Journal of Adolescence 36 (2013) 993–1002

Contents lists available at ScienceDirect

Journal of Adolescence

journal homepage: www.elsevier.com/locate/jado

"On solid ground": Family and school connectedness promotes adolescents' future orientation

Carla Crespo [a,*], Paul E. Jose [b], Magdalena Kielpikowski [b], Jan Pryor [b]

[a] University of Coimbra, Portugal
[b] Roy McKenzie Centre for the Study of Families, Victoria University of Wellington, New Zealand

Keywords:
Family connectedness
School connectedness
Future orientation
Adolescence
Longitudinal

A B S T R A C T

The present study investigated the role of connectedness to the family and school contexts on future orientation of New Zealand adolescents. Participants were 1774 young people (51.9% female) aged between 9 and 16 years at time 1 of the study, who reported their connectedness to family and school and their perceptions of future orientation at three times of measurement one year apart. Structural equation modelling was used to test the combined role of family and school connectedness on future orientation over time. Findings supported a multiple mediation model in that adolescents' connectedness to family and school predicted more positive perceptions of future orientation both directly and indirectly via the effect of the context variables on each other.

A key developmental task of adolescence is the preparation for adult life (Erikson, 1968). During this period, young people actively reflect on their future trajectories, life goals, and vocational projects. These projects involve educational and career dreams, as well as planning and investing in the necessary steps to achieve them (Nurmi, 1991, 1993). Research has linked *future orientation* to a range of positive psychosocial outcomes, both concurrently and across time, and has shown that future orientation is a key factor in young people's development. Theorists hold a consensual view that adolescents' future orientation is influenced by a variety of personal and contextual factors, including socio-economic and ethnic background, gender, family, and school (Nurmi, 1991, 1993; Seginer, 2009). Thus far, little empirical research has been conducted to identify the factors that predict future orientation and to examine the simultaneous influence of more than one factor on shaping adolescents' thinking about and planning of their future trajectories. The present study aims to address this research gap by examining the influences of two key life contexts on adolescents' future orientation. Specifically, this research examines how perceived connectedness to family and school predicts future orientation over time in a large sample of New Zealand adolescents.

Future orientation in adolescence

Future orientation may be broadly defined as an individual's subjective view of his or her future (Seginer, 2009). From a developmental perspective, expectations about the future begin to be constructed at an early age, although the process acquires a special relevance during adolescence, a developmental period which requires grappling with changing demands

* Corresponding author. Faculdade de Psicologia e Ciências da Educação, Universidade de Coimbra, Rua do Colégio Novo, Apartado 6153, 3001-802 Coimbra, Portugal.
E-mail addresses: carlacrespo@fpce.uc.pt, carlacrespo@hotmail.com (C. Crespo).

0140-1971/$ – see front matter © 2013 The Foundation for Professionals in Services for Adolescents. Published by Elsevier Ltd. All rights reserved.
http://dx.doi.org/10.1016/j.adolescence.2013.08.004

on one's present and future plans in the transition to adulthood. As adolescents envisage future experiences and events and explore possible life and career options, the future appears to them to be psychologically closer and more real (Nurmi, 2004), thus precipitating the processes of planning and decision making. Kurt Lewin was one of the first authors to call attention to the motivational power of what he referred to as the "psychological future". Lewin maintained that, regardless of the accuracy of the perceptions of the future at a given time, these perceptions influence present behaviour (Lewin, 1942/1948; Seginer, 2009). This influence is particularly important in adolescence, when young people are expected to develop their capacity for self-direction and take action to explore their vocational interests and prepare for their transition to adult roles (Lewin, 1942/1948).

An emerging body of empirical research has examined how future orientation is related to adaptation during adolescence. Despite the heterogeneity in the conceptualization of future orientation and the measures used to assess this variable, there is evidence that a hopeful and purposeful sense of the future is associated with positive development in youth (e.g., Nurmi, 1989, 1991; Seginer, 2009). Researchers have found associations between future orientation and identity in emerging adulthood (Seginer, 2009) and adolescence (Rappaport, Enrich, & Wilson, 1985), and specifically with identity exploration and commitment (Kerpelman & Mosher, 2004). Most of the research on outcomes of future orientation has focused on school-related outcomes and on academic achievement in particular. Nurmi, Salmela-Aro, and Koivisto (2002) have reported that the higher importance young adults attributed to work-related goals and the more they progressed in the achievement of those goals, the less likely they were to be unemployed or employed below their educational level after graduation. Findings from Adelabu (2008) indicated that adolescents who were more oriented toward the future and determined to reach their goals performed better academically than their counterparts who scored lower on these dimensions. Seginer (2009) reported links between future orientation in the domains of higher education, work and career, and academic achievement for adolescents from different cultural backgrounds. A longitudinal study by Beal and Crockett (2010) found that future-oriented cognitions predicted adult educational attainment eight years later, suggesting the importance of future thinking for adolescents' development. Oyserman, Terry, and Bybee (2002) developed a nine-week after-school programme with 62 African American middle school students aimed at enhancing their ability to imagine themselves as successful adults and relating it to present involvement in school. Students who participated in this programme showed higher levels of school bonding, more concern about academic achievement, better school attendance, and for boys only, fewer problems at school than the students from the control group.

Finally, another line of research has found negative links between future orientation and substance consumption and violent behaviour. Robbins and Bryan (2004) reported that adjudicated young people with more positive future orientation were aware of greater risks associated with substance abuse and were less likely to consume marijuana and alcohol. A study following African American adolescents for 10 years, from high-school years to young adulthood (Stoddard, Zimmerman, & Bauermeister, 2011) found that higher levels of future orientation were linked to a decrease in violent behaviour over time.

Taken together, these studies show that not only is future orientation associated with adolescent identity but it also predicts a variety of positive adaptive outcomes cross-sectionally and over time, namely an increase in school, career, and academic achievement and a decrease in violent behaviour and substance use. As research progresses in establishing the relevance of future orientation for a range of positive outcomes for adolescents, it becomes increasingly important to identify and understand the factors promoting future orientation.

