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Motivated by future and challenges: A cross-cultural study on adolescents' investment in learning and career planning

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ABSTRACT

This three-wave cross-cultural study tested a cross-cultural model that related adolescents' Regulatory Focus (RF) and Future Time Perspective on School and Professional Career (FTP) to their educational and career behaviors, and explored whether these relationships are equivalent across countries. Specifically, it addressed the challenging question whether adolescents' motivational orientations differ across countries with vastly different cultural values, socio-economic circumstances and history. A total of 1520 adolescents in the Netherlands, Serbia, and Croatia reported their parents' and their own RF (promotion and prevention), FTP on school and professional career, investment in learning and homework, and career planning, on three time points. Teachers assessed adolescents' investment in learning and provided adolescents' GPA. Based on the multi-group structural equation modeling results, we found good model fits for each country and confirmation of most hypotheses. Results supported that the hypothesized model was cross-culturally valid in the three countries, although FTP related differently to GPA and teacher ratings across the samples. Also, we revealed intriguing differences on adolescents' FTP and RF strategies across the three countries. The findings suggest that FTP and RF play an important role in the learning efforts and career planning of adolescents across different countries.

1. Introduction

Motivational scholars are increasingly recognizing that contemplating about one's future is central to goal pursuit in significant life domains (Husman & Lens, 1999; Peetsma & van der Veen, 2011; Seginer, 2009). Having a Future Time Perspective (FTP), generally defined as individuals' orientation towards future goals and seeing the future consequences of one's present actions (Husman & Lens, 1999; Peetsma, 2000; Strathman & Joireman, 2005), has been found important for adolescents' educational and career motivation and behaviors (Andre, Van Vianen, Peetsma, & Oort, 2018; Ferrari, Nota, & Soresi, 2010; Husman, Brem, Banegas, Duchrow, & Haque, 2014). Adolescents who contemplate more about their future, tend to put more effort in learning and career planning and achieve better grades and make better decisions regarding their future careers than adolescents who think less about possibilities regarding their future in general and their future study and careers (Peetsma, 2000; Taber, 2013). Moreover, students'

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FTP also relates to their long-term goals and behaviors in adulthood (Patrick, Wray-Lake, Finlay, & Maggs, 2009).

Given the central role of FTP for motivation and behavior, researchers have explored possible factors that influence FTP (Nurmi & Pulliainen, 1991; Padawer, Jacobs-Lawson, Hershey, & Thomas, 2007). While these studies have mainly concerned demographic factors (e.g., gender, age, social class, educational level), recent studies have started exploring situational and personality variables as determinants of FTP (Gomes Carvalho & Novo, 2015; Phan, 2014). For example, Andre, Van Vianen, and Peetsma (2017) examined the relationship between adolescents' regulatory foci and those of their parents, and adolescents' FTP on school and professional career. Regulatory Focus (RF) theory (Higgins, 1997; Lockwood, Jordan, & Kunda, 2002) proposes that individuals differ in the types of goals they pursue and in the self-regulatory systems to reach these goals. RF theory distinguishes two basic self-regulatory foci: a *promotion* focus and a *prevention* focus. Individuals with a promotion focus are oriented to achieving gains and advancements whereas individuals with a prevention focus are oriented to attaining safety and security (Higgins, 1997). Obviously, FTP and RF theories are conceptually linked as they include an intentional component in motivating goal-directed behaviors by considering and valuing individuals' representations in the future (De Volder & Lens, 1982). Also, both theories concern needs and goals (Higgins, 1997; Nuttin & Lens, 1985) and future goal striving (Andre et al., 2017).

Adolescence is a crucial period of the lifespan to investigate students' FTP and RF, and their links to education and career planning. First, many developmental changes occur during this period, that is, students mature in their cognitive capacities (Giedd et al., 1999) and engage in the process of identity formation (Erikson, 1968), which enable them to contemplate about their future and be actively involved in goal pursuit. Second, adolescents have to make many important decisions regarding their future education and career (Paixão & Silva, 2001) as a foundation to a successful professional life. For these reasons, more research is needed on the factors affecting adolescents' FTP (Lens, Paixão, Herrera, & Grobler, 2012).

Parents and schools in general encourage adolescents to look forward and pursue educational and career goals. In addition, also the broader context in which adolescents grow up, such as socioeconomic circumstances and cultural values, may impact adolescents' goals and the motivational strategies to reach them. However, previous studies on FTP were primarily based on Western samples (e.g., USA, Western Europe, Australia) and we therefore lack knowledge about the generalizability of research findings to non-Western countries such as Eastern Europe (Andre et al., 2018). According to the social cognitive theory of self-regulation (Bandura, 1991), individuals form beliefs about the amount of control they have over (future) environmental factors, which affect their motivation and goals. From this perspective, it is possible that adolescents who grow up in stable socio-economic systems and thus have better career perspectives will be more motivated to develop and pursue educational and career goals than adolescents in more turbulent socio-economic environments. At the same time, the sparse research that examined the goal pursuit of young individuals from different socio-economic and cultural backgrounds (Lechner, Tomasik, & Silbereisen, 2016) found similar levels of goal engagement (i.e., investing active effort in career goal pursuit) but also different levels of goal disengagement (i.e., distancing from unattainable career goals). Altogether, whether socioeconomic circumstances and cultural values affect adolescents' motivation and goal striving needs further investigation.

In this paper, we investigate how adolescents' motivational orientations are related to their goal directed behaviors in school and career as both are important for developing a satisfactory career and whether these relationships are equivalent across countries. Furthermore, we address the challenging question whether adolescents' motivational orientations differ across countries with vastly different cultural values, historical events (e.g., wars, political reforms), and socio-economic circumstances, as these favorable vs. unfavorable conditions might differently affect adolescents' RF, FTP, and motivation.

The aim of the present cross-cultural study is to examine FTP as a motivator for learning and career planning in one Western and two Eastern European countries. Moreover, as RF was found to relate to FTP (Andre et al., 2017), and to be a good predictor of cross-cultural differences in achievement-related behaviors (Kurman, Liem, Ivancovsky, Morio, & Lee, 2014), we examine how adolescents' RF relates to FTP and investment in learning and career planning. Furthermore, as parents play a crucial role in the motivation and goals of their children (Dietrich & Salmela-Aro, 2013), we also examine adolescents' perceptions of the RF of their parents and how this perception relates to adolescents' RF, FTP, and motivational outcomes. In addition, we seek to explore possible cross-cultural differences in adolescents' FTP and RF across countries.

1.1. Future time perspective

FTP represents one of the most significant developmental tasks towards adulthood as it significantly contributes to the creation of adolescents' future career, family and life projects (Savickas, 2005; Seginer, 2009). Within the time perspective literature, FTP is defined as a cognitive-motivational personality characteristic that is embedded in goal setting (Nuttin & Lens, 1985; Zimbardo & Boyd, 1999) and has motivational consequences (Peetsma & van der Veen, 2011).

Adolescents' FTP is characterized by three basic processes: motivation, planning, and evaluation (Nurmi, 1991). Motivation refers to adolescents' interests in their future, planning refers to how they plan the realization of their goals, and evaluation refers to the extent to which adolescents expect their goals to be realized. These processes complement each other in adolescents' goal pursuit.

Although many FTP conceptualizations exist in the literature (Stolarski, Fieulaine, & van Beek, 2014; Andre et al., 2018), this study focuses on the conceptualization that includes the comprehensive and domain specific measure of FTP tailored for adolescents (Peetsma, 1992). Specifically, this conceptualization encompasses three components relevant for individuals' future thinking: cognition (ideas or expectations), behavioral intention (effort and planning), and affect (expression of specific feelings). Moreover, we use a domain-specific conceptualization of FTP by explicitly referring to the life domains of education and career.

FTP researchers have identified significant links between adolescents' FTP and positive school behaviors such as investment in school and career maturity (Peetsma, 2000; Walker & Tracey, 2012). Adolescents who contemplated more about their future put

more effort in their school behaviors and made better decisions about their future career than adolescents who were thinking less about their future. These results were consistent across different Western samples (Peetsma, Hascher, van der Veen, & Roede, 2005). Moreover, interventions in which adolescents' FTP was manipulated have shown that FTP influences one's learning behavior and orientation, and thinking and planning about future education and career (Marko & Savickas, 1998; Peetsma & van der Veen, 2015). Overall, these studies confirmed that FTP is a powerful motivator for adolescents' future education and career. In the present study, we examine the relationship between FTP and educational behaviors (investment in learning, investment in homework, and GPA), and career planning. In line with the findings of prior FTP research, we expect significant relationships between FTP and these outcomes.

1.2. Regulatory focus

RF theory is rooted in one of the basic motivational principles that humans approach pleasure and avoid pain (Higgins, 1997). The theory posits that individuals use two different self-regulatory strategies in their future goal striving. Specifically, promotion focused individuals are motivated by the need for nurturance, accomplishment, and progress, whereas prevention focused individuals are motivated by the need for safety, security, and protection. In the literature, RF has been operationalized both in terms of chronic processing tendencies (Petrou & Demerouti, 2015) and as situationally malleable cognitive states (Kurman et al., 2014). However, both operationalizations have been found to relate to similar consequences (Higgins, 1997; Lockwood et al., 2002). Promotion focused individuals tend to be more motivated and persistent than prevention focused individuals (Shah, Higgins, & Friedman, 1998). Moreover, manipulations with regulatory foci revealed that individuals with a promotion focus solved problems more creatively and used more risky behaviors than individuals with a prevention focus who used a less creative and novel approach (Friedman and Förster, 2001).

