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## Adolescents' and parents' regulatory focus as determinants of future time perspective on school and professional career



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### ABSTRACT

Future time perspective (FTP) - individuals' orientation towards future goals and consideration of future consequences - is a successful motivator in education and work. This study is the first that integrates Regulatory focus (RF) theory with FTP theory to explore relationships between adolescents' RF, their perceptions of parents' RF, and their FTP on school and professional career. A total of  $N = 347$  adolescents participated in the study. Structural equation analyses showed that adolescents' promotion RF was positively related to FTP on school and professional career, whereas adolescents' prevention RF was negatively related to their FTP. Adolescents' perceptions of parent regulatory foci were related to their own regulatory foci. Specifically, when adolescents perceived that their parents stimulate them to take on challenges, they were more promotion focused and contemplated more strongly on their future school and career. Implications for FTP and RF theory, and child development and education are discussed.

### 1. Introduction

Future time perspective (FTP) is a successful motivator for positive attitudes and behaviours in education, work, and health (Andre, van Vianen, Peetsma, & Oort, 2016; Husman, Brem, Banegas, Duchrow, & Haque, 2014; Zimbardo & Boyd, 2008). Especially for adolescents, FTP regarding school and career is one of the most important developmental tasks towards adulthood as it significantly contributes to the creation of adolescents' future career, family and life projects (e.g., Seginer, 2009).

FTP research has shown that even adolescents, who in general express a decrease in motivation for school, when they reflect on positive cognitions and feelings about their distant future in education and work, have higher school achievements and experience less difficulties in career planning and decision-making (Ferrari, Nota, & Soresi, 2010; Schuitema, Peetsma, & Van der Veen, 2014). Overall, FTP research has highlighted the importance of FTP as a motivational and adaptive individual characteristic across various age groups and populations.

However, adolescents differ in the extent to which they think and feel about their future (Lens, Paixão, Herrera, & Grobler, 2012). Some adolescents struggle in developing their FTP on school and professional career whereas others reflect on their future more strongly (Peetsma & Van der Veen, 2011). Moreover, some adolescents have concerns such as anxiety and stress about their post-high-school

transition and future careers whereas others take a more positive stance towards their future (Andretta, Worrell, & Mello, 2014; Code, Bernes, Gunn, & Bardick, 2006). To date, little is known about what causes these differences in FTP among adolescents.

Since Lewin's (1939) statement that behaviour is a function of both personal and situational characteristics, several FTP researchers have underlined the importance of personality and situational factors for attaining a FTP on school and career (Gomes Carvalho & Novo, 2015; Kairys & Liniauskaite, 2014; Morselli, 2013). However, only a few studies examined possible antecedents of FTP (e.g., Gomes Carvalho & Novo, 2015; Phan, 2014; Seginer, Vermulst, & Shoyer, 2004). Hence, knowledge about which personality and situational factors can motivate adolescents to think, feel, and plan about their future in school and career is scarce. The current study aims to fill this void by examining personal and situational variables that are conceptually linked to FTP, that is, adolescents' regulatory focus and the regulatory focus of their parents.

Regulatory Focus (RF) (Higgins, 1997; Lockwood, Jordan, & Kunda, 2002) defined as individuals' distinctive way in future goal pursuing, distinguishes two basic self-regulatory forms, namely a *promotion* and a *prevention* focus. Whereas the motivational principle of the promotion focus is embedded in individuals' need for nurturance and accomplishments, the prevention focus operates by individuals' need for security and responsibility. It is apparent that RF and FTP theory are

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conceptually linked as they both emphasize individuals' motivation in reaching their future goals. However, the relationships between RF and FTP on school and professional career have not been explored yet. In this study, we posit that RF is a likely antecedent of adolescent FTP.

Previous studies have suggested that individual difference variables such as conscientiousness are related to FTP (Kairys & Liniauskaitė, 2014; Zimbardo & Boyd, 1999) and future planning in general (Prenda & Lachman, 2001). However, to our knowledge, no FTP studies have taken conscientiousness into account so far. In addition, adolescents' FTP is also found to be influenced by demographic variables (Greene & DeBacker, 2004). Because of the possible relevance of these variables for adolescents' FTP, we include conscientiousness and demographics as possible controls in this study.

Our study has two goals. First, by integrating RF and FTP theory we investigate the relationship between adolescents' RF focus (promotion and prevention) and their FTP on school and professional career. Second, as parents affect the goals of their children (Dietrich & Salmela-Aro, 2013), we are the first to examine adolescents' perception of the RF of their parents and how this relates to their own RF and FTP while controlling for conscientiousness and relevant demographic variables.

