the model in the case of negative outcomes of perfectionism.

The results of the present dissertation are relevant also for a series of domains in the field of psychology. By focusing on adolescent development and employing a longitudinal design, the present results are relevant for developmental psychology. That is, the present research indicates the way a personality trait develops in adolescence, informs about its stability, as well as about the changes that occur as a function of perceptions on parental behaviors, which are relevant even in late adolescence. Next, by focusing on perfectionism as a personality disposition, the present results are relevant for personality psychology. That is, the present research indicates ways in which perfectionism develops, but also the affective, cognitive, and behavioral outcomes of perfectionism. In addition, by focusing on adolescents' well-being in terms of positive and negative affect, the present results are relevant for health psychology. That is, the present research indicates that, if one targets adolescent well-being, perfectionism is a personality characteristic that needs to be taken into account. Finally, by focusing on outcomes of

perfectionism in the school context, the present results are relevant for school psychology. That is, the present research indicates that perfectionism dimensions play an important role in the achievement goals and school engagement of adolescents.

From a practical point of view, the findings of Study 1 have important implications for parental education programs. That is, they inform such intervention programs that exceedingly high performance expectations from parents can exert negative effects on their adolescents. Moreover, the findings of Study 2 have important implications by showing that holding high personal standards (i.e., pure self-oriented perfectionism) is related with higher positive affect than holding very low standards (i.e., non-perfectionism). In addition, holding externally imposed high standards (i.e., mixed perfectionism and pure socially prescribed perfectionism) is related with higher negative affect. Consequently, these findings inform practitioners with respect to factors associated with well-being in adolescents. Furthermore, the findings of Studies 2 and 3 have important practical implications in the school setting. That is, the findings of Study 3 show that individual factors, such as perfectionism also play an important role in their achievement goal orientations. Hence, the present findings inform practitioners that when designing school interventions in fostering adaptive achievement goal orientations in adolescent school students, one should also take into account adolescent students' self-oriented and socially prescribed perfectionism levels. Finally, the findings of Study 4 provide insight with respect to how high personal standards motivate students in being more cognitively engaged in schoolwork. That is, they suggest that increasing adolescent students' internal standards of performance could help them increase their cognitive engagement in school.

In conclusion, the present dissertation makes a valuable contribution with respect to antecedents and outcomes of perfectionism in adolescents, by bringing further proof that the two dimensions of perfectionism develop differently and have different outcomes. On the one hand, self-oriented perfectionism is a more stable trait that develops as a function of school performance and that has positive outcomes. On the other hand, socially prescribed perfectionism is a less stable trait that develops through socializing mechanisms and that can decrease as a function of behavioral engagement in school and that has negative outcomes.

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