RF has been widely investigated in various disciplines such as consumer research and organizational psychology (e.g., Lanaj, Chang, & Johnson, 2012; Werth & Foerster, 2007). The majority of these studies explored the influence of RF on employees' career outcomes such as job satisfaction and task performance (Gorman et al., 2012), yet only a few studies have explored the possible importance of RF for adolescents' educational and career behaviors (e.g., Andre et al., 2017; Zhang, 2016). For example, Zhang (2016) explored the influence of different regulatory foci on students' learning behaviors in a Massive Open Online Course (MOOC). He found that students' regulatory foci differently affected their attitudes towards learning and their evaluation behaviors. Specifically, a learning guidance that emphasized the gains of positive outcomes was more persuasive for the motivation to learn of promotion focused students, whereas a guidance emphasizing avoidance of losses was more influential for the learning motivation of prevention focused students. In addition, a recent study by Rosenzweig and Miele (2016) has provided preliminary evidence that RF can impact students' analytic test performance, which many educators tend to attribute to differences in students' knowledge and skills.

RF tends to influence an individual's future temporal look (Pennington & Roese, 2003). Adolescents who are focusing on achievements rather than obstacles have a more extensive future thinking. A cross-sectional study connecting the RF and FTP in school and professional career of Dutch adolescents (Andre et al., 2017) indeed found that the two regulatory strategies of goal striving were differently related to adolescents' FTP. In the current study, we extend this preliminary finding by testing the links between RF and FTP longitudinally and with using samples from different cultures.

1.3. Hypothesized model

The present study builds on the prior study by Andre et al. (2017) and proposes that adolescents' RF will relate to FTP on school and professional career. Specifically, as promotion focused individuals aim at gains and positive emotions and are approach-oriented (Lockwood et al., 2002) and prevention focused individuals are more prone to use avoidance strategies aimed at avoiding possible losses and negative emotions (Higgins, 1997), we propose that a promotion focus will be positively related to FTP, whereas a prevention focus will be negatively related to FTP.

Hypothesis 1. Adolescents' promotion focus will be positively related to their FTP.

Hypothesis 2. Adolescents' prevention focus will be negatively related to their FTP.

We also investigate the possible role that parents may play for the RF and FTP of their children. As Andre and colleagues, we reason that individual differences in RF are shaped by different histories of parent-child interactions (Higgins, 1997). Accordingly, parents who encourage their children to follow their own wishes and ambitions and engage in school behaviors that will lead to adolescents' achievements, may shape adolescents' promotion focus. In contrast, parents who pursue their children to follow rules and fulfill school responsibilities to prevent academic failures, may shape adolescents' prevention focus. Moreover, parents can also stimulate adolescents' FTP as evident by the positive relationships between parenting acceptance and adolescents' FTP (Nurmi & Pulliainen, 1991) and also by the indirect link between perceived autonomous-accepting parenting and adolescents' career FTP via adolescent self-efficacy (Seginer, Vermulst, & Shoyer, 2004). All in all, we expect that adolescents' perceptions of their parent regulatory foci will relate to their own regulatory foci, and through this to their FTP on school and professional career. In addition, based on Andre et al.'s study, we propose a direct path from parent promotion RF to adolescents' FTP. We propose the following hypotheses:

Hypothesis 3. Adolescents' perceived parent promotion focus will be positively related to their FTP. This relationship will be (a) direct and (b) as mediated by adolescents' own promotion focus.

Hypothesis 4. Adolescents' perceived parent prevention focus will be negatively related to their FTP as mediated by adolescents' own prevention focus.

Extant research on FTP has shown that FTP is a significant predictor of adolescents' learning behaviors and career planning (Paixão, Abreu, & Lens, 2012; Walker & Tracey, 2012), and a recent meta-analysis has confirmed that FTP is a motivator for educational and career outcomes across different countries (Andre et al., 2018). In the current study we included adolescents' investment in learning and homework, GPA, and career planning as career-related outcomes. We propose the following:

Hypothesis 5. FTP will positively relate to (a) educational outcomes and (b) career planning.

Previous studies have suggested that personality traits such as conscientiousness are related to an individual's FTP (Kooij, Kanfer, Betts, & Rudolph, 2018; Shipp, Edwards, & Lambert, 2009). Particularly, conscientiousness related positively to FTP (Kairys & Liniauskaite, 2014; Zimbardo & Boyd, 1999) and future planning in general (Prenda & Lachman, 2001). Both conscientiousness and FTP concern the formulation, planning, and reaching for long-term goals and may thus impact motivational behavior. For this reason, a recent meta-analysis highlighted the importance of taking conscientiousness into account when examining the relations between FTP and various achievement and career behaviors (Kooij et al., 2018). Following this recommendation, we include conscientiousness as a control variable in our study.

1.4. Cross-cultural comparison

Cross-cultural research provides an important basis for testing the universality of theoretical models and exploring cross-cultural differences (Segall, Lonner, & Berry, 1998). An important limitation of much of the work in the field of RF and FTP is the lack of research in different cultural settings. Although FTP theory has been tested and validated in more than one culture, the majority of studies was carried out by Anglo American researchers or researchers trained in the Anglo American culture, thus, the FTP of Anglo Americans is the prevailing notion (Andre et al., 2018).

In the present study, we seek to replicate and cross-culturally test the hypothesized model that relates adolescents' perceived parent RF and own RF to their FTP in samples from countries that differ on Hofstede's (2011) cultural dimensions, socio-economic circumstances, and history. To this end, we incorporate two East European countries (Serbia and Croatia) and one West European country (the Netherlands).

These countries differ on a variety of cultural and socioeconomic variables. The Netherlands is especially different from Serbia and Croatia on all Hofstede's (2011) cultural dimensions, which are the most widely accepted and applied dimensions in cross-cultural research (e.g., North & Fiske, 2015). For example, while the Netherlands stands out as an individualistic country, Serbia and Croatia are considered collectivistic societies. Moreover, according to the Human Development Index (HDI) report (2015), in which 188 countries were ranked on a composite score including life expectancy at birth, education, and income, the Netherlands was rated as seven (representing a high HDI), whereas Croatia was rated as forty-five and Serbia as sixty-six. In addition, these countries strikingly differ in experienced corruption level. Whereas the Netherlands is in the top five countries that are considered as “clean” from corruption, Croatia is on the fiftieth place, while Serbia is even lower, on the seventy-first place (Corruption Perceptions Index; CPI, 2015).

Finally, Serbia and Croatia, as formerly being part of the same country (i.e., Yugoslavia), share a recent history and socio-economic developments, which differ from the Netherlands. In the period 1991–1999, both Serbia and Croatia have experienced many adversities because of the serious political tensions in former Yugoslavia, when most of current adolescents where born. Currently, these countries still suffer from the socio-economic and political consequences of this tough period. In addition, there are recent political differences among the two Eastern European countries. Whereas Croatia has entered the European Union (EU) five years ago which may have brought more positive changes and opportunities regarding education and employment in Croatia, Serbia is a candidate for but not yet a member of the EU as it is developing political and economic reforms. Due to these varying circumstances adolescents in the three countries may have developed a different motivational perspective towards their educational and career goals.

1.5. Cross-cultural differences on FTP and RF

It is said that “every culture has its own unique set of temporal fingerprints. To know people is to know the time values they live by” (Jeremy Rifkin, in Levine, 2006, p. xi). Although individuals vary on FTP within cultures (Lens et al., 2012), an individual's FTP is also believed to be affected by his/her cultural background as individuals' sense of time is culturally bounded (Levin, 2006). However, as authors have noted, comprehensive and systematic research on FTP across cultures is scarce (Sircova et al., 2014).

Western countries score higher on future orientation, whereas Arab, Latin European, Latin American, and Eastern European countries score lowest on future orientation (House and Global Leadership and Organizational Behavior Effectiveness Research Program, 2004). Moreover, some countries in Northern Europe such as the Netherlands and Austria are more future oriented than countries in the Mediterranean region such as Greece and Italy. Finally, individualistic cultures are more future oriented than collectivistic cultures because individualistic cultures focus on abstract events and universal rules that are applicable across situations whereas collectivistic cultures focus on concrete and particular events situated in the present (Shirai & Beresneviciene, 2005). Given these cultural differences among the three countries involved in this study, we expect the following:

Hypothesis 6. FTP will be higher in the Netherlands (an individualistic culture) than in Serbia and Croatia (collectivistic cultures).