This study contributes to FTP and RF theory as we: a) fill in the gap in FTP theory and research on individual antecedents of adolescents' FTP in school and professional career and, b) examine the role of parents' RF in the formation of adolescents' RF and FTP. Our study also has practical relevance as it can promote the development of custom-made interventions for adolescent FTP on school and professional career that address their RF. Understanding the factors that can influence adolescents' motivation to contemplate more about their future could help adolescents to put more effort in their present actions (e.g., learning) and ultimately ease their transition from school to future education and preferred workplaces.

### 1.1. Future time perspective

Within the time perspective framework, FTP has been generally defined as a cognitive-motivational personality characteristic that is embedded in individuals' goal setting (Lens, 1986; Nuttin & Lens, 1985; Zimbardo & Boyd, 1999). It represents individuals' orientation towards future goals and consideration of future consequences. According to developmental psychologists, individuals develop their FTP from the age of 11 onwards (Piaget, 1955; Erikson, 1968). During this period adolescents cognitively mature as a more fantasy-like future thinking is gradually replaced by a reality-driven future thinking (Klineberg, 1967), which denote FTP as a particularly important variable for adolescents' development.

Besides being defined as a cognitive variable that includes individuals' representation of the future (e.g., Gjesme, 1979; Shipp, Edwards, & Lambert, 2009), a majority of FTP researchers regards FTP also as an affective variable that includes feelings concerning the future and/or future planning (Husman & Shell, 2008; Janeiro, 2006; Mello & Worrell, 2006; Peetsma, 1992; Zimbardo & Boyd, 1999). For example, Peetsma's (1992) conceptualization of FTP encompasses three components relevant for adolescents' future thinking: cognition, behavioural intention, and affect. Specifically, cognition refers to adolescents' future ideas or expectations, behavioural intention relates to adolescents' readiness to put effort in and plan their future, and affect concerns adolescents' expression of positive or negative feelings about the future.

In addition, FTP has been characterized by its content (i.e., what individuals are striving for), extension (how far into the future individuals set their goals; Lens et al., 2012), and value (i.e., how important is to reach future goals for individuals; de Volder & Lens, 1982). Consequently, FTP studies have focused on different contents or life domains relevant for adolescents such as school, career, family and social relations, leisure, and health (McKay, Percy, & Cole, 2013; Peetsma, 1992; Seginer, 2009), and made a distinction between short-

term FTP (e.g., this afternoon) and long-term FTP (e.g., in five years from now; Lens et al., 2012).

The domain of FTP on school and professional career is particularly relevant for adolescents as they have to make many important decisions and plans regarding their future education and career (Paixão & Silva, 2001). Studies have found that adolescents with higher levels of FTP involve less in maladaptive behaviours such as "facebook addiction" and academic cheating and more in adaptive school behaviours (Gomes Carvalho & Novo, 2015; Orosz et al., 2016; Przepiorka & Blachnio, 2016). Also, FTP on school and professional career has been found to influence adolescents' motivation for school (Schuitema et al., 2014). Consequently, in this study we focus on adolescents' FTP on school and professional career.

### 1.2. Regulatory focus

The basic principle in many personality and motivational theories is that individuals seek both *safety* and *accomplishments* in their goal-directed behaviours and use different regulatory systems to meet these elementary needs (e.g., Bowlby, 1969; Higgins, 1997). While some adolescents may think about the future as opportunities and challenges resulting in conquers, other adolescents may perceive the future as a road with possible losses that warrant more vigilance.

Individuals' attitudes to the future likely depend on their goals and the dispositional strategies they use to attain these goals. Regulatory Focus (RF) theory (Higgins, 1997; Lockwood et al., 2002) distinguishes two motivational orientations and associated strategies referred to as promotion and prevention. Individuals with a promotion focus approach their desired goals by focusing on opportunities, growth, and advancement whereas individuals with a prevention focus approach their desired goals by focusing on safety and security. These regulatory foci have been found to influence attitudes (Kao, 2012) and goal attainment differently (Shah, Higgins, & Friedman, 1998). Individuals with a promotion focus value achievement and seek options for the fulfilment of their dreams and aspirations, whereas individuals with a prevention focus value safety and seek options for minimizing possible losses (Crowe & Higgins, 1997; Higgins, 1997).

In the literature, RF has been operationalized both as a chronic trait (Petrou & Demerouti, 2015) and as a situational state (Kurman, Liem, Ivancovsky, Morio, & Lee, 2014). Nevertheless, both operationalizations have been found to relate to similar consequences (Higgins, 1997; Lockwood et al., 2002; Pennington & Roese, 2003).