Contextual factors that promote future orientation

Theorists in the field agree that future orientation is shaped by forces in adolescents' social world and must be understood within a relational framework, both contextually and interpersonally (Nurmi, 1991; Nuttin, 1984). At the contextual level, it is in primary socialization contexts such as family and school, where views of self, others, the world, and the future are conveyed and acquired. At the interpersonal level, adolescents often discuss their future plans with significant people in their lives such as parents, siblings, peers and teachers. Accordingly, Malmberg (2001) found that adolescents ranked their family as the most frequent source of information about future planning, followed by peers, mass media, and school. In their pioneering study of the influence of parent–adolescent relationships on future orientation, Trommsdorff and colleagues found that adolescents who perceived their parents as supportive and encouraging were more optimistic about their future and had more differentiated future orientations (Trommsdorff, 1983; Trommsdorff, Burger, & Füchsle, 1982). Nurmi and Pulliainen (1991) found that 11 year-olds who reported higher parental control within their family were less optimistic about the future, whereas 15 year-olds who reported higher levels of family discussions were more optimistic and had realized their hopes to a greater extent. Additionally, a study by Pulkkinen (1990) found that optimism toward the future at age 20 was related to positive memories of parental child-rearing practices. Empirical evidence has also been found for the influence of the family on young people's career development with studies showing the quality of family relationships to be associated with career exploration (Kracke, 1997) and planning activities (e.g., Hargrove, Inman, & Crane, 2005). With regard to school influence, literature is still sparse. However, research by Israelashvili (1997) found a link between a higher sense of school membership and adolescents' future expectations. Similarly, earlier work by Goodenow and Grady (1993) reported positive associations between a sense of school belonging and outcomes close to future orientation such as student expectancies, school motivation and effort/persistence with difficult academic work.

Despite the consensus regarding the theoretical assumptions about contextual influences on future orientation development, empirical examinations of how these influences occur are scarce. Moreover, the existing research is mainly cross-sectional and focused on the family context, while the influence of the school context is yet to be understood. No research

has examined the parallel influences of family and school connectedness on future orientation over time. The present study sought to address this gap in the literature.

Rationale and aims for the present study

Humans' need to belong, feel connected to, and form interpersonal relationships with others has been long established in psychological literature (e.g. Baumeister & Leary, 1995; Bowlby, 1979). Attachment theory, in particular, has proposed that it is the secure base component of key relationships that enables individuals to engage in the exploration of the outside world. Research on adolescence has increasingly addressed how young people's connectedness to important life contexts, such as family, school, peers, and community can explain positive outcomes and key aspects of development (e.g. Barber & Schluterman, 2008; Loukas, Roalson, & Herrera, 2010; Witherspoon, Schotland, Way, & Hughes, 2009). A major conclusion of this research is that adolescents who report higher connectedness, i.e., feel they belong to these contexts, report better adjustment, health, and wellbeing (Jose, Ryan, & Pryor, 2012), and that these areas of connectedness appear to have a protective function for adolescent development (Barber & Schluterman, 2008). The overall underlying rationale for this body of research is that adolescents deal with two main areas of change: in the outside world (e.g., taking on new roles, exploring, and making decisions about career and life projects) and in themselves (e.g., physical and psychological changes). In an era of rapid and dramatic changes in the macro contexts of individuals' lives (e.g., economic, societal, and technological), dealing with change and uncertainty at several levels can make the task of thinking about and planning for the future more challenging. Feeling connected to primary life contexts helps adolescents deal with change by providing stability, anchorage, and a sense of belonging (Jose & Crespo, 2012). Thus, future orientation may be best developed when adolescents feel well connected to family and school contexts that can provide a secure base from which to explore future options and navigate the social world (Bowlby, 1979). In addition, according to Bronfenbrenner's socio-ecological model (1979), it is not only the key life contexts, but also the links between these contexts, that are important for explaining individual outcomes. Thus, besides their unique influence, it is plausible to expect that the processes by which family and school connectedness promote future orientation are interdependent. Furrer and Skinner (2003), for instance, found that relatedness to parents was linked to children' school engagement. According to these authors, relatedness could be considered a psychological resource that is activated in new situations and contexts. Positive and secure relationship representations in a given context (e.g. family or school) are likely to influence the way adolescents perceive and establish relationships in other contexts.

In the current study we examined how family and school connectedness predicted future orientation over time in a large sample of New Zealand adolescents. First, we sought to examine the change in future orientation of adolescent girls and boys over three assessment times separated by a year. Although literature suggests that adolescents become more future oriented as they grow older (Steinberg et al., 2009), the few supporting studies have used cross-sectional data. As far as we are aware, studies on future orientation have not previously reported how this variable changes across time during adolescence. With regard to gender, the differences reported in literature are mainly domain-specific (e.g. Nurmi, 1991; Seginer, 2009). In research examining gender differences on the same measure, one study found no difference in future expectations (Israelashvili, 1997), although another study reported that girls had higher future orientation than boys, the difference being small but significant (Steinberg et al., 2009). Our second aim was to identify the associations over time between the two domains of connectedness (family and school) and future orientation. Thirdly, we aimed to assess if the links between adolescents' connectedness to these two primary contexts influenced each other to predict future orientation over time, a pressing topic for adolescence research in general (cf. Jose & Crespo, 2012; Witherspoon et al., 2009). Specifically in this regard, we posed the following two research questions for testing with a multiple mediation model: 1) Does family connectedness positively influence future orientation via its influence on school connectedness? 2) Does school connectedness positively influence future orientation via its influence on family connectedness? Finally, taking an exploratory approach, we sought to examine if the aforementioned links between family and school connectedness and future orientation differed according to age group and gender.

Method

Participants

Participants were 1774 adolescents (51.9% female) surveyed in the Youth Connectedness Project, a longitudinal study of young people in New Zealand. Participants were aged between 9 and 16 years old at time 1 ($M = 12.12$, $SD = 1.73$). With regard to ethnic background, 57.8% of young people identified themselves as New Zealand European, 26.9% percent as solely or partly Māori, and 15.3% reported other ethnic backgrounds (such as Pacific Island or Asian New Zealand). At time 1, 7.7% of participants were attending a new school; this percentage rose to 47.6% at time 2, indicating transitions from primary to intermediate and from intermediate to secondary schools, and decreased to 5.2% at time 3.