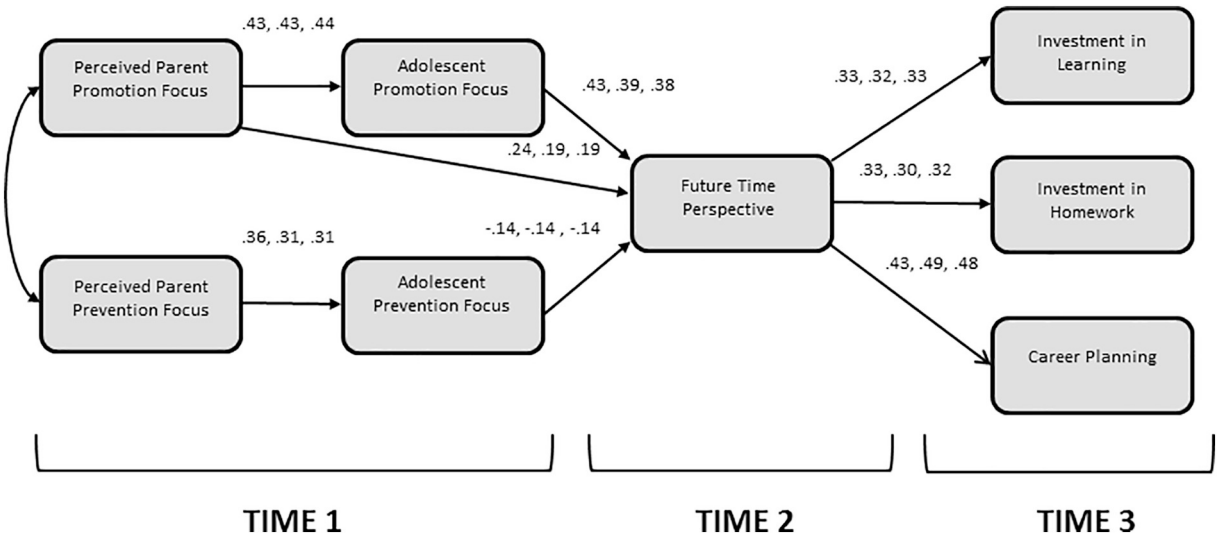

Fig. 1. The final invariant cross-cultural model.
Note. Standardized estimates in the model are shown in the following order: the Netherlands, Serbia, and Croatia. For clarity, error covariances between adolescent promotion and prevention focus and between investment in learning and investment in homework constructs are omitted from the model. The small differences in estimates are due to standardization procedure in Mplus. Unstandardized estimates are equal across countries.

Similarly, the findings of prior RF research suggest cultural differences in individuals' RF (Uskul, Sherman, & Fitzgibbon, 2009). For example, research has shown that the manipulation of collectivist attitudes enhances a prevention focus (Kurman & Hui, 2011). Furthermore, collectivist cultures such as East Asia and Russia exhibit higher avoidance and lower approach orientations than individualistic cultures such as the US (Higgins, Pierro, & Kruglanski, 2008). Thus, it is relevant to test possible differences in RF among countries that differ in cultural and socio-economic background, such are Serbia, Croatia, and the Netherlands. However, research on cross-cultural differences in RF is relatively scarce.

It is possible that adolescents from collectivistic cultures (Serbia and Croatia) will score higher on prevention focus, whereas adolescents from individualistic cultures (the Netherlands) will score higher on promotion focus. However, many Balkan countries, including Serbia and Croatia are recently experiencing a striking “brain drain” of young adults seeking a better future in Western countries (Balkan Insight, 2013; Deutsche Welle, 2016). These young people seem to engage in challenging and risk-taking actions as to secure their future. Consequently, it is possible that Serbian and Croatian adolescents have a strong motivational orientation and thus score higher on both promotion and prevention foci than their fellow students in the Netherlands. Therefore, we, explore rather than hypothesize differences in RF among the three countries.

Additionally, given the converging evidence that FTP is a robust driver of human motivation and behaviors across cultures (Peetsma et al., 2005), we expect that FTP will exhibit positive relationships with educational and career outcomes of adolescents across the three countries. We explored the compatibility of these relationships and our hypothesized research model (see Fig. 1) across the three countries.

2. Method

2.1. Participants

Participants were recruited from high schools in the Netherlands, Serbia and Croatia, from the three countries' capital cities similar in population density (i.e., Amsterdam, Belgrade, Zagreb). Of the total number of 1520 adolescents, $N = 377$ adolescents (169 females, 208 males; age, $M = 15.86$; $SD = 0.72$) were from three schools in the Netherlands, $N = 486$ adolescents (225 females, 261 males; age, $M = 16.77$, $SD = 0.46$) were from three schools in Serbia, and $N = 657$ adolescents (342 females, 315 males; age, $M = 16.62$, $SD = 0.36$) were from thirteen schools in Croatia.

In the Dutch sample, a majority of adolescents' mothers had the Dutch nationality (69.2%), whereas 30.8% of the mothers had a Surinamese, Turkish or Moroccan origin, or labeled their origin as from another country. Nevertheless, all participants were born and/or raised in the Netherlands. In the Serbian sample, 79.2% of adolescents' mothers had the Serbian nationality, and 20.8% of the mothers had a nationality from one of the ex-Yugoslavian countries (i.e., Bosnia, Croatia, Macedonia, Slovenia) or another country. Similarly, in the Croatian sample, the majority of adolescents' mothers (73.3%) had the Croatian nationality, whereas 26.8% of adolescents' mothers had a nationality from one of the ex-Yugoslavian countries (i.e., Bosnia, Macedonia, Serbia, Slovenia), or labeled their origin as from another country. All their children were raised in their current country. In the Netherlands and Serbia a small majority of the parents completed higher educational levels such as pre-university education or university (55.7% and 57.9%, respectively), whereas in Croatia, the highest completed education among a small majority of the parents were high schools or technical

vocational schools (53.7%). The proportion of females to males was significantly different across the samples (X^2 (2, $N = 1520$) = 6.30, $p < .05$). The Croatian sample consisted of more girls than the Serbian and Dutch samples.

The high schools in the three countries prepare students for further academic or higher vocational education. In the Netherlands, we included adolescents in their third year of higher general secondary education and in their fourth year of pre-university education. Accordingly, to make appropriate comparisons, in Serbia and Croatia we selected adolescents in their second year of general secondary school (gymnasium) and from vocational schools. We focused on these students because they are in the developmental and transitional period that requires them to make important decisions and preparations for their future education and professional career (Ferrari et al., 2010; Rogers, Creed, & Glendon, 2008). At the same time, there is an evident decrease in school motivation from early adolescence onward across cultures (Peetsma et al., 2005), which makes this a critical period for adolescents' motivation. The proportion of students per school type (i.e., gymnasium vs. vocational school) differed across the three countries (X^2 (2, $N = 1520$) = 10.60, $p < .01$) with relatively more students at a gymnasium in Croatia. Also, adolescents differed in age across the three countries ($F(2, 1447) = 390.616$, $p < .01$) with relatively younger adolescents in Amsterdam. These sample differences are due to the different school systems in the three countries. In addition to adolescents, we involved a total of $N = 33$ adolescents' teachers ($N = 13$ in the Netherlands, $N = 12$ in Serbia, and $N = 8$ in Croatia) who were asked to rate their students' learning behavior regarding native language arts (i.e., Dutch, Serbian, and Croatian language, respectively). The majority of the teachers ($N = 25$) were females ($N = 7$, $N = 10$, $N = 8$ in the Dutch, Serbian and Croatian sample, respectively). These teachers taught in one or two classes, and rarely in three classes of students that consisted of about 18–25 students per class in the Netherlands, and between 27 and 35 students in Serbia and Croatia.

Of the whole sample, 1366 adolescents returned an entirely completed questionnaire at time one, and 1023 and 919 adolescents completed their questionnaire at time two and three, respectively. Although the missing rate of about 10% to 20% is common in student samples (Enders, 2003), the increase in the missing values at the time three was mainly due to attrition and accessibility that is common in longitudinal studies. To deal with missing data in our further analyses, we applied the advanced full information maximum likelihood method (FIML; Dong & Peng, 2013; Schafer & Graham, 2002).

2.2. Procedure and research design

After obtaining permissions from the participating universities and Ethical boards, high schools were contacted by a letter describing the study. Once the approval to participate was obtained by the school principals and teachers, we recruited a convenient sample of adolescents from Amsterdam, Belgrade, and Zagreb. Prior to administering the first questionnaire, the passive consent describing the study and ethical matters was given to adolescents' parents and teachers. Only for the Croatian sample, the adolescents filled in an active consent, in accordance with the Croatian Ethical board regulation.

A back-translation procedure of the questionnaires was carried out as being the most recommended procedure in translation and adaptation of measures in cross-cultural studies (Van de Vijver & Leung, 2000). A three-wave longitudinal design was used with a six months interval between each wave to allow a stronger inference of causality. In the period April 2015 to May 2016, all adolescents completed the self-report questionnaires during the mentor class (approximately for 30 min) at three points in time, whereas the teachers completed their short questionnaire after their classes (approximately for 10 min) at the third measurement point. Participating teachers or in some cases schools received a gift-card as an incentive and a gratitude for contributing to the research.

2.3. Measures

A full list with main measures and items is presented in Appendix A.