RF scholars have used different measures to assess RF (Summerville & Roese, 2008). Two RF measures have dominated the literature: the regulatory focus questionnaire from Higgins et al. (2001) and the regulatory focus measure from Lockwood et al. (2002). Whereas the Higgins' measure emphasizes internal and external standards individuals use for self-regulation and assesses the history of adults and their success at promotion and prevention tasks over the course of their lives (Higgins et al., 2001), Lockwood's measure emphasizes positive and negative end-states that guide motivation and self-regulation in specific life domains, such as school and work, and is tailored to undergraduate students. Thus, Lockwood's measure emphasizes students' success and failure at academic goals. Lockwood's measure is particularly relevant for our study that examines the relationship between RF and FTP as both these measures are domain-specific constructs and have been previously used in student samples.

Furthermore, in this study we focus on the chronic regulatory-focus perspective because we seek to examine adolescents' behaviours and attitudes in a relatively natural school environment and without manipulation.

### 1.3. Regulatory focus and FTP on school and professional career

Regulatory focus has been mainly investigated in social and organizational psychology (e.g., Lanaj, Chang, & Johnson, 2012) but seems



adolescent RF (Hypotheses 2a and 2b) and that adolescent RF will relate to adolescent FTP (Hypotheses 1a and 1b). Altogether, this leads to the following hypotheses:

**Hypothesis 3a.** Adolescents' perceived parent promotion focus will be positively related to their FTP on school and professional career as mediated by their own promotion focus.

**Hypothesis 3b.** Adolescents' perceived parent prevention focus will be negatively related to their FTP on school and professional career as mediated by their own prevention focus.

## 2. Method

### 2.1. Participants and procedure

A total of  $N = 347$  secondary school students ( $M_{\text{age}} = 16.11$ ,  $SD = 5.39$ ) from 14 classes of three schools participated in the study. We involved adolescents (55.3% males) who were in their third year of general secondary education or in their fourth year of pre-university education (62%). A majority of students' parents had the Dutch nationality (69.2% mothers, 71.8% fathers), whereas parents of the rest of students' (30.8% mothers, 28.2% fathers) had a Surinamese, Turkish or Moroccan origin, or labeled their origin as from another country. As these parents mostly represented a first-generation of immigrants living in the Netherlands, their children were born and grew up in the Netherlands. More than half of the parents obtained higher levels of university education (55.7% mothers, 59.9% fathers). Although the educational level of fathers was significantly related to the country of origin, with the Dutch fathers having higher educational levels than the fathers originating from Morocco, Turkey, Suriname, and other countries,  $X^2(8, N = 324) = 20.95$ ,  $p < 0.01$ , for mothers, the difference between the educational level and country of origin was negligible.

The research was approved by the Ethics Committee of the related university. Prior to participation, informed consent was obtained from parents and we assured confidentiality regarding adolescents' individual responses. In April 2015, surveys were introduced and distributed during the mentor class and completed within 30 min.

### 2.2. Measures

#### 2.2.1. Adolescents' regulatory focus

We assessed adolescents' promotion and prevention focus with a Dutch version of the Regulatory Focus (RF) measure (e.g., Van Vianen, Klehe, Koen, & Dries, 2012) developed by Lockwood et al. (2002). This measure was tailored to the participant population of undergraduate students to assess their chronic promotion and prevention goals relevant to the educational domain, in contrast to the RF measure by Higgins (1997) that was developed for adults and assessed their domain-general promotion and prevention goals. Adolescents indicated the extent to which they endorse items relevant to promotion goals (e.g., "I see myself as someone who is primarily striving to fulfil my dreams, wishes and ambitions") and items relevant to prevention goals (e.g., "I often worry that I will fail to accomplish my academic goals"). From the original measure we excluded two items (i.e., "I am more oriented toward preventing losses than I am toward achieving gains" and "Overall, I am more oriented toward achieving success than preventing failure") as they seemed too abstract and thus less adequate for the sample of this study. All 16 items (8 promotion and 8 prevention) were rated on a 7-point scale ranging from 1 (*not at all true of me*) to 7 (*very true of me*). After factor structure validation (see 2.3. Analyses), 11 items (6 promotion and 5 prevention) were selected for inclusion in the further analyses. Research has indicated that the RF measure demonstrates good construct validity, is internally consistent, and reliable across different samples and over time (e.g., Kurman et al., 2014; Van Vianen et al., 2012).