Procedure

Participants were recruited through 78 cooperating schools in New Zealand's North Island using a stratified random sampling approach. At time 1, cooperating schools' decile ranking (average SES rank of contributing families) ranged from 1 to

10, the average being 5.6, very close to the national average. Individuals came from urban schools (61%), 36.1% from suburban schools and 5.1% from rural areas, similar to national averages. Before the survey administration took place, parental consent and adolescent assent were obtained. Participants completed the survey in their schools using laptop computers in the presence of a teacher and research assistants. Of 2174 individuals who were initially recruited and agreed to participate, 1774 (81.6%) completed the survey for the project's three times of measurement and were included in this study. Participants filled out the same questionnaires each time, with the following measures being used across the three time points.

Measures

Family connectedness

We measured family connectedness with 11 items assessing perceptions of whole family relationships related to cohesion, identity and mutual activities. Family cohesion comprised five items: "My family asks each other for help"; "We like to do things as a family"; "For my family, spending time together is very important"; "We can easily think of things to do together as a family" and "My family likes to spend free time together". Family mutual activities comprised four items: "Do you and your family have meals together?"; "Do you and your family spend time going out together?"; "Do you and your family have holidays together?"; and "Do family members watch you play sport or perform in other areas?". Family identity comprised two items: "We are proud to be members of our family" and "It means a lot to be a member of my family". Participants' answers were given on a 5-point Likert scale ranging from "Never/almost never" to "Always/almost always". Cronbach's alphas for family connectedness at the three times of measurement ranged from .90 to .92.

School connectedness

We assessed school connectedness with 8 items selected and adapted from the School Connectedness Scale (Blum, McNeely, & Rinehart, 2002) and Sense of School Membership Scale (Goodenow, 1993). In order to ensure the appropriateness of the scale for the New Zealand context, decisions about selection and adaptation of items were based on consultations with experts and on findings from young people's focus groups. The final school connectedness scale included items tapping the quality of relationships with teachers ("I feel that my teacher(s) respects me", "My teacher(s) understand me" and "I always get an opportunity to talk with my teacher(s)"); the quality of relationships with school peers ("How well do you get on with your classmates?", "How well do you get on with other students in your school?" and "I feel I am treated with as much respect as other students"); and the sense of school community ("I like going to school" and "I feel proud about my school"). Items were answered on a 5-point Likert scale ranging from 1 "Strongly disagree" to 5 "Strongly agree" and from 1 "Not at all well" to 5 "Really well". Cronbach's alphas for the total school connectedness score ranged from .86 to .90 across the three measurement points.

Future orientation

Future orientation was measured with a scale generated for this study and based on a global conceptualization of the construct focusing on self-directed action motivated by one's 'psychological future' (Lewin, 1942/1948). The scale comprised four items: "I often think about my future (what I want to do with my life)", "I work hard now to create a good future for myself", "I'm the sort of person who sets goals and works hard to achieve them" and "I am serious about working hard now so that I have a good future". Answers were given on a 5-point Likert scale from 1 "Strongly disagree" to 5 "Strongly agree". Cronbach's alphas for the scale ranged from .74 to .81 across the measurement points.

Data analysis

Initial statistical analyses were performed with the Statistical Package for the Social Sciences 17.0 (SPSS). In order to deal with missing data present in 10% of the final 1774 participants, the Expectation-Maximization (EM) algorithm was used to perform imputation (Little, Card, Preacher, & McConnell, 2009). Structural equation modeling (SEM) was performed with the Analysis of Moments Structures program (AMOS, v. 18: Arbuckle, 2006). Analysis of raw data with the maximum likelihood estimation method was used. Models' goodness of fit was assessed using the reference values for two fit indexes: comparative fit index (CFI) $\geq .95$ and root mean square error of approximation (RMSEA) $\leq .06$ (Hu & Bentler, 1999). The statistical significance of the indirect effects was estimated using bootstrap resampling procedures with 1000 samples (95% bias-corrected bootstrap confidence interval [BC 95% CI]. Analyses for the moderating role of gender and age were also conducted. For this purpose, the sample was divided in two age groups, a group between 10 and 12 years old ($M = 10.90$, $SD = .91$) and a group between 13 and 16 years old ($M = 13.99$, $SD = .72$). We conducted two separate multi-group analyses for age and gender, with structural weights constrained to be equal, and assessed the difference in model fit using the chi-square difference method (Byrne, 2001). In order to examine which paths significantly differed between the groups, we systematically compared the unconstrained multi-group model with each of the models where equality constraints had been imposed for each path (Byrne, 2001).

Results

Firstly, in order to determine whether differential attrition occurred over time in this study, a MANOVA analysis was performed comparing individuals who provided data at all three time points (1774) with individuals who failed to contribute

data at either T2 or T3 ($n = 400$). A significant difference was obtained for future orientation scores, $F(1, 2093) = 6.47$, $p < .05$, partial $\eta^2 = .003$. Individuals who stayed in the study reported higher T1 future orientation scores ($M = 4.15$) than individuals who dropped out over time ($M = 4.06$), however it should be noted that the effect size was very small. No significant differences were found for either family connectedness or school connectedness.

Mean differences across time

We performed a repeated-measures MANCOVA with family and school connectedness and future orientation as dependent variables, time as a within-subjects factor, gender as a between-subject factor, and age as a covariate. A multivariate effect was found for time, $F(6, 1583) = 4.33$, Wilk's $\lambda = .98$, partial $\eta^2 = .02$, $p = .001$. Age proved to be a significant covariate, $F(3, 1586) = 37.63$, Wilk's $\lambda = .93$, partial $\eta^2 = .07$, $p = .001$, Bs between $-.04$ and $-.10$, $ps < .001$. Tests of within-subjects contrasts showed that there was a significant drop in family connectedness, $F(1, 1588) = 7.71$, $p = .01$, partial $\eta^2 = .005$, from time 2 ($M = 3.77$, $SD = .77$) to time 3 ($M = 3.69$, $SD = .78$), a significant drop in school connectedness, $F(1, 1588) = 8.14$, $p = .004$, partial $\eta^2 = .005$, from time 1 ($M = 3.83$, $SD = .66$) to time 2 ($M = 3.77$, $SD = .65$), and, finally, a significant decrease in future orientation, $F(1, 1588) = 4.53$, $p = .03$, partial $\eta^2 = .003$, from time 2 ($M = 4.08$, $SD = .66$) to time 3 ($M = 4.03$, $SD = .68$). In addition, results showed that there was a significant interaction between time and gender for family connectedness only, the decrease in this variable over time for girls being steeper than for boys from time 1 to time 2, ($F(1, 1588) = 4.09$, $p = .04$, partial $\eta^2 = .003$.