2.3.1. Perceived parent regulatory focus (Time 1)

We used the Dutch version of the Perceived Parent RF scale by Andre et al. (2017) that was developed based on the Lockwood et al. (2002) scale. This scale asked adolescents how they perceive that their parents think and behave towards them (i.e., in more prevention or promotion terms). Based on a confirmatory factor analysis[1] performed for each country separately, we obtained four items of each scale: promotion focus: “I think that my parents (caretakers) pursue me to fulfil my dreams, wishes, and aspirations”, prevention focus: “I think that my parents (caretakers) are often concerned that I will fail to accomplish my academic goals”. Ratings were made on 7-point Likert scales ranging from 1 (*not at all true of me*) to 7 (*very true of me*). Previous research has established good psychometric properties of this scale (Andre et al., 2017). The internal reliability (Cronbach's alpha) for both subscales was satisfactory across samples (Dutch sample, promotion: $\alpha = 0.83$; prevention: $\alpha = 0.82$; Serbian sample, promotion: $\alpha = 0.83$; prevention: $\alpha = 0.74$; Croatian sample, promotion: $\alpha = 0.83$; prevention: $\alpha = 0.75$) and similar to the previous study from Andre et al. (2017).

2.3.2. Adolescent regulatory focus (Time 1)

To assess adolescent RF goals (promotion and prevention) relevant to the educational domain, we used a RF measure developed by Lockwood et al. (2002) that was in a recent study cross-validated and tailored to a population of Dutch adolescents (Andre et al., 2017). Also, in contrast to the RF scale by Higgins et al. (2001), the RF scale by Lockwood et al. relates to a specific life domain of

[1] Because of the invariance testing, we do not report all CFA results conducted per each country. These results are available on request.

school and career, and is customized to students. Consequently, we used the same 11 items as used in this prior study (six promotion and five prevention). Adolescents indicated the extent to which they endorse items relevant to promotion goals (e.g., "In general, I am focused on achieving positive outcomes in my life") and items relevant to prevention goals (e.g., "I often imagine myself experiencing bad things that I fear might happen to me"). Promotion and prevention focus were both anchored on 7-point Likert scales ranging from 1 (*not at all true of me*) to 7 (*very true of me*). The internal reliability for both subscales was satisfactory across samples (Dutch sample, promotion: $\alpha = 0.82$; prevention: $\alpha = 0.75$; Serbian sample, promotion: $\alpha = 0.82$; prevention: $\alpha = 0.78$; Croatian sample, promotion: $\alpha = 0.84$; prevention: $\alpha = 0.78$). 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, Klehe, Koen, & Dries, 2012).

2.3.3. Future time perspective on school and professional career (Time 2)

We used the Future Time Perspective (FTP) scale from the Time Perspective Questionnaire (TPQ; Peetsma, 1992; Stouthard & Peetsma, 1999) to measure adolescents' FTP on school and professional career. In contrast to other FTP scales that measure individuals' cognition, affect, and behavioral intention/behavior towards the future separately, this FTP scale embraces a combination of these components and displays the strongest relationships with educational and professional career outcomes across different FTP measures and cultures (Andre et al., 2018). Based on a confirmatory factor analysis performed for each country separately[1], we used six out of seven items (e.g., "I like to think about study or work that I will do later") as used in previous studies (e.g., Andre et al., 2017; Peetsma & van der Veen, 2015). This scale was developed by using a facet design in which the three components (cognition, affect, and behavioral intention/behavior) relevant for the life domain of school and professional career were systematically altered (Peetsma, 1992; Stouthard & Peetsma, 1999). The responses were given on a 5-point Likert scale ranging from 1 (*totally disagree*) to 5 (*totally agree*), with higher scores indicating higher levels of FTP on school and professional career. The psychometric, construct and predictive validity properties of this scale have been well established cross-culturally and longitudinally across studies (e.g., Andre et al., 2017; Peetsma, 1992; Peetsma et al., 2005; Schuitema, Peetsma, & van der Veen, 2014). Given that FTP is a composite measure, the internal reliability coefficients for the scale in this study were adequate and similar to previous studies (αs = 0.64, 0.67, and 0.68, for the Dutch, Serbian, and Croatian samples, respectively).

2.3.4. Investment in learning and homework (Time 3)

To assess adolescents' investment in learning and homework we used, similar as in previous studies (e.g., Peetsma et al., 2005; Schuitema et al., 2014), an abridged version of two out of four subscales of the Investment in School (i.e., investment in learning and homework) questionnaire, developed by Roede (1989). The subscales are operationalized by: (1) the onset of students' behavior; (2) the degree of intensity in learning or doing homework, and (3) perseverance in learning or doing homework. The total scores of onset, intensity and perseverance are calculated for the investment in learning and the investment in homework scales, respectively. Guided by previous research (Peetsma et al., 2005; Schuitema et al., 2014) we have included six items per scale that reflect the three aspects of behavior. This measure is a more comprehensive and easily admissible version of the original measure and has been successfully used in motivation research (Hornstra, Majoor, & Peetsma, 2017) and in research on adolescents' FTP (Peetsma et al., 2005). Also, prior research has tested and confirmed that the scale has sound construct and external validities and longitudinal invariance (e.g., Hornstra et al., 2017; Peetsma et al., 2005; Schuitema et al., 2014). Students rated their behavior on a 5-point Likert- scale ranging from 1 (*hardly ever/never*) to 5 (*almost always/always*). An item example for investment in learning and investment in homework respectively is: "I work hard at school", and "I carefully do my homework". The internal reliability coefficients for both scales were satisfactory and in line with those found in prior studies. For investment in learning alpha's were 0.76, 0.83, 0.84, for the Dutch, Serbian, and Croatian samples, respectively, and for investment in homework alpha's were 0.77, 0.85, 0.88, for the Dutch, Serbian, and Croatian samples, respectively.

2.3.5. Investment in learning assessed by teachers (Time 3)

In order to have an objective measure of adolescents' investment in learning, we asked teachers who teach native language to rate adolescents' investment in learning. Similarly to a recent study (Hornstra et al., 2017), we adapted and shortened the investment in learning scale for students (Roede, 1989) and matched the items to the teachers' students (e.g., "This student is focused during the lesson"). A confirmatory factor analysis[1] confirmed that the scale included three items. The ratings were given on a 5-point Likert-scale ranging from 1 (*hardly ever/never*) to 5 (*almost always/always*). The scale's internal reliabilities were very good across the samples (αs = 0.93, 0.84, and 0.90 for the Dutch, Serbian, and Croatian samples, respectively) and similar as in a recent study (Hornstra et al., 2017).

2.3.6. Academic achievement (Time 3)

We measured academic achievement with students' GPA in native language which is a common and valid measure of educational achievement outcomes and later educational and career success (Peetsma & van der Veen, 2011; Zimbardo & Boyd, 1999). Students' grades at the end of the school year were received from the schools. The grades ranged from 1 (*lowest*) to 10 (*highest*) in the Netherlands, and from 1 (*lowest*) to 5 (*highest*) in Serbia and Croatia. Because the grading system varied across countries, we converted the grades to *z* scores.

2.3.7. Career planning (Time 3)

To assess adolescents' career planning we used a modified version of the Career Planning (CP) scale from the Career Development Inventory (CDI-A; Creed & Patton, 2004). The scale assesses the range and degree of CP that adolescents have undertaken (e.g., "How

much have you thought and planned about choosing a career in general"). Due to curriculum characteristics of the included countries, we slightly adjusted five items in the original 10-item scale and excluded one item (i.e., "How much have you thought and planned about choosing school subjects"). This minor adjustment improved students' understanding of the items and made our cross-cultural comparison possible. Also, the confirmatory factor analyses[1], revealed a good factor structure of the nine items of the CP measure. The responses were given on a 5-point Likert scale ranging from 1 (*not much*) to 5 (*a great deal*). Previous research has revealed a good construct validity by testing the CP scale's convergent and predictive validity and showed satisfactory internal reliability coefficients (e.g., Creed & Patton, 2004; Patton, Creed, & Spooner-Lane, 2005). In our study, the CP scale showed similar and good internal consistencies (αs = 0.88, 0.88, and, 0.91 for the Dutch, Serbian, and Croatian samples, respectively).

2.3.8. Control variables: conscientiousness (Time 1)

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"). The internal consistencies reported in previous work were good (e.g., Gow, Whiteman, Pattie, & Deary, 2005). Based on a confirmatory factor analysis[1], we deleted one item that was not significant in the Dutch sample, and used 9 items. Each item was rated on a 5-point Likert scale ranging from 1 (*totally disagree*) to 5 (*totally agree*). The scale's internal reliabilities were satisfactory across the samples, (αs = 0.80, 0.77, and, 0.80, for the Dutch, Serbian, and Croatian samples, respectively).

In addition, we controlled for demographic variables gender and school level, that have been found to influence adolescents' FTP (Greene & DeBacker, 2004; Peetsma, 2000).

3. Results

All analyses were conducted with the Mplus software (Muthén & Muthén, 1998-2015). Descriptive statistics for each construct across the three countries are shown in Table 1.

Before testing our hypotheses, we first estimated whether our measures were invariant across countries.

3.1. Cross-cultural measurement invariance

Adolescents across the countries may understand the questionnaire in different ways thus leading to measurement bias and threatening substantive interpretations (Vandenberg & Lance, 2000). Measurement invariance, or testing the equivalence of measures across different groups is thus a necessary prerequisite for cross-cultural comparisons (Milfont & Fischer, 2010). Consequently, we conducted multigroup confirmatory factor analysis (MGCFA), which is the most recommended and robust approach in testing measurement invariance (Brown, 2006).