#### 2.2.2. Perceived parent regulatory focus

We adapted the Lockwood et al. (2002) RF scale to assess adolescents' perceptions of their parents' RF. This scale assessed how adolescents perceive that their parents think and behave towards them (i.e., in more prevention or promotion terms). The measure consisted of the same 16 items as in the adolescents' RF scale (e.g., "... my parents (caretakers) encourage me to fulfil my dreams, desires and ambitions", "... my parents (caretakers) often think about how I can prevent failures in my life"). Ratings were made on 7-point scales ranging from 1 (*not at all true of me*) to 7 (*very true of me*). After the factor structure validation (see 2.3. Analyses), 11 items (6 promotion and 5 prevention items) were used for inclusion in the further analyses.

#### 2.2.3. Future time perspective on school and professional career

We used the Future scale from the Time Perspective Questionnaire (TPQ; Peetsma, 1992; Stouthard & Peetsma, 1999) to measure adolescents' FTP on school and professional career. This scale refers to adolescents' long-term future (i.e., after finishing school). In contrast to other FTP scales that measure individuals' cognition, affect, and behavioural intention/behaviour towards the future separately without specifying the context of future thinking, this FTP scale includes a combination of these components and specifies the life domains (school and professional career). The questionnaire was developed by using a facet design in which the three components were combined (see Stouthard & Peetsma, 1999). Moreover, this FTP conceptualization stands out from other FTP constructs as it shows the strongest relationships with educational, work, and health outcomes (Andre et al., 2016). The scale used in this study includes six items (e.g., "I like to think about study or work that I will do later") rated on a 5-point Likert-type scale ranging from 1 (*totally disagree*) to 5 (*totally agree*). Higher scores indicate higher levels of adolescents' FTP on school and professional career. The psychometric and validity properties of this scale have been well established (e.g., Peetsma, 1993; Stouthard & Peetsma, 1999).

#### 2.2.4. Control variables

We used the validated shortened Dutch version of the Conscientiousness scale from the Big-five questionnaire (Goldberg, 1992). This scale includes 10 items that measure how individuals control, regulate, and direct their impulses (e.g., "I Pay attention to details"). Each item was rated on a 5-point Likert-type scale ranging from 1 (*totally disagree*) to 5 (*totally agree*). The internal consistencies reported in previous work were good (e.g., Gow, Whiteman, Pattie, & Deary, 2005). In addition, we controlled also for the demographic variables adolescents' gender and the educational level of their father, which is regarded as a proxy of adolescents' socioeconomic status.

### 2.3. Analyses

Our analyses consisted of three analytical steps. First, as part of the preliminary analysis to cross-validate the factor structure of the adolescent and parent RF measures,<sup>1</sup> we randomly split the total sample into two groups (Sample 1:  $N = 173$  and Sample 2:  $N = 174$ ), which preserved enough power for the subsequent analyses (MacCallum, Widaman, Zhang, & Hong, 1999). We conducted an exploratory factor analysis (EFA) with Sample 1 to identify the factor structure using principal axis factoring with varimax rotation as a recommended step prior to specifying and testing a confirmatory model (Gerbing & Hamilton, 1996). We selected the items that loaded

<sup>1</sup> Although we did not expect a different factor structure of the RF measure, we wanted to explore and confirm the factor structure of the RF measure in this sample of adolescents. In the previous studies the factor structure was tested with samples of undergraduates. The EFA was particularly relevant for the perceived parent RF as this measure was used for the first time in our study.

above .40 on the prevention and promotion factors and were most central to RF theory. With the covariance matrices of Sample 2, we further tested the selected items with a confirmatory factor analysis (CFA) in AMOS.<sup>2</sup> (Arbuckle, 2014).

Second, with Samples 1 and 2 combined we examined the distinctiveness of the RF and FTP constructs. Specifically, we compared a 3-factor model (promotion focus, prevention focus, and FTP) with a 1-factor model in which promotion and prevention focus, and FTP items were assumed to load on one latent factor. Third, we tested our hypotheses with Structural Equation Modelling (SEM) in AMOS. If necessary, standardized discrepancies were used as a guidance to modify our model. In order to obtain a satisfactory model fit we allowed some covariances among error terms (within factors and with exogenous and control variables) that were theory driven and explainable (MacCallum, 1986). We tested the proposed mediation (Hypotheses 3a and 3b) with a recommended bootstrapping approach (Gaskin, 2012; Preacher & Hayes, 2008). Finally, we compared our final model with several alternative models as a recommended procedure to demonstrate the best fitting model (Kline, 2011). To assess model fit we used fit indices with different measurement properties (Hu & Bentler, 1998).