Between-subjects gender differences were significant for all the variables: boys reported higher family connectedness than girls, $F(1, 1588) = 6.16$, $p = .01$, partial $\eta^2 = .004$, boys' adjusted mean = 3.83, $SE = .02$; girls' adjusted mean = 3.75, $SE = .02$, whereas girls reported higher school connectedness, $F(1, 1588) = 10.77$, $p = .001$, partial $\eta^2 = .007$, boys' adjusted mean = 3.75, $SE = .02$; girls' adjusted mean = 3.84, $SE = .02$, and girls reported higher future orientation, $F(1, 1588) = 7.73$, $p = .01$, partial $\eta^2 = .005$, boys' adjusted mean = 4.05, $SE = .02$; girls' adjusted mean = 4.13, $SE = .02$.

Residualized longitudinal path model

Correlations for all study variables are reported in Table 1. Perceived connectedness to family and to school was positively linked to future orientation cross-sectionally and across time. To assess the links between variables over time, we built an auto-regressive model including the hypothesized paths among the study variables. Fig. 1 depicts the study's final model. Results for CFI (.99) and RMSEA (.03) indicated a good model fit. Significance of indirect paths was assessed via bias-corrected bootstrap confidence intervals for indirect effects provided by AMOS (see the last two lines of Table 2). These omnibus indirect effect estimates were followed up with focused estimand-based analyses to assess the strength and significance of specific indirect paths (for the macro see Amos Development Team, 2010), and they verified that the FC => SC => FO indirect path was significant (indirect effect = .02, 95% CI .01–.03, $p = .002$), as was the SC => FC => FO indirect path (indirect effect = .01, 95% CI .01–.02, $p = .001$). A comparison of the strength of these two parallel indirect paths yielded non-significance (difference = .009, 95% CI −.06 to .02, $p = .24$), and this result signifies that the two indirect paths were of approximately equal strength. These results provided answers to the two research questions concerning the mediational model: family connectedness predicted future orientation both directly and indirectly via school connectedness (first research question) and school connectedness also predicted future orientation directly and through family connectedness (second research question).

Table 1
Descriptive statistics and inter-correlations between family and school connectedness, and future orientation on the three times of measurement.

Variables	1	2	3	4	5	6	7	8	9	10
Family connectedness										
1.Time 1										
2.Time 2	.66**									
3.Time 3	.59**	.70**								
School Connectedness										
4.Time 1	.46**	.39**	.37**							
5.Time 2	.39**	.53**	.42**	.56**						
6. Time 3	.33**	.40**	.51**	.45**	.61**					
Future orientation										
7.Time 1	.38**	.31**	.23**	.41**	.31**	.24**				
8.Time 2	.36**	.46**	.35**	.36**	.46**	.35**	.50**			
9. Time 3	.31**	.38**	.45**	.33**	.39**	.52**	.42**	.55**		
10.Age	−.19**	−.23**	−.22**	−.20**	−.17**	−.17**	−.11**	−.13**	−.11**	
11.Gender	−.03	−.07**	−.09**	.09**	.07**	.03	.08**	.05	.04	.04
M	3.90	3.76	3.68	3.82	3.76	3.78	4.15	4.07	4.03	12.12
SD	.72	.77	.78	.66	.65	.66	.61	.66	.68	1.73
Cronbach's alpha	.90	.91	.92	.90	.85	.86	.74	.78	.81	

Notes. Scores for all variables ranged from 1 to 5.
**$p < .01$.
Gender code: 1 = male; 2 = female.

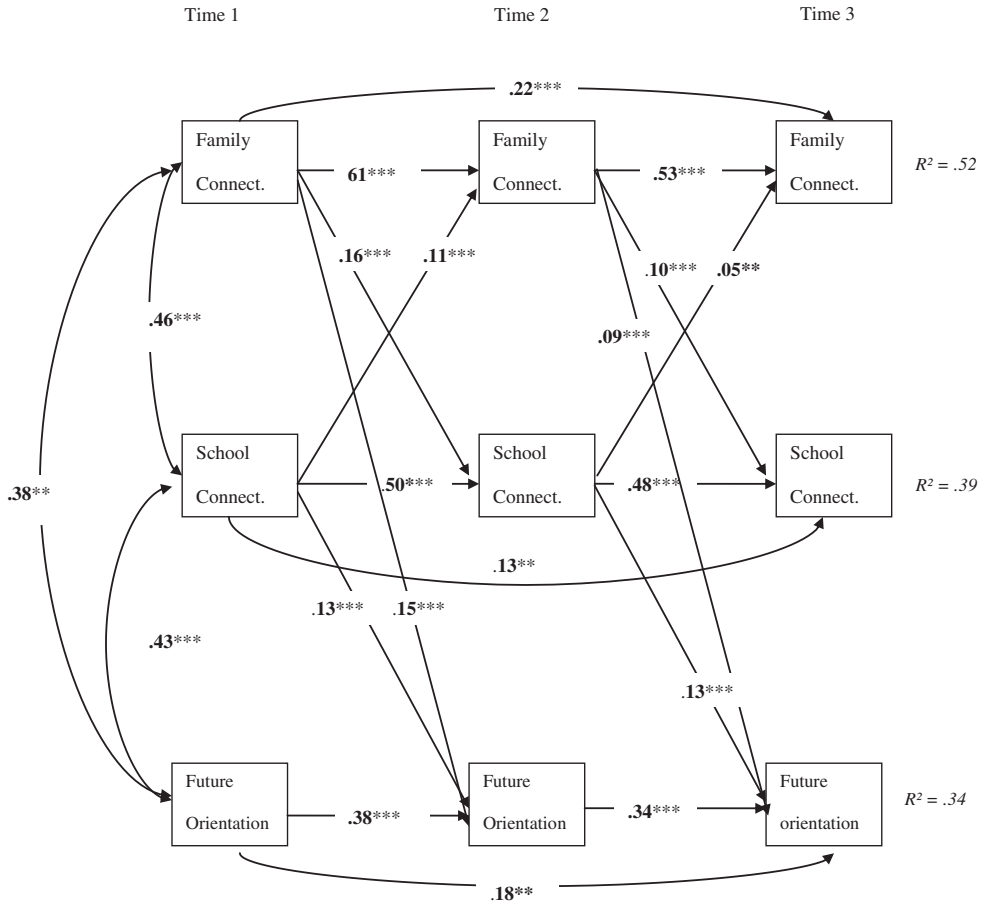

Fig. 1. Structural equation model examining the hypothesized stability coefficients and direct cross-lagged effects of family connectedness, school connectedness, and future orientation over a two-year period. Bold figures represent standardized coefficients. *Note.* Fit indices for the model were as follows: $\chi^2(10, N = 1774) = 27.97$, $p = .002$; CFI = .99; RMSEA = .03. For simplicity, autocorrelated error terms within time 2 and time 3 variables (found in Table 2) are not depicted; $^{*}p < .05$; $^{**}p < .01$; $^{***}p < .001$.