We performed separate measurement invariance tests for each of the constructs included in the study (i.e., perceived parent promotion and prevention RF, adolescent promotion and prevention RF, FTP on school and career, investment in learning and investment in homework, investment in learning assessed by the native language teacher, and career planning). In each MGCFA, we followed the approach recommended by Van de Schoot, Lugtig, and Hox (2012). As such, we compared an unconstrained model (configural model) to consecutive models with increasingly rigorous equality constraints. These included a model in which factor loadings of equivalent items were constrained to be equal across countries (i.e., metric invariance) and a model in which, additionally, intercepts were held equal across countries (i.e., scalar invariance). Metric invariance of constructs is required to compare correlations and related statistics across countries, whereas scalar invariance is required to also compare countries on their latent construct means. When full metric or scalar invariance has to be rejected, it is still possible to reasonably compare correlations and means across countries when partial measurement invariance holds. Partial measurement invariance is established when at least two items of a scale have equal factor loadings and intercepts (Van de Schoot et al., 2012).

To compare the unconstrained (configural) factor model, the model assuming metric invariance and the model assuming scalar invariance, respectively, we used recommended fit statistics and cutoff values (Hu & Bentler, 1999). In order to obtain a satisfactory model fit we allowed some covariances among error terms (within the factors) that were theory driven and explainable (MacCallum, 1986).

Then, the unconstrained model and the model assuming metric invariance were compared in terms of model fit by means of a chi-square difference test ($\Delta\chi^2$). A non-significant chi-square test signals that model fit does not decrease after constraining factor loadings to be equal (Kline, 2011). However, the chi-square test has been criticized in the literature as it can reject invariant models with large sample sizes (Chen, 2007). Consequently, we followed Chen's (2007) advice to also evaluate the difference in CFI (ΔCFI) between the unconstrained model and the model assuming metric invariance. To conclude equal model fit the difference in CFI between the two models should be less than or equal to −0.01 (Chen, 2007). Subsequently, for constructs that we hypothesized to show mean differences (i.e., adolescent RF and FTP) the models assuming metric invariance and scalar invariance were compared using the same procedure.

Based on the results, for each of our measures the underlying constructs showed full metric, partial metric, and/or partial scalar invariance. The initial factor loadings and overall estimates of the measurement invariance tests for each construct across countries are presented in Appendix A. Perceived parent promotion focus, investment in learning, and career planning obtained full metric invariance, whereas perceived parent prevention focus, adolescent promotion focus, adolescent prevention focus, FTP in school and career, investment in homework, and investment in learning assessed by teachers, exhibited partial metric invariance. The scales were not completely invariant, however, we largely exceeded the number of equal items for all the scales as proposed by Van de Schoot et al. (2012). These findings indicated that the constructs were structurally invariant across the Netherlands, Serbia, and Croatia, and allowed us to test equality of means and relationships between variables across countries.

Table 1
Descriptive statistics and intercorrelations of the constructs across the three countries.

Variable	M	SD	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender			–											
Dutch	–	–												
Serbian	–	–												
Croatian	–	–												
2. Conscientiousness				–										
Dutch	3.43	0.63	0.23**											
Serbian	3.57	0.67	0.05											
Croatian	3.46	0.66	0.06											
3. Perceived parent pro. RF					–									
Dutch	5.52	1.03	0.14*	0.12**										
Serbian	5.81	1.12	0.16**	0.21**										
Croatian	5.74	1.11	0.15**	0.22**										
4. Perceived parent prev. RF						–								
Dutch	3.40	1.40	−0.26**	−0.35**	−0.20**									
Serbian	4.36	1.40	−0.08	−0.14**	0.13**									
Croatian	4.12	1.38	−0.20**	−0.17**	0.10*									
5. Adolescent pro. RF							–							
Dutch	5.24	1.00	0.13*	0.28**	0.48**	−0.06								
Serbian	5.68	1.09	0.14**	0.36**	0.42**	0.07								
Croatian	5.48	1.07	0.13**	0.33**	0.48**	0.06								
6. Adolescent prev. RF								–						
Dutch	3.53	1.15	0.02	−0.05	−0.02	0.43**	0.26**							
Serbian	4.64	1.40	0.21**	−0.04	0.10*	0.37**	0.34**							
Croatian	4.50	1.29	0.15**	−0.05	0.23**	0.24**	0.37**							
7. FTP									–					
Dutch	3.88	0.59	0.09	0.22**	0.44**	−0.20**	0.42**	−0.12						
Serbian	3.93	0.69	0.20**	0.26**	0.38**	−0.01	0.44**	0.04						
Croatian	3.63	0.69	0.09	0.29**	0.28**	−0.07	0.45**	0.09						
8. Investment in learning assessed by teachers										–				
Dutch	3.66	0.96	0.40**	0.49**	0.18	−0.38**	0.13	−0.16	0.16					
Serbian	3.57	0.80	0.32**	0.12*	0.06	−0.10*	0.06	0.04	0.18**					
Croatian	4.22	0.81	0.32**	0.09	0.13	−0.21**	0.20**	0.26**	0.13					
9. Investment in learning											–			
Dutch	3.28	0.62	0.18**	0.35**	0.19**	−0.33**	0.14*	−0.26**	0.34**	0.47**				
Serbian	3.23	0.73	0.08	0.38**	0.17**	−0.17**	0.09	−0.19**	0.24**	0.36**				
Croatian	3.12	0.74	0.16**	0.38**	0.07	−0.09	0.09	−0.08	0.41**	0.26				
10. Investment in homework												–		
Dutch	3.25	0.67	0.23**	0.45**	0.22**	−0.25**	0.12	−0.17**	0.27**	0.37**	0.61**			
Serbian	3.35	0.87	0.30**	0.41**	0.23**	−0.18**	0.21**	0.02	0.30**	0.37**	0.62**			
Croatian	3.24	0.85	0.30**	0.48**	0.03	−0.19**	0.16**	0.06	0.36**	0.30**	0.62**			
11. GPA													–	
Dutch	6.33	0.93	0.32**	0.24**	0.08	−0.33**	−0.01	−0.10	0.05	0.61**	0.24**	0.22**		
Serbian	3.59	1.09	0.36**	0.12*	0.08	−0.21**	0.08	−0.01	0.19**	0.47**	0.24**	0.31**		
Croatian	3.42	0.98	0.23**	0.17**	0.01	−0.17**	0.12**	0.05	0.13*	0.43**	0.07	0.13*		
12. Career planning														–
Dutch	3.12	0.76	0.04	0.18**	0.27**	−0.12	0.24**	−0.10	0.41**	0.16	0.26**	0.21**	0.10	
Serbian	3.71	0.78	0.12	0.28**	0.30**	−0.04	0.34**	0.04	0.51**	0.03	0.16**	0.20**	0.10	
Croatian	3.48	0.81	0.12*	0.30**	0.20**	−0.10	0.26**	0.05	0.50**	0.17*	0.28**	0.31**	0.10	

Note. For Dutch sample, $N = 377$; Serbian sample, $N = 486$; Croatian sample $N = 657$. RF = regulatory focus; FTP = future time perspective.
* $p < .05$.
** $p < .01$.

3.2. Hypotheses testing: single sample path analyses

We tested the hypothesized paths of the cross-cultural model with structural equation modeling (SEM). First, we estimated the relationships between the control variables (i.e., conscientiousness, gender, and school type) and FTP. Whereas in the Netherlands these relationships were non-significant, in Serbia FTP related modestly to gender and in Croatia to conscientiousness only. As the model fits deteriorated after adding these covariates to the model in each country, we decided to remove them from the model[2].

The hypothesized model resulted in adequate fit for the Serbian sample only, X^2 (27, N = 486) = 71.07, $p < .001$ (CFA = 0.94, TLI = 0.90, RMSEA = 0.06, SRMR = 0.06). In order to improve our model fit for the Dutch and Croatian samples, we removed the

[2] Our results did not change substantially after controlling for conscientiousness. Accordingly, to increase power and interpretability of the results we show the results without this control variable.

Table 2
Goodness-of-fit statistics for single-sample model path analyses.

Sample	$X^2(df)$, p	CFI	TLI	RMSEA	SRMR
Dutch[a]	38.93(17), $p < .01$	0.96	0.93	0.06	0.07
Serbian	71.07(27), $p < .001$	0.94	0.90	0.06	0.06
Croatian[b]	89.31(24), $p < .001$	0.90	0.86	0.07	0.07

Note.
[a] For this model the path between FTP and investment in learning assessed by teachers, and FTP and GPA was fixed to zero.
[b] For this model the path between FTP and investment in learning assessed by teachers was fixed to zero.

Table 3
Standardized parameter estimates and univariate comparisons of the cross-cultural model across the three samples.