### 3. Results

#### 3.1. Preliminary analyses

##### 3.1.1. Exploratory factor analyses

There were no statistical differences between Samples 1 and 2 on demographic variables. Based on Sample 1, the factor analysis with the selected items (6 promotion and 5 prevention items) resulted in a perfect two-factor structure for adolescent RF. The promotion factor explained 33% of the variance and the prevention factor explained 22% of the variance, eigenvalues > 2. Also, for the parent RF a two-factor solution emerged consisting of the same 6 promotion and 5 prevention items as for the adolescent RF. The promotion factor explained 18% of the variance and the prevention factor explained 44% of the variance, eigenvalues > 2. The factor loadings and the items description are available upon request from the first author.

##### 3.1.2. Confirmatory factor analyses

Based on the data of Sample 2, we performed a CFA with the selected items. The adolescent RF model showed a good fit ( $\chi^2 = 62.92$ ,  $df = 40$ , RMSEA = 0.06, CFI = 0.95; TLI = 0.94; IFI = 0.96, AIC = 114.92) and the fit for the parent RF was sufficient ( $\chi^2 = 0.91.87$ ,  $df = 38$ , RMSEA = 0.09, CFI = 0.91; TLI = 0.87, IFI = 0.92, AIC = 147.87). Finally, our results supported that adolescent prevention and promotion RF and FTP can be considered different constructs (see Table 1).

#### 3.2. Structural equation modelling results

As the students were from different school classes, the data were multilevel in nature. We used linear mixed modelling to estimate the intraclass coefficient and found that this coefficient ( $\rho$ ) was 0.02, implying that the proportion of total variance in FTP explained by between-classes differences was negligible. Hence, our study did not warrant multilevel analyses. Table 2 shows the descriptive statistics among our study variables. Students' gender and conscientiousness were significantly related to FTP and to several independent variables.

<sup>2</sup> Missing data were imputed by the estimation maximization method (EM) as the EM algorithm provides unbiased parameter estimates and improves statistical power of analyses (Schafer & Graham, 2002). All scales met the assumptions of normal distribution or slightly non-normality (Lei & Lomax, 2005). We used the maximum likelihood (ML) estimation method as recommended for slightly non-normal conditions and as being the most common approach in structural equation modelling (Jackson, Gillaspay, & Purc-Stephenson, 2009).

**Table 1**  
Sample 1 and 2 ( $N = 347$ ): confirmatory factor analysis.

Model	$\chi^2$	Df	RMSEA	CFI	TLI	IFI	AIC
3-Factor model <sup>a</sup>	386.14	120.00	0.08 [0.07, 0.09]	0.86	0.83	0.87	488.14
1-Factor model <sup>b</sup>	977.48	135.00	0.13 [0.13, 0.14]	0.57	0.51	0.57	1049.48

<sup>a</sup> This model includes adolescent promotion and prevention RF, and FTP.

<sup>b</sup> This model includes one factor combining all three constructs.

However, as the inclusion of gender did not affect our results, we controlled for conscientiousness only (see Becker, 2005).

The fit of the hypothesized model (see Table 3) was satisfactory ( $\chi^2 = 15.22$ ,  $df = 5$ , RMSEA = 0.08, CFI = 0.98; TLI = 0.93; IFI = 0.98, AIC = 47.22). Inspection of modification indices showed that the observed covariances between parent promotion RF and adolescent FTP on school and professional career could not be completely explained through the expected indirect effect. Thus, a step by step modification of the hypothesized model was necessary by adding a direct path from parent promotion RF to FTP. This yielded a very good fit to the data ( $\chi^2 = 5.74$ ,  $df = 4$ , RMSEA = 0.04, CFI = 1; TLI = 0.99; IFI = 1, AIC = 39.74).

Furthermore, we tested two alternative models that were based on the hypothesized model. The first alternative model estimated a reversed path direction from FTP to adolescent promotion and prevention RF ( $\chi^2 = 73.27$ ,  $df = 5$ , RMSEA = 0.20, CFI = 0.85; TLI = 0.55; IFI = 0.85, AIC = 105.27). In the second alternative model we added a direct path from parent prevention RF to FTP ( $\chi^2 = 15.11$ ,  $df = 4$ , RMSEA = 0.09, CFI = 0.98; TLI = 0.91; IFI = 0.98, AIC = 49.11).<sup>3</sup> However, none of these models were better fit to the data than our previous model, which is the final model (see Fig. 2).

As hypothesized, there were significant direct paths from adolescent promotion and prevention focus to adolescent FTP. Whereas the path from adolescent promotion focus to FTP yielded a positive and strong effect, the path from adolescent prevention focus to FTP was negative and smaller. These findings supported our Hypotheses 1a and 1b.

We further explored direct paths from adolescents' perceived parent RF to their own RF. As expected, both direct paths were significant. These results indicate that adolescents' perceived parent promotion and prevention focus relate to their own promotion and prevention focus, respectively. Thus, Hypotheses 2a and 2b were supported.