We then ran exploratory two-group analyses for gender and age groups with structural weights constrained to be equal (Byrne, 2001), and assessed the difference in model fit. With regard to gender, the difference between the unconstrained and the constrained model was nonsignificant ($\Delta\chi^2$ (17) = 23.22, $p = .14$), supporting the view that the model yielded an equally good fit for data from adolescent girls and boys. With regard to age group, the difference between the two models was significant ($\Delta\chi^2(17) = 46.69$, $p < .001$). We then performed equality constraints for each of the paths in the model and found a marginally significant age group difference for the path linking family connectedness at time 2 to future aspirations at time 3($\Delta\chi^2(1) = 3.54$, $p = .06$): this path was significant for the younger group (10–12 years old), $\beta = .13$, $p < .001$, but not for the older group (13–16 years old), $\beta = .04$, $p > .05$.

Discussion

The present study shows that connectedness to family and school had both a direct and an indirect influence on the course of adolescents' future orientation over a two-year period. A direct influence was found as connectedness to each context, separately, accounted for a variation in adolescents' future orientation. An indirect influence was found as these two contexts influenced each other to predict future orientation: family connectedness predicted family and school connectedness one year later, which in turn was linked to future orientation two years later; school connectedness, in turn, also predicted school and family connectedness one year later, which was linked to future orientation two years later.

With regard to the time course of the focal variables in this study, assessed via a repeated–measures MANCOVA, in line with findings from previous research, we found a drop in family connectedness across the three years of the study and in school connectedness from time 1 to time 2 (cf. Collins & Laursen, 2004; Crespo, Kielpikowski, Pryor, & Jose, 2010; Eccles, 2004). In addition, future orientation scores also dropped in the period between measurement times 2 and 3. Although the majority of cross-sectional research has linked age to stronger future orientation, a study by Steinberg et al. (2009) found that for one dimension of future orientation (planning ahead), there was a decline in planning between the ages of 10 and 15.

Table 2
Unstandardized coefficients and standard errors (SE) for all parameters and bias-corrected (BC) bootstrap confidence intervals (CI) for indirect effects.

Parameters	Unstandardized coefficients (SE)	*p* value	BC bootstrap CI for indirect effects
Stability coefficients			
FC T1 → FC T2	.65 (.02)	<.001	
FC T2 → FC T3	.54 (.02)	<.001	
FC T1 → FC T3	.23 (.02)	<.001	
SC T1 → SC T2	.49 (.02)	<.001	
SC T2 → SC T3	.49 (.03)	<.001	
SC T1 → SC T3	.13 (.02)	<.001	
FO T1 → FO T2	.40 (.02)	<.001	
FO T2 → FO T3	.36 (.02)	<.001	
FO T1 → FO T3	.20 (.02)	<.001	
Covariances			
FC T1 ↔ SC T1	.22 (.01)	<.001	
FC T1 ↔ FO T1	.17 (.01)	<.001	
SC T1 ↔ FO T1	.18 (.01)	<.001	
e (FC T2) ↔ e (SC T2)	.12 (.01)	<.001	
e (FC T2) ↔ e (FO T2)	.10 (.01)	<.001	
e (SC T2) ↔ e (FO T2)	.09 (.01)	<.001	
e (FC T3) ↔ e (SC T3)	.10 (.01)	<.001	
e (FC T3) ↔ e (FO T3)	.09 (01)	<.001	
e (SC T3) ↔ e (FO T3)	.11 (.01)	<.001	
Direct effects (Cross-lagged paths)			
FC T1→ SC T2	.14 (.02)	<.001	
FC T1→ FO T2	.14 (02)	<.001	
SC T1→ FC T2	.13 (.02)	.002	
SC T1→ FO T2	.13 (.03)	<.001	
FC T2→ SC T3	.08 (.02)	<.001	
FC T2→ FO T3	.08 (.02)	<.001	
SC T2→ FC T3	.06 (.02)	.006	
SC T2→ FO T3	.14 (.03)	<.001	
Indirect effects			
FC T1 → FO T3	.12 (.02)	.002	.10/.16
SC T1 → FO T3	.13 (.02)	.003	.09/.15

Notes. FC: Family connectedness; SC: School connectedness; FO: Future orientation; e: Measurement error term.

One possible explanation for this drop is that, as young people grow older and move further in school grades, they are confronted with more obstacles and challenges than previously anticipated. Consequently, they might progressively be able to assess their options in a more complex and differentiated way, weighing not only the possibilities, but also the difficulties of materializing their hopes and goals (Nurmi, Poole, & Kalakoski, 1994). Accordingly, Trommsdorff, Lamm, and Schmidt (1979) proposed that the increase in reality orientation with age and experience might block a wishful-thinking optimism about one's future. Alternatively, this finding might reflect a specific time point in young people's lives, when they are mainly dedicated to the exploration of vocational and life projects, and, are therefore less focused on committing and decision-making than on considering a wide range of options (Blustein, 1992). This drop in planning might also be linked to the fact that approximately half of the participants in the sample had changed school in the previous year (time 2). However, the small size of the decrease in future orientation, combined with the lack of empirical studies addressing how future orientation changes with age, requires caution in interpreting this finding.