Parameter estimate			
Path	Dutch	Serbian	Croatian
PPRO → APRO	0.47***	0.41***	0.44***
PPRE → APRE	0.42***	0.36***	0.23***
APRO → FTP	0.37***	0.38***	0.45***
APRE → FTP	−0.24***	−0.11*	−0.09
PPRO → FTP	0.24***	0.25***	0.09
FTP → TINVL[a]	–	0.15**	–
FTP → INVL	0.36***	0.27***	0.38***
FTP → INVH	0.26***	0.33***	0.37***
FTP → GPA[b]	–	0.15**	0.15*
FTP → CARP	0.39***	0.49***	0.49***
R^2 TINVL[c]	–	0.02	–
R^2 INVL	0.13**	0.07*	0.14***
R^2 INVH	0.07*	0.11**	0.14***
R^2 GPA[d]	–	0.02	0.02
R^2 CARP	0.15**	0.24***	0.24***

Note. PPRO = parent promotion focus; APRO = adolescent promotion focus; PPRE = parent prevention focus; APRE = adolescent prevention focus; FTP = future time perspective; TINVL = investment in learning assessed by teacher; INVL = investment in learning; INVH = investment in homework; GPA = grade point average; CARP = career planning.
[a] Path estimated in Serbian sample only.
[b] Path estimated in Serbian and Croatian sample.
[c] Estimated in Serbian sample only.
[d] Estimated in Serbian and Croatian sample.
* $p < .05$.
** $p < .01$.
*** $p < .001$.

non-significant paths (Kline, 2011). In the Dutch sample the direct paths from FTP to investment in learning assessed by teachers, and FTP and GPA should be deleted. For the Croatian sample, it was suggested to delete the direct path from FTP to investment in learning assessed by teachers only. The relationships between FTP and outcomes assessed with objective measures such are GPA and investment in learning assessed by teachers, tend to be lower than outcomes assessed with self-report measures (Andre et al., 2018). Consequently, in the Dutch sample, we deleted the paths from FTP to teachers' assessment of investment in learning and GPA, whereas in the Croatian sample, we deleted only the path from FTP to teachers' assessment of investment in learning. This change resulted in a good fitting model for each country (Table 2).

Next, we further tested the paths as hypothesized by our cross-cultural model. The standardized path coefficients for the free parameters of the models for each country are shown in Table 3. As expected in Hypotheses 1 and 2, adolescent promotion focus positively related to FTP, whereas adolescent prevention focus negatively related to FTP. However, while the relationship between adolescent promotion focus and FTP was significant for the three samples, the relationship between adolescent prevention focus and FTP was marginally significant in the Croatian sample, yet, in the expected negative direction. Thus, our Hypotheses 1 and 2 were largely confirmed.

Furthermore, we hypothesized that perceived parent promotion focus would be positively, and both directly and indirectly related to FTP (Hypothesis 3), whereas perceived parent prevention focus would be negatively related to FTP, as mediated by adolescent prevention focus (Hypothesis 4). We found a significant positive relationship between perceived parent promotion focus and FTP for Dutch and Serbian adolescents, while for the Croatian adolescents this relationship was non-significant. In addition, we tested the proposed mediation with a recommended bootstrapping approach (Preacher & Hayes, 2008). As can be seen in Table 4, the estimated path from perceived parent promotion to FTP via adolescent promotion focus was significant for each country. Moreover, the parent prevention focus related to FTP as mediated by adolescent prevention focus in each sample. Based on these results, we found partial

Table 4
Standardized bootstrap indirect effects for the three samples.

Parameter estimate, *CI* (LL, UL)			
Indirect path	Dutch	Serbian	Croatian
PPRO → APRO → FTP	0.17 (0.09, 0.26)	0.15 (0.09, 0.21)	0.15 (0.09, 0.21)
PPRO → APRO → FTP → TINVL	–	0.02 (0.00, 0.05)	–
PPRO → APRO → FTP → INVL	0.06 (0.03, 0.10)	0.04 (0.02, 0.06)	0.04 (0.02, 0.06)
PPRO → APRO → FTP → INVH	0.05 (0.02, 0.10)	0.05 (0.03, 0.07)	0.05 (0.03, 0.07)
PPRO → APRO → FTP → GPA	–	0.02 (0.02, 0.04)	0.02 (0.01, 0.04)
PPRO → APRO → FTP → CARP	0.10 (0.03, 0.10)	0.08 (0.04, 0.11)	0.08 (0.04, 0.11)
PPRO → FTP → TINVL	–	0.04 (0.00, 0.10)	–
PPRO → FTP → INVL	0.10 (0.02, 0.15)	0.07 (0.02, 0.11)	0.07 (0.02, 0.11)
PPRO → FTP → INVH	0.06 (0.01, 0.12)	0.08 (0.03, 0.13)	0.80 (0.03, 0.13)
PPRO → FTP → GPA	–	0.04 (0.01, 0.07)	0.04 (0.01, 0.07)
PPRO → FTP → CARP	0.09 (0.03, 0.16)	0.12 (0.05, 0.18)	0.12 (0.05, 0.19)
APRO → FTP → TINVL	–	0.06 (0.01, 0.10)	–
APRO → FTP → INVL	0.13 (0.06, 0.20)	0.10 (0.05, 0.15)	0.10 (0.05, 0.15)
APRO → FTP → INVH	0.10 (0.04, 0.16)	0.12 (0.07, 0.17)	0.12 (0.07, 0.17)
APRO → FTP → GPA	–	0.06 (0.02, 0.10)	0.06 (0.02, 0.10)
APRO → FTP → CARPL	0.15 (0.07, 0.22)	0.19 (0.12, 0.25)	0.19 (0.12, 0.25)
PPRE → APRE → FTP	−0.10 (−0.16, −0.05)	−0.04 (−0.08, −0.00)	−0.04 (−0.08, −0.00)
PPRE → APRE → FTP → TINVL	–	−0.01 (0.01, 0.00)	–
PPRE → APRE → FTP → INVL	−0.04 (−0.06, −0.01)	−0.01 (−0.02, 0.00)	−0.01 (−0.02, 0.00)
PPRE → APRE → FTP → INVH	−0.03 (−0.05, −0.01)	−0.01 (−0.03, 0.00)	−0.01 (−0.03, 0.00)
PPRE → APRE → FTP → GPA	–	−0.01 (−0.01, 0.00)	−0.01 (−0.01, 0.00)
PPRE → APRE → FTP → CARP	−0.04 (−0.07, −0.01)	−0.02 (−0.04, 0.00)	−0.02 (−0.04, 0.00)
APRE → FTP → TINVL	–	−0.02 (−0.03, 0.00)	–
APRE → FTP → INVL	−0.09 (−0.15, −0.03)	−0.03 (−0.06, 0.00)	−0.03 (−0.06, 0.00)
APRE → FTP → INVH	−0.06 (−0.12, −0.02)	−0.04 (−0.07, −0.00)	−0.04 (−0.07, −0.00)
APRE → FTP → GPA	–	−0.02 (−0.04, 0.00)	−0.02 (−0.04, 0.00)
APRE → FTP → CARPL	−0.09 (−0.15, −0.04)	−0.05 (−0.11, −0.00)	−0.05 (−0.11, −0.00)

Note. PPRO = parent promotion focus; APRO = adolescent promotion focus; PPRE = parent prevention focus; APRE = adolescent prevention focus; FTP = future time perspective; TINVL = investment in learning assessed by teacher; INVL = investment in learning; INVH = investment in homework; GPA = grade point average; CARP = career planning.

support for Hypothesis 3 and full support for Hypothesis 4.

Finally, we expected that FTP would be positively related to educational outcomes and career planning (Hypothesis 5). Indeed, we found that FTP positively related to most of these outcomes in the three countries. That is, in Serbia, FTP positively related to all educational outcomes and career planning, while in the Netherlands, FTP related to all outcomes except for teachers' assessment of investment in learning and GPA, and in Croatia except for teachers' assessment of investment in learning only. Thus, we found partial support for Hypothesis 5.

3.3. Multi sample analysis

In order to test for differences in the patterns of relationships in the hypothesized model across the three countries, we performed a multi sample analysis by constraining the path estimates to be equal across countries. Based on the model fit of the hypothesized model that was tested in each country separately, we tested the invariance of the model including the significant relationships across the three countries only, resulting in a more parsimonious model (Becker, 2005). Consequently, this model included: perceived parent promotion and prevention focus, adolescent promotion and prevention focus, FTP on school and professional career, investment in learning and investment in homework, and career planning.

Our constrained model yielded no detriment of fit to the data compared to the unconstrained model, X^2 (69, N = 1520) = 198.08, $p < .001$ (CFA = 0.93, TLI = 0.91, RMSEA = 0.06, SRMR = 0.08). Although the chi-square difference test was significant ($\Delta\chi^2(18) = 32.91$, $p = .02$), the difference in CFI (ΔCFA = 0.01), which is more accurate in large samples, confirmed that we obtained a cross-culturally valid model. This result implies that the relationships in our final model – including the self-reported educational outcomes (i.e., investment in learning and homework) and career planning – were equivalent across the three countries, whereas the relationships in the hypothesized model between the FTP and objective measures (investment in learning assessed by teacher and GPA) were different across the countries. The standardized parameter estimates of the final cross-culturally invariant model are presented in Fig. 1.