We proposed that adolescent promotion RF would function as a mediator in the positive relationship between perceived parent promotion RF and adolescent FTP (Hypothesis 3a). Also, we anticipated that adolescent prevention RF would mediate the negative relationship between perceived parent prevention RF and adolescent FTP (Hypothesis 3b). Indeed, we found a significant and full mediation effect from perceived parent prevention RF to adolescent FTP ( $p < 0.001$ ). The standardized indirect effect was  $-0.01$  ( $SE = 0.00$ ) and the 95% confidence interval ranged from  $-0.01$  to  $-0.00$ .

However, the relationship between perceived parent promotion RF and adolescent FTP was only partly mediated by adolescent promotion RF. Hence, we found partly support for Hypothesis 3a and full support for Hypothesis 3b.

## 4. Discussion

This study aimed to fill in the gap in FTP theory and research by exploring individual and situational antecedents of FTP on school and professional career. By integrating RF and FTP theory, we explored the relationships between adolescents' perceptions of parents' RF focus and

<sup>3</sup> In the first model the direct path from FTP to adolescent prevention RF was non-significant; in the second model the direct path from parent prevention RF to FTP was non-significant.

**Table 2**  
Means, standard deviations, and correlations of the study variables.

Variable	M	SD	1	2	3	4	5	6	7	8	9
1. School type <sup>a</sup>	–	–	–								
2. Gender <sup>b</sup>	–	–	–0.01	–							
3. School level father <sup>c</sup>	–	–	0.12*	0.06	–						
4. Conscientiousness	3.34	0.57	0.04	0.22**	0.07	(0.77)					
5. Parent promotion	5.22	0.92	0.04	0.09	0.01	0.17**	(0.80)				
6. Parent prevention	3.52	1.30	0.21**	–0.23**	–0.02	–0.30**	0.06	(0.82)			
7. Adolescent promotion	5.23	0.98	0.08	0.13*	0.01	0.28**	0.52**	0.01	(0.82)		
8. Adolescent prevention	3.52	1.15	0.00	0.02	0.00	–0.03	0.09	0.45**	0.26**	(0.75)	
9. FTP	3.95	0.58	0.03	0.11*	0.04	0.26**	0.32**	–0.11**	0.58**	–0.12*	(0.70)

Note. N = 347. Alpha reliabilities are shown in parentheses on the diagonal.

<sup>a</sup> Pre-university education = 1; General secondary education = 2.

<sup>b</sup> Males = 0, females = 1.

<sup>c</sup> Lower = 0, higher = 1.

\* p < 0.05.

\*\* p < 0.01.

**Table 3**  
Model comparison.

	$\chi^2$	p	df	RMSEA	CFI	TLI	IFI	AIC
Hypothesized model	15.22	0.01	5	0.08 [0.04, 0.12]	0.98	0.93	0.98	47.22
Final model <sup>a</sup>	5.74	0.22	4	0.04 [0.00, 0.09]	1	0.99	1	39.74
Alternative model 1 <sup>b</sup>	73.27	0.00	5	0.20 [0.16, 0.24]	0.85	0.55	0.85	105.27
Alternative model 2 <sup>c</sup>	15.11	0.00	4	0.09 [0.05, 0.14]	0.98	0.91	0.98	49.11

<sup>a</sup> Direct path from parent promotion RF to FTP.

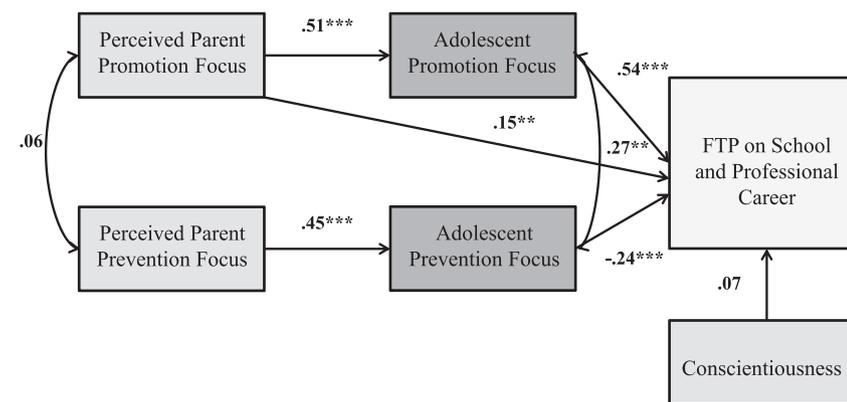
<sup>b</sup> Reverse direct effects from FTP to adolescent promotion and prevention RF.