The observed gender differences in the reports of school connectedness and future orientation, with girls scoring higher than boys, are similar to past research showing that school connectedness is higher for girls (e.g. McNeely, Nonnemaker, & Blum, 2002). However, gender differences with regards to future orientation are still not clear in the literature (cf. Seginer, 2009) and require further investigation. So far, scholars have focused on examining gender differences according to future orientation domains, e.g. family, work/career, (Seginer, 2009). Given the global conceptualization of future orientation adopted in this study, comparisons are difficult to draw. Nevertheless, it is possible that adolescents link future related thinking and planning with school progress and achievements. Thus, girls who feel more connected to school might also invest more in future oriented planning and thinking than boys. However, further research is needed to clarify the reasons behind this small, yet significant, gender difference found in our study as well as in the study of Steinberg et al. (2009).

Connectedness and future orientation

Direct influences

The results of the present study add to the growing literature showing that being connected to main life contexts serves a promotive function during adolescence, contributing to reducing risks and improving a range of positive outcomes in social, emotional and academic domains. It is likely that the ways in which connectedness to family and school are linked to higher levels of future orientation are multiple and complex. One way to explain these links is via the emotional security argument.

Belonging and forming bonds with significant others have been assumed to be fundamental human needs (Baumeister & Leary, 1995; Bowlby, 1979).

Adolescents who feel they have a meaningful place in their families and schools, where they establish supportive relationships with others, including peers and teachers, will more likely develop a sense of security, i.e., they will perceive they are loved and taken care of. It is precisely this sense of security that will propel adolescents to explore the outside world, namely their options regarding career and life projects. Thus, as suggested by Collins and Laursen (2004), adolescents who experience positive relationships with parents may be better equipped to integrate the new demands of adolescence and adulthood, facilitating the transition between past and future roles. Evidence from career development studies shows that more security in attachment to parents is related to ability to make career decisions (e.g., Felsman & Blustein, 1999). Following the same rationale, when adolescents feel support and encouragement from parents, they might find it easier to think of the future with a more optimistic and proactive outlook, an idea which has been empirically validated by studies of Trommsdorff and colleagues (Trommsdorff, 1983; Trommsdorff et al., 1982).

Young people do not engage in their thinking and planning of the future unaided, with research showing that they talk through their plans, dreams and future goals with family members, peers, and teachers. Hargrove et al. (2005) found that the degree to which family members were encouraged to express feelings and problems openly was related to career planning activities. Thus, the more adolescents feel connected to the family and school contexts, the more they will be willing to discuss issues related to their future and the more likely it is they will receive continuous encouraging and supportive feedback.

Another possible explanation for the links between connectedness and future orientation is that connectedness fosters development of specific outcomes which, in turn, can facilitate future orientation. It is well established that positive parenting and whole family relationships are linked to more positive views of the self, including higher self-esteem (Harter, 1999). Three empirical studies so far (see Seginer, 2009; for a description) have shown that the link between perceived positive parenting and future orientation was mediated by self-agency and self-esteem. According to Seginer (2009) the value young people attribute to themselves (as measured by self-esteem and agency) extends to the value they attribute to their planned and hoped for adult roles, to their confidence that these roles will materialize, and to a sense of internal control over behaviour outcomes.

With regards to school, high-quality relationships with teachers have also been linked to students' higher self-esteem; however, no studies so far have examined if these were associated with students' future orientation (Ryan, Stiller, & Lynch, 1994). Connectedness to school has been associated with better academic performance (Anderman, 2002; Eisenberg, Neumark-Sztainer, & Perry, 2003) and lower likelihood of grade retention, school suspension or expulsion or dropout (Hawkins, Guo, Hill, Battin-Pearson, & Abbott, 2001). It is possible that when adolescents feel more competent at school, they also feel more ready to think and plan their future and more confident doing so.

Finally, exploratory analyses in our study revealed a marginally significant age difference: one of the links between family connectedness (time 2) and future orientation (time 3) was significant for the younger children, but not for the older adolescents. It is possible that as adolescents grow older, their future orientation becomes less directly influenced by their previous connectedness to their families. Nevertheless, this result must be interpreted with caution given its marginal statistical significance and the lack of previous supporting research.

Indirect influences

Despite the recognition that adolescents' development is embedded in an ecological web of different contexts, studies addressing the impact of two or more of these contexts are still scarce (Whitherspoon et al., 2009). In this study we found that, besides the direct links, family and school connectedness influenced future orientation via the effect they have on each other over time. The link from family to school connectedness is congruent with past research showing that when adolescents experience positive family relationships, they feel more motivated to attend school and perform better academically (Collins & Laursen, 2004). With regards to the link from school to family connectedness, when adolescents feel more connected to school they also have better academic results (Goodenow, 1993) which makes it less likely that they experience school-related conflict with parents. Furthermore, good school performance, such as obtaining high grades and staying out of trouble, might elicit encouragement and praise from family members. An alternative explanation, based on the view that adolescents play an active role in their own development, is that successful connectedness to both family and school promotes adolescents' confidence and relational skills, facilitating their engagement with other people and the establishment of a sense of belonging to other contexts (cf. Furrer & Skinner, 2003).

Limitations of the study

Firstly, results from our attrition analyses indicated that the sample used in the present study might under-represent adolescents with lower levels of future orientation. Another limitation of this research is the use of a global measure of future orientation, which did not allow us to distinguish among different dimensions of future orientation (cf. Nurmi, 1989, 1991; Seginer, 2009) and to illuminate how connectedness related specifically to each domain. Nevertheless, the scale demonstrated good internal reliability across the three times of measurement, and it is similar to other measures of future orientation used in previous studies. A caveat with regard to our findings is that although we have identified longitudinal links between connectedness to school and family and future orientation, we did not explore if these links were mediated by other variables, for example self-evaluation, as found by Seginer (2009). Thus, the interpretation of the findings, although

grounded in theoretical assumptions, is still general in its scope. Future research should illuminate the processes by which connectedness is linked to future orientation. Finally, our findings were based exclusively on self-reports, which raises the concern of mono-method response bias. Besides the inclusion of adolescents' perceptions, it could be useful if future studies included reports from representatives of the key contexts, such as parents and teachers.