3.4. Cross-cultural differences in FTP and RF

To test possible cross-cultural differences in adolescents' FTP and their RF, we conducted latent means structure tests with SEM that is considered as a more powerful approach than the traditional MANOVA test (Hancock, Lawrence, & Nevitt, 2000). Mean

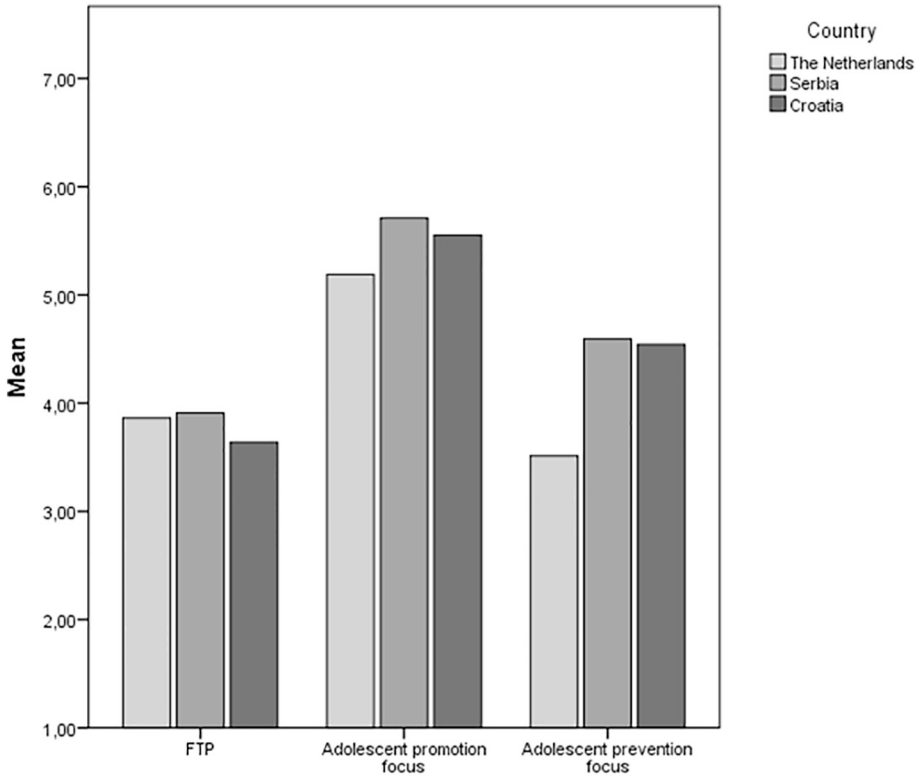

Fig. 2. Cross-cultural differences on FTP and adolescent RF.

differences of adolescents' FTP and RF are illustrated in Fig. 2.

3.4.1. FTP on school and professional career

As expected, the mean levels of FTP were different across countries. However, contrary to Hypothesis 6, the mean level was 0.34 higher in Serbia than in the Netherlands ($p < .01$). Moreover, although the mean level was 0.03 higher in the Netherlands than in Croatia, this difference was not significant ($p = .781$). Additionally, our results revealed an interesting difference between the two collectivistic countries. That is, the mean level of FTP in Serbia was 0.30 higher than the mean level in Croatia ($p < .001$). All in all, the Serbian sample rated higher on FTP than the Croatian and Dutch samples.

3.4.2. Adolescent promotion focus

Results showed significant cross-cultural differences in adolescent promotion focus. Specifically, the mean level of the adolescent promotion focus was significantly lower in the Dutch sample than in the Serbian and Croatian samples. That is, the mean level in the Netherlands was 0.38 lower than in Croatia ($p < .001$) and 0.69 lower than in Serbia ($p < .001$). Additionally, the mean level of the adolescent promotion focus was 0.28 lower in the Croatian sample as compared to the Serbian sample ($p < .001$). All in all, the Dutch sample rated lowest and the Serbian sample rated highest on promotion focus.

3.4.3. Adolescent prevention focus

Our results also revealed significant cross-cultural differences in adolescent prevention focus. That is, the mean level in the Dutch sample was 1.55 lower than in the Serbian sample ($p < .001$). Furthermore, the mean level in the Dutch sample was 1.32 lower than in the Croatian sample ($p < .001$). Finally, there was no mean difference in adolescent prevention focus between the Serbian and Croatian samples ($p = .11$). All in all, the Dutch sample rated lowest on prevention focus as compared to the Serbian and Croatian samples.[3]

[3] We also analyzed our cross-cultural model by pooling the Serbian and Croatian samples (i.e., collectivistic countries) together. This model yielded a significant model fit improvement: X^2 (43, $N = 1143$) = 159.73, $p < .001$ (CFA = 0.93, TLI = 0.92, RMSEA = 0.06, SRMR = 0.07) and revealed similar results. The fact that the model fit improved after analyzing these collectivistic countries together suggests that the relationships between RF, FTP and the educational and career planning outcomes are the same when considering these two countries together or separately, what makes our theoretical reasoning stronger. However, the latent means structure test revealed that the levels of FTP and promotion focus for the Serbian and Croatian adolescents differ, which may signal specific cultural differences between Serbia and Croatia (e.g., socio-economic development). Based on the different FTP and RF ratings of Serbian and Croatian adolescents and other differences between the two countries (e.g., the

4. Discussion

The present study aimed to cross-culturally test a model of adolescent motivation for learning and career planning that generalizes to countries that differ on cultural values, socio-economic systems, and history. The key premise of this model is that the RF of parents will affect the RF of their children, which will via children's FTP on school and professional career influence educational outcomes and career planning. The present study contributes to extant literature by illustrating that this motivational model holds across countries with vastly different cultural, socio-economic, and historical backgrounds. Moreover, it reveals much needed and novel insights in cross-cultural differences in adolescents' RF strategies and FTP. Each of these findings will be discussed below, along with the study implications and limitations and recommendations for future research.

4.1. FTP and RF relationships

The findings of this study provided support for the relationship between adolescents' RF and their FTP on school and professional career. Across the three countries, adolescents' promotion focus was positively related and their prevention focus was negatively related to FTP. These findings correspond with theoretical notions and empirical results in previous studies (Andre et al., 2017; Pennington & Roese, 2003; Zacher & Lange, 2011) regarding the complementarity of cognitive motivational theories like FTP and RF. According to Andre et al. (2017), both theories refer to an individual's motivational orientations, concern goal directed behavior, and ascribe valence to future goals. In RF theory valence concerns the positive or negative orientation of goals (Lockwood et al., 2002), whereas in FTP theory valence concerns the dynamic component of present actions for the future goals (De Volder & Lens, 1982). For example, a student may want to find a good and interesting job, and works hard at school in order to find a job, or he may want to avoid becoming an academic failure and running the risk of getting a low paid and tedious job. At the same time, the greater the student's investment in learning at school the greater his/her chances of finding a good and interesting job. This cross-cultural study provides evidence that adolescents' RF is linked to their future contemplation on school and professional career and that the motivational mechanism of promotion and prevention focus affecting FTP is invariant for adolescents in individualistic and collectivistic countries.

Furthermore, this study advances RF and FTP theory and research by addressing the role of parents. We found that adolescents' perceptions of their parents' RF were significantly related to FTP via their own RF, and this relationship was consistent among the Dutch, Serbian, and Croatian samples. These findings are in line with RF theory (Higgins, 1997; Lockwood et al., 2002) that states that individuals' RF is formed through parent-child interactions during childhood. Also, it corroborates with research (Andre et al., 2017; Lockwood et al., 2002) demonstrating that adolescents are motivated by parents and role models who encourage strategies that fit their regulatory foci. Moreover, the significant indirect link we found between perceived parent RF and adolescent FTP is congruent with research showing that the relationship between perceived parenting and parent beliefs and FTP are mediated by adolescents' self-representation (Seginer et al., 2004; Seginer & Shoyer, 2012).

A direct relationship between perceived parent promotion focus and adolescents' FTP was significant for the Dutch and Serbian adolescents, but not for the Croatian adolescents. The extent to which parents' cognitions transmit to the cognitions of their teenage children may depend on how cultures may view the role of parents. Some cultures may stress the responsibilities and involvement of parents regarding the possible school and career trajectories of their teenage children, whereas other cultures may view adolescents as relatively independent from their parents and responsible for their own decisions (Mayer & Trommsdorff, 2012). Notably, adolescents in Croatia do not need to ask for their parents' consent but can decide for themselves whether to participate in a research project (Ajdukovic & Kolesaric, 2003). Nevertheless, the direct significant and positive relationship between parent promotion focus and Dutch and Serbian adolescents' FTP underscores the importance of parent figures for adolescents' development that is supported by decades of research (Laursen & Collins, 2009).

Overall, our findings highlight the importance of considering broader contextual factors in shaping adolescents' FTP such as family, school, and peers which are major aspects of adolescents' microsystem (Bronfenbrenner, 1979). Indeed, a recent study on FTP has shown that both parents and peers influence the development of adolescents' FTP (Schuitema, Peetsma, & van der Veen, 2016).