<sup>c</sup> Direct effect from parent prevention RF to FTP.

their academic goals is related to adolescents' future thinking, planning, and feelings regarding their school and professional career.

Adolescents' perceptions of their parents' RF was significantly related to their own RF. This finding supports RF theory (Higgins, 1997; Lockwood et al., 2002) that postulates that individuals' RF is formed through parent (caretaker) and child interactions. Specifically, it corroborates research by Lockwood et al. (2002) that demonstrated that students are motivated by role models who encourage strategies that fit their regulatory foci. Our results suggest that parents may indeed transmit their RF to their children.

Whereas perceived parent promotion RF was both directly and in-



**Fig. 2.** Final model with direct path from parent promotion RF to FTP (coefficients are standardized).

their RF and FTP in school and professional career. Exploring these relations is relevant for three reasons. First, previous research has shown that RF can influence individuals' future temporal look (Pennington & Roese, 2003). Second, individual differences in RF are formed during infancy and through different parent-child interactions (Higgins, 1997). Third, the constructs of RF and FTP are theoretically linked concepts, but this relationship was not tested in prior research.

We found that adolescents' RF was significantly related to their FTP on school and professional career. Specifically, whereas adolescents' promotion focus was positively related to adolescents' FTP, adolescents' prevention focus was negatively related to their FTP. These results imply that adolescents who strive for attaining positive outcomes rather than preventing negative outcomes contemplate more strongly about their future. These findings corroborate those of Pennington and Roese (2003), who showed that focusing on achievements rather than obstacles fosters future thinking. However, since we used a comprehensive and domain specific FTP measure in our study (Peetsma, 1992), we extended this prior finding by revealing that adolescents' RF regarding

directly (via adolescents' promotion RF) related to adolescent FTP, perceived parent prevention RF was only indirectly related to adolescent FTP through adolescent prevention RF. These findings suggest that adolescents' perceptions of parent promotion RF may be a powerful predictor of their FTP on school and professional career.

Finally, our model shows that the relations between the RF and FTP hold even after controlling for conscientiousness that is found to relate to the FTP construct (e.g., Kairys & Liniauskaitė, 2014), but also to the RF construct (e.g., Lanaj et al., 2012). Specifically, we revealed that when taking into account adolescents' vigilance, dutifulness and achievement orientation, adolescents seem motivated by their regulatory foci in their future striving for educational and career goals.

This is the first study that provides empirical evidence for the relationships between RF and FTP and that indicates that parent promotion RF may play a positive role in the formation of adolescents' FTP. Parent promotion RF embraces both parents' involvement in their children and an orientation to positive goal striving. Adolescents benefit from parents who are warm, firm, and encourage their autonomy

because this parenting style contributes to early occupational aspirations (Jodl et al., 2001; Steinberg, 2001) and to adolescents' FTP (Seginer et al., 2004).

## 5. Limitations and future research

Although our study adds considerably to both RF and FTP theory and research, some study limitations warrant consideration.

First, as our study had a cross-sectional design we can only theoretically but not empirically infer the direction and causality of the relationships between parents' and adolescents' RF and adolescents' FTP. Future research could use experimental designs in which the observed effects of promotion and prevention focus on adolescents' FTP are explicitly evaluated. This could be done, for example, by manipulating adolescent RF (e.g., Friedman & Förster, 2001). In addition, future research could explore the development of RF and FTP relations over time by means of longitudinal designs. Here, it would be interesting to see whether and how these relationships change over time when adolescents go through important transition periods such as finishing their high school and starting their further education.

Second, although the present study used validated instruments with good reliabilities, all our measures were self-reports, which could cause common method variance (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). However, self-reports are an appropriate method for assessing these constructs as they match the constructs' psychological nature (Paulhus & Vazire, 2007). Also, we addressed this common method bias in two recommended ways. First, we designed our survey so that the parents' and adolescents' RF and FTP questionnaires were presented separately and, second, we tested alternative models that assumed different relationships among the variables. Although adolescents' perceptions of their parents' RF likely impact adolescents' attitudes and behaviours most, future studies could also include RF measures that are derived from the parents.

Third, adolescents responded to mother and father variables together (e.g., "My parents (caretakers) think ..."). It is possible that each parent transmits a different RF, which was not captured in our data. Future studies could ask adolescents to reflect on the RF of each parent separately and test the relationship between these foci and adolescents' foci. Fourth, our study was the first to develop the perceived parent RF scale as based on the Lockwood et al. (2002) scale and to test its psychometric properties. Consequently, the items of the parent RF scale and the adolescent RF scale are similar to some extent and are both reported by adolescents. Although we adapted the parent RF scale to fit adolescents' RF scale for conceptual reasons, we acknowledge that this may engender a methodological limitation of our study that should be taken into account when interpreting the results. Furthermore, even though the factor structure of our scales was satisfactory and the scale reliabilities were good, future studies should replicate our findings and test the perceived parent RF measure with other samples.