Conclusions

The present study advanced research in several ways. First, it identified positive relationships across time between connectedness to family and school and future orientation in a large sample of adolescent girls and boys. Second, by assessing two key contexts in the same study, we hypothesized and found evidence for a parallel effect of family and school connectedness over time: family connectedness promoted future orientation two years later via its effect on family and school connectedness one year later; school connectedness also predicted future orientation after two years through its effect on school and family connectedness after one year. Given the growing empirical evidence for the links between future orientation and several positive outcomes in the domains of emotional adjustment, wellbeing and academic achievement, the identification of contextual factors accounting for future orientation gains special relevance. The benefits of supportive relationships and feelings of belonging in the two most important contexts of adolescents' lives (families and schools) promoted a stronger future orientation over time.

Acknowledgements

This study is part of the Youth Connectedness Project, a longitudinal study of young people in New Zealand. The authors would like to thank all participants that collaborated with this research project, and the FRST Foundation for their generous funding.

References

Adelabu, D. H. (2008). Future time perspective, hope, and ethnic identity among African American adolescents. *Urban Education, 43*(4), 347–360. http://dx.doi.org/10.1177/0042085907311806.

Amos Development Team. (2010). *Videos*. Retrieved 07/20/13 from http://amosdevelopment.com/video/.

Anderman, E. M. (2002). School effects on psychological outcomes during adolescence. *Journal of Educational Psychology, 94*(3), 795–809. http://dx.doi.org/10.1037/0022-0663.94.4.795.

Arbuckle, J. L. (2006). *AMOS user's guide 7.0*. Amos Development Corporation.

Barber, B. K., & Schluterman, J. M. (2008). Connectedness in the lives of children and adolescents: a call for greater conceptual clarity. *Journal of Adolescent Health, 43*(3), 209–216. http://dx.doi.org/10.1016/j.jadohealth.2008.01.012.

Baumeister, R. F., & Leary, M. R. (1995). The need to belong: desire for interpersonal attachment as a fundamental human motivation. *Psychological Bulletin, 117*(3), 497–529.

Beal, S. J., & Crockett, L. J. (2010). Adolescents' occupational and educational aspirations and expectations: links to high school activities and adult educational attainment. *Developmental Psychology, 46*(1), 258–263. http://dx.doi.org/10.1037/a0017416.

Blum, R. W., McNeely, C. A., & Rinehart, P. M. (2002). *Improving the odds: The untapped power of schools to improve the health of teens*. Minneapolis, MN: Center for Adolescent Health and Development, University of Minnesota.

Blustein, D. L. (1992). Applying current theory and research in career exploration to practice. *Career Development Quarterly, 41*(2), 174–184. http://dx.doi.org/10.1002/j.2161-0045.1992.tb00368.x.

Bowlby, J. (1979). *The making and breaking of affectional bonds*. London: Tavistock.

Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.

Byrne, B. (2001). *Structural equation modeling with AMOS: Basic concepts, applications, and programming*. Mahwah, NJ: Erlbaum.

Collins, W. A., & Laursen, B. (2004). Parent–adolescent relationships and influences. In R. M. Lerner, & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed.). (pp. 331–361) Hoboken, N.J.: John Wiley & Sons, Inc.

Crespo, C., Kielpikowski, M., Pryor, J., & Jose, P. (2010). Relationships between family connectedness and body satisfaction: a longitudinal study of adolescent girls and boys. *Journal of Youth and Adolescence, 39*(12), 1392–1401. http://dx.doi.org/10.1007/s10964-009-9433-9.

Eccles, J. S. (2004). Schools, academic motivation, and stage-environment fit. In R. M. Lerner, & L. Steinberg (Eds.), *Handbook of adolescent psychology* (2nd ed.). (pp. 125–153) Hoboken, N.J: John Wiley & Sons, Inc.

Eisenberg, M. E., Neumark-Sztainer, D., & Perry, C. (2003). Peer harassment, school connectedness and school success. *Journal of School Health, 73*(8), 311–316. http://dx.doi.org/10.1111/j.1746-1561.2003.tb06588.x.

Erikson, E. H. (1968). *Identity: Youth and crisis*. New York: Norton.

Felsman, D. E., & Blustein, D. L. (1999). The role of peer relatedness in late adolescent career development. *Journal of Vocational Behavior, 54*(2), 279–295. http://dx.doi.org/10.1006/jvbe.1998.1664.

Furrer, C., & Skinner, E. (2003). Sense of relatedness as a factor in children's academic engagement and performance. *Journal of Educational Psychology, 95*(1), 148–162. http://dx.doi.org/10.1037/0022-0663.95.1.148.

Goodenow, C. (1993). The psychological sense of school membership among adolescents: scale development and educational correlates. *Psychology in the Schools, 30*(1), 79–90. http://dx.doi.org/10.1002/1520-6807(199301)30, 1<79::AID-PITS2310300113>3.0.CO;2-X.

Goodenow, C., & Grady, K. (1993). The relationship of school belonging and friends' values to academic motivation among urban adolescent students. *Journal of Experimental Education, 62*(1), 60–71. http://dx.doi.org/10.1080/00220973.1993.9943831.

Hargrove, B. K., Inman, A. G., & Crane, R. L. (2005). Family interaction patterns, career planning attitudes, and vocational identity of high school adolescents. *Journal of Career Development, 31*(4), 263–278. http://dx.doi.org/10.1177/089484530503100404.

Harter, S. (1999). *The construction of the self: A developmental perspective*. New York: Guilford.

Hawkins, J. D., Guo, J., Hill, K. G., Battin-Pearson, S., & Abbott, R. D. (2001). Long-term effects of the Seattle social development intervention on school bonding trajectories. *Applied Developmental Science, 5*(4), 225–236. http://dx.doi.org/10.1207/S1532480XADS0504_04.

Hu, L., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1–55. http://dx.doi.org/10.1080/10705519909540118.

Israelashvili, M. (1997). School adjustment, school membership and adolescents' future expectations. *Journal of Adolescence, 20*(5), 525–535. http://dx.doi.org/10.1006/jado.1997.0107.