4.2. Relationships between FTP, educational outcomes, and career planning

Our final cross-cultural model supported the hypothesis that FTP relates positively to investment in learning and homework, and career planning. These relationships were evident in each separate country and in the multi-group comparison. These findings are congruent with the majority of research in vocational psychology on FTP as an important motivator for adolescents' educational outcomes and career planning (Paixão et al., 2012; Walker & Tracey, 2012). The current study extends prior research by demonstrating that the relationship between FTP and educational and career outcomes is consistent across culturally different settings. This finding challenges the proposition that the FTP construct might not serve as a strong driver for career-related behaviors in countries that have hostile socio-economic circumstances (Morselli, 2013). Instead, our results imply that FTP is a robust motivator even in countries with more future uncertainty such as in Serbia and Croatia. Specifically, the effect of FTP on educational outcomes and career planning warrant the attention of school psychologists and career advisors to develop interventions that would stimulate

(*footnote continued*)
HDI, corruption perception index), we analyzed the data of these two countries separately.

adolescents' future educational and career goals.

Our hypothesized model was fully confirmed in the Serbian sample only. That is, the investment in learning assessed by teachers and adolescents' GPA could not be included in the cross-cultural hypothesized model as they were not invariant across the samples. Apparently, these assessments did not have the same meaning across the three countries. Teachers in these countries may use different educational standards when grading their students. For example, whereas in the Netherlands teachers grade their students on a scale from 1 to 10, and may focus on both the process and outcomes of learning, in Serbia and Croatia teachers are grading students on a scale from 1 to 5, and may tend to focus more on the outcomes of learning.

4.3. Cross-cultural differences

Because of the equivalence of our measures across the three samples, we could with more power and accuracy interpret the levels of adolescents' FTP and RF, and test their latent mean differences. We found significant differences in both FTP and RF strategies among the three countries. Below, we address these cross-cultural differences in adolescents' FTP and RF, respectively.

4.3.1. FTP on school and professional career

As expected, adolescents from an individualistic country (the Netherlands) scored differently regarding their FTP than adolescents from collectivistic countries (Serbia and Croatia). However, contrary to our expectation adolescents in the Netherlands didn't score significantly higher on FTP than adolescents in Serbia and Croatia. Instead, we found that FTP was higher for Serbian adolescents than for their fellows in Croatia and the Netherlands. This is an intriguing finding as it challenges previous FTP research showing that individuals from individualistic vs. collectivistic countries put more effort in their future thinking and planning (House and Global Leadership and Organizational Behavior Effectiveness Research Program, 2004; Shirai & Beresneviciene, 2005).

Historical events are particularly relevant in adolescence as “in youth, the life history intersects with history” (Erikson, 1968, p. 257). Due to the tough period of political tensions in the former Yugoslavia, these countries still experience and suffer from many adversities evident in socio-economic and political circumstances. Lewin (1948) has addressed the special protective relevance of FTP against adversity and threat, and has highlighted the importance of FTP for motivation and self-definition, and for coping with hardships in times of political turbulence. Consequently, adolescents in Serbia might have developed a stronger FTP than adolescents in the Netherlands as to cope with the difficult situation in their country.

Furthermore, our results revealed that besides the difference in FTP scores in the Netherlands vs. Serbia, there was a difference in FTP scores between the adolescents in Serbia vs. Croatia, with Serbian adolescents scoring higher on FTP than Croatian adolescents. Serbian as opposed to Croatian adolescents may have relatively less educational and career opportunities, because Serbia has still not become a member of the EU and is going through various political and economic reforms. Likewise, as evident in the HDI (2015) scores and CPI index (2015), Serbia scores lower on life expectancy at birth, education and income, and higher on corruption level, in comparison to Croatia. Consequently, while Croatian adolescents may feel more secured for their future in education and work, Serbian adolescents may try to look for more future opportunities and secure a good future in education and career by putting more effort in their future contemplation.

4.3.2. RF strategies

We speculated, rather than hypothesized that adolescents in Serbia and Croatia, besides seeking for stability and security in their goal striving (i.e., prevention focus), may also engage in more challenging and risky behaviors (i.e., promotion focus), as evident by the last decade of severe “brain drain” (Deutsche Welle, 2016), thus may score higher on both RF strategies than Dutch adolescents. Indeed, we found that Serbian and Croatian adolescents had a stronger motivational orientation than Dutch adolescents as they scored higher on both promotion and prevention foci than adolescents in the Netherlands. This finding can be explained by the fact that security-oriented individuals can also display novel behaviors, despite their preference for stability (Baas, De Dreu, & Nijstad, 2011). Also, it may imply that young people who are raised in suboptimal political and economic conditions are strongly motivated to strive for a better future. However, while adolescents in Serbia and Croatia did not differ in their level of prevention focus, Serbian adolescents were more strongly promotion focused than Croatian adolescents.

Researchers have raised the question of whether and how individuals who face high challenges in their life use available resources (Rutter, 1990; Seginer, 2008). The findings of the current study may suggest that adolescents whose countries went through turbulent times and difficult socio-economic circumstances develop a strong motivation and a focus on the future as a coping strategy to pursue educational and career goals. However, further research is needed to assess this hypothesis.

4.4. Limitations and future directions

Although the current longitudinal study is the first to integrate the two motivational theories of FTP and RF relevant to adolescents' education and career, several limitations should be noted and addressed in future studies.

First, for the purpose of our study we used FTP and RF measures and conceptualizations that were suitable for our sample of participants and related to the domains of education and career. However, a variety of FTP and RF measures exist in the literature (Andre et al., 2018; Summerville & Roese, 2008). We measured the RF of adolescents and parents with the Lockwood et al. (2002) scale. Future research could examine alternative RF measures, such as Higgins's (1997) RF scale in an effort to replicate and extend our findings. In addition, we measured FTP with a comprehensive scale that combines cognitions, affect, and behavioral intentions regarding the future, and that mainly includes adolescents' positive attitudes towards the future. However, adolescents may also have

negative feelings about their future (Mello & Worrell, 2006; Zaleski, 1994). For this reason, some FTP researchers made a clear distinction between positive and negative FTP (e.g., "I am excited about my future" and "Thinking about my future makes me sad") and used two separate subscales (e.g., Mello & Worrell, 2006). Therefore, future research could investigate how RF would relate to positive and negative FTP, and via FTP to educational and career outcomes of adolescents.

Second, although our prospective three-wave longitudinal design and different samples represent a major strength of our study, these design features do not imply causality. Therefore, future studies could experimentally manipulate parent and/or adolescent' RF and test their influence on FTP, and educational and career outcomes.

Third, while the goal of our study was to integrate the motivational theories of RF and FTP and explore the hypothesized association between FTP and educational outcomes and career planning among Dutch, Serbian and Croatian adolescents, our analyses revealed additional findings. We did not hypothesize direct relations between RF and educational outcomes and career planning, but we found positive small to medium correlations between perceived parent and adolescent promotion focus and career planning across the three countries. Also, for some countries we found a positive correlation between perceived parent and adolescent promotion focus and educational outcomes and a negative correlation between perceived parent and adolescent prevention focus and investment in learning and homework. These results suggest that RF and adolescents' educational and career outcomes are directly related. Currently, there is an obvious lack of theory and empirical research to explain why these relationships would exist. Hence, we support the recent call for more research on the relationships between RF and motivational (educational and career) behaviors (Rosenzweig & Miele, 2016) and hope that our preliminary findings may instigate this research.

Fourth, our study was the first to include and compare FTP and RF of adolescents in the Netherlands, Serbia, and Croatia and to find interesting differences in their scores. However, score differences found in widely diverging cultures are relatively easy to identify and tend to be open to multiple explanations due to differences (e.g., educational systems and curriculum characteristics, socio-economic development) among the countries (the interpretation paradox; Van de Vijver & Leung, 2000). These interpretations regarding the cultural differences also increase with cultural distance, which may be the case in this study. Thus, the absence of directly measuring other contextual factors that could have shed more light on the country differences may have hampered the generalizability of this study. Consequently, future researchers could include and directly measure school curriculum characteristics, HDI, and Hofstede's cultural values which have been found to be different across these countries (HDI, 2015; Mullis, Martin, Goh, & Cotter, 2016). Likewise, it would be beneficial to assess the effect of each of these factors on adolescents' motivation. This would reveal the direct influence of these educational, cultural, and socio-economic factors relevant for the involved countries, thereby extending our conclusions and allowing for more robust and elaborate interpretations of the findings.

Fifth, although our teacher rating measure provides a valuable second source of information about students' investment in learning reducing measurement bias (i.e., methodological bias caused by the use of only self-reports), the teacher ratings might be affected by data dependency (e.g., teachers nested within classes). However, as teachers could not be linked to students, we could not control for a possible teacher effect. Consequently, we should be cautious when interpreting our results and we suggest that future researchers better control for the data dependency when using teacher measures.

Finally, the antecedents and outcomes of FTP and the FTP measure we examined in this study all concerned the domain of education and career. However, given that cultural differences in FTP and its relationship with outcomes can be domain specific (Seginer, 2008) it would be interesting to test our model in other life domains as well, such as family and marriage, leisure, and social relationships. This would broaden our understanding of the general processes underlying the development of a FTP and its motivational nature across cultures and life domains.

5. Conclusions

This study indicates that the processes underlying adolescents' motivation to reach their educational and career goals are largely the same across countries with vastly different cultural, socio-economic systems, and history. In addition, this study suggests that adolescents from countries with greater political and economic uncertainties may develop a strong motivation for approaching possible gains, avoiding possible losses, and reflecting on their future, supporting the pursuit of educational and career goals.

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