Fifth, in this study we used the FTP on school and professional career measure (Peetsma, 1992) as being highly predictive and relevant for adolescents' educational goals. However, a variety of FTP conceptualizations exist in the FTP literature (Andre et al., 2016; Seijts, 1998), and the relevance and motivational characteristics of adolescents' FTP are contingent on the FTP domain (Seginer, 2009; Van der Veen & Peetsma, 2011). Therefore, it would be interesting to explore parents' and adolescents' RF and FTP relationships with the use of other FTP conceptualizations. For example, future research could investigate how parents' and adolescents' RF relate to other FTP domains such as FTP on family, personal development, physical activity, or leisure. Likewise, to measure the RF of adolescents and parents we opted for the Lockwood et al. (2002) scale as it relates to a specific life domain of school and career, and is tailored to students. However, future studies could include other RF measures, such as Higgins' (1997) conceptualization and explore its relationships with FTP.

Sixth, the finding that the perceived parent RF is related to

adolescents' FTP suggests that future studies could focus on exploring the influence of proximal and distal contextual determinants of adolescents' FTP, such as the (perceived) foci of parents, teachers, and peers. For example, a recent study has tested the relationships between the perceived parent and peer attachment styles and FTP, and revealed significant relationships among these variables (Laghi, Pallini, Baumgartner, & Baiocco, 2016).

Finally, as there are cultural differences in RF (Shu & Lam, 2016; Uskul, Sherman, & Fitzgibbon, 2009) and RF is found to be a good predictor of cross-cultural differences in achievement-related behaviours (Kurman et al., 2014), it is vital to test our model cross-culturally.

## 6. Theoretical implications

Our study contributes to theory and research on FTP, RF, child development, and education. FTP researchers have mainly investigated FTP as a predictor of attitudes and behaviours (Andre et al., 2016; Ferrari et al., 2010). Recently, more researchers have started to pay attention to possible determinants of FTP (e.g., Gomes Carvalho & Novo, 2015). We advanced the FTP literature by examining antecedents of FTP including individual difference and situational variables. Specifically, we investigated whether differences in adolescents' FTP on school and professional career could be due to adolescents' RF and perceptions of their parents' RF, respectively. In this way, we chose a comprehensive approach to studying possible determinants of adolescent FTP. Also, we add to the FTP theory by clarifying the link between the FTP construct and the personality trait conscientiousness. That is, the finding that the relation between FTP on school and professional career with conscientiousness was a weak bivariate relation and not significant in our final model, implies that FTP and conscientiousness can be considered as quite independent concepts.

Our study also contributes to RF theory and research (Higgins, 1997; Lockwood et al., 2002). We extended the study of Pennington and Roese (2003) by showing that adolescents' RF is related to the way they think, feel, and plan their future in school and professional career. Moreover, by adapting the RF scale by Lockwood et al. (2002), we developed and tested the perceived parent RF measure that can be used in other RF studies and in research on motivation. Furthermore, we provided first evidence for the relationship between adolescents' RF and the perceived RF of their parents relevant for adolescents' academic goals. We showed that perceptions of parents' promotion RF were positively related to adolescents' FTP while perceptions of parents' prevention RF were negatively related to adolescents' FTP. By this we found preliminary evidence for our proposition that adolescents' perceptions of parents' RF is important as these perceptions will affect adolescents' thoughts and behaviours in academic goal strivings.

This study adds to child development and education research by integrating two motivational theories relevant for adolescents' future goal setting and development (Nurmi, 1991). Future studies could benefit from applying RF and FTP theory in studying children's motivation for (future) education and career.

## 7. Practical implications

Our results offer a valuable basis of suggestions that can be further tested and implemented in practice. The knowledge that adolescents' promotion RF was positively and their prevention RF was negatively related to their FTP on school and professional career suggests that it may be important to assess students' RF. Consequently, based on this assumption, school psychologists and career advisors could assess and identify students who need guidance in their FTP and develop evidence-based interventions that stimulate adolescents' promotion RF focus.

The positive indirect and direct paths from perceived parents' promotion RF to adolescents' FTP provide a first and important indication that the RF of parents may matter for the future opportunities of their

children. Parents who persuade their children to focus on challenges and positive outcomes rather than vigilance and negative outcomes may foster children's future thinking and thus effort in school and professional career. Hence, this finding can be tested by developing interventions and programs for parents on how to raise a promotion focus in their children.

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