Jose, P. E., & Crespo, C. (2012). Social connectedness in adolescence. In R. J. Levesque (Ed.), *Encyclopedia of adolescence* (pp. 2759–2768). New York: Springer.
Jose, P. E., Ryan, N., & Pryor, J. (2012). Does social connectedness promote a greater sense of well-being in adolescence over time? *Journal of Research on Adolescence, 22*(2), 235–251. http://dx.doi.org/10.1111/j.1532-7795.2012.00783.x.
Kerpelman, J. L., & Mosher, L. S. (2004). Rural African American adolescents' future orientation: the importance of self efficacy, control and responsibility, and identity development. *Identity: An International Journal of Theory and Research, 4*(2), 187–208. http://dx.doi.org/10.1207/s1532706xid0402_5.
Kracke, B. (1997). Parental behaviors and adolescents' career exploration. *Career Development Quarterly, 45*(4), 341–350. http://dx.doi.org/10.1002/j.2161-0045.1997.tb00538.x.
Lewin, K. (1942/1948). Time perspective and morale. In K. Lewin (Ed.), *Resolving social conflict* (pp. 103–124). New York, NY: Harper & Brothers Publishers.
Little, T. D., Card, N. A., Preacher, K. J., & McConnell, E. (2009). Modeling longitudinal data from research on adolescence. In R. M. Lerner, & L. Steinberg (Eds.), *Handbook of adolescent psychology* (3rd ed.). (pp. 15–54) Hoboken, NJ: Wiley.
Loukas, A., Roalson, L., & Herrera, D. (2010). School connectedness buffers the effects of negative family relations and poor effortful control on early adolescent conduct problems. *Journal of Research on Adolescence, 20*(1), 13–22. http://dx.doi.org/10.1111/j.1532-7795.2009.00632.x.
Malmberg, L.-E. (2001). Future-orientation in educational and interpersonal contexts. In J. E. Nurmi (Ed.), *Navigating through adolescence: European perspectives* (pp. 119–140). New York: Routledge.
McNeely, C., Nonnemaker, J., & Blum, R. (2002). Promoting school connection: evidence from the national longitudinal study of adolescent health. *Journal of School Health, 72*(4), 138–146.
Nurmi, J. E. (1989). Development of orientation to the future during early adolescence: a four-year longitudinal study and two cross-sectional comparisons. *International Journal of Psychology, 24*, 195–214.
Nurmi, J. E. (1991). How do adolescents see their future? A review of the development of future orientation and planning. *Developmental Review, 11*(1), 1–59. http://dx.doi.org/10.1016/0273-2297(91)90002-6.
Nurmi, J. E. (1993). Adolescent development in an age-graded context: the role of personal beliefs, goals and strategies in the tackling of developmental tasks and standards. *International Journal for the Study of Behavioral Development, 16*(2), 169–189. http://dx.doi.org/10.1177/016502549301600205.
Nurmi, J. E. (2004). Socialization and self-development: channeling, selection, adjustment, and reflection. In R. M. Lerner, & L. Steinberg (Eds.), *Handbook of adolescent psychology* (pp. 85–124). New York: John Wiley.
Nurmi, J. E., Poole, M. E., & Kalakoski, V. (1994). Age differences in adolescent future-oriented goals, concerns, and related temporal extension in different sociocultural contexts. *Journal of Youth and Adolescence, 23*(4), 471–487. http://dx.doi.org/10.1007/BF01538040.
Nurmi, J. E., & Pulliainen, H. (1991). The changing parent-child relationship, self-esteem, and intelligence as determinants of orientation to the future during early adolescence. *Journal of Adolescence, 14*(1), 35–51. http://dx.doi.org/10.1016/0140-1971(91)90044-R.
Nurmi, J. E., Salmela-Aro, K., & Koivisto, P. (2002). Goal importance and related achievement beliefs and emotions during the transition from vocational school to work: antecedents and consequences. *Journal of Vocational Behavior, 60*, 241–261. http://dx.doi.org/10.1006/jvbe.2001.1866.
Nuttin, J. R. (1984). *Motivation, planning, and action. A relational theory of behavior dynamics*. Louvain: Lawrence Erlbaum Associates.
Oyserman, D., Terry, K., & Bybee, D. (2002). A possible selves intervention to enhance school involvement. *Journal of Adolescence, 25*, 313–326. http://dx.doi.org/10.1006/yjado.474.
Pulkkinen, L. (1990). Home atmosphere and adolescent future orientation. *European Journal of Psychology of Education, 5*(1), 33–43. http://dx.doi.org/10.1007/BF03172767.
Rappaport, H., Enrich, K. I., & Wilson, A. (1985). Relation between ego identity and temporal perspective. *Journal of Personality and Social Psychology, 48*, 1609–1620.
Robbins, R. N., & Bryan, A. (2004). Relationships between future orientation, impulsive sensation seeking, and risk behaviors among adjudicated adolescents. *Journal of Adolescent Research, 19*(4), 428–445. http://dx.doi.org/10.1177/0743558403258860.
Ryan, R. M., Stiller, J., & Lynch, J. H. (1994). Representations of relationships to teachers, parents, and friends as predictors of academic motivation and self-esteem. *Journal of Early Adolescence, 14*, 226–249.
Seginer, R. (2009). *Future orientation: Developmental and ecological perspectives*. New York: Springer.
Steinberg, L., Graham, S., O'Brien, L., Woolard, J., Cauffman, E., & Banich, M. (2009). Age differences in future orientation and delay discounting. *Child Development, 80*(1), 28–44. http://dx.doi.org/10.1111/j.1467-8624.2008.01244.x.
Stoddard, S. A., Zimmerman, M. A., & Bauermeister, J. A. (2011). Thinking about the future as a way to succeed in the present: a longitudinal study of future orientation and violent behaviors among African American youth. *American Journal of Community Psychology, 48*, 235–246. http://dx.doi.org/10.1007/s10464-010-9383.
Trommsdorff, G. (1983). Future orientation and socialization. *International Journal of Psychology, 18*, 381–406. http://dx.doi.org/10.1080/00207598308247489.
Trommsdorff, G., Burger, C., & Füchsle, T. (1982). Social and psychological aspects of future orientation. In M. Irle, & L. B. Katz (Eds.), *Studies in decision making* (pp. 167–194). Berlin, NY: Walter de Gruyter.
Trommsdorff, G., Lamm, H., & Schmidt, R. W. (1979). A longitudinal study of adolescents' future orientation (time perspective. *Journal of Youth and Adolescence, 8*(2), 131–147. http://dx.doi.org/10.1007/BF02087616.
Witherspoon, D., Schotland, M., Way, N., & Hughes, D. (2009). Connecting the dots: how connectedness to multiple contexts influences the psychological and academic adjustment of urban youth. *Applied Developmental Science, 13*(4), 199–216. http://dx.doi.org/10.1080/10888690903288755.