

Identity development across the transition from primary to secondary school: The role of personality and the social context

Elisabeth L. De Moor, Jolien Van der Graaff & Susan Branje

To cite this article: Elisabeth L. De Moor, Jolien Van der Graaff & Susan Branje (2023) Identity development across the transition from primary to secondary school: The role of personality and the social context, *Self and Identity*, 22:5, 762-782, DOI: [10.1080/15298868.2023.2196087](https://doi.org/10.1080/15298868.2023.2196087)

To link to this article: <https://doi.org/10.1080/15298868.2023.2196087>



© 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.



[View supplementary material](#)



Published online: 03 Apr 2023.



[Submit your article to this journal](#)



Article views: 2087






[View related articles](#)



[View Crossmark data](#)



Identity development across the transition from primary to secondary school: The role of personality and the social context

Elisabeth L. De Moor ^a, Jolien Van der Graaff ^b and Susan Branje ^b

^aDepartment of Developmental Psychology, Tilburg University, Tilburg, The Netherlands; ^bDepartment of Youth and Family, Utrecht University, Utrecht, The Netherlands

ABSTRACT

The secondary school transition may be important for identity change. We investigated identity change and subgroups therein, and whether personal and environmental factors explain subgroup membership. Data was used from four timepoints across the last year of primary and first year of secondary school from 241 adolescents ($M_{\text{age}} = 11.6$, range 10.5–12.8). Identity change was generally in the direction of higher pre-transition commitment and lower post-transition commitment and exploration, with most change as well as differences therein manifesting post-transition. Neuroticism and best friend support did not predict group membership; parental support predicted more adaptive change. These findings suggest educational identity change around the transition and especially during its runup is relatively normative, with strong expectations of how adolescents should change.

ARTICLE HISTORY


Received 11 July 2022
Accepted 23 March 2023

KEYWORDS

Adolescence; identity; primary to secondary school transition; neuroticism; social support

Developing their own sense of identity is the main task young people in the Western world face during adolescence. As such, much research has examined normative development of identity (for an overview see Branje et al., 2021; Meeus, 2011), often starting from when adolescents are in secondary school. These studies have linked a stronger identity, as evidenced by stronger commitments and less exploration, to better well-being, less psychological problems, and better performance and motivation in school. However, levels of educational identity commitment and explorative behavior suggest that at least some identity development has already taken place before this point (e.g., Meeus et al., 2010), emphasizing the importance of capturing educational identity already before adolescents are in secondary school. Identity theory (e.g., Bosma & Kunnen, 2001) suggests that transition periods may play a vital role in driving identity development, by making the question of “who am I?” more salient. For normative transitions such as the transition to secondary school, identity change may occur not only at the time of the transition and aftermath, but also in the runup (Christiaens et al., 2022). Therefore,

CONTACT Elisabeth L. De Moor  e.l.demoor@tilburguniversity.edu 

 Supplemental data for this article can be accessed online at <https://doi.org/10.1080/15298868.2023.2196087>.

© 2023 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group.

This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way. The terms on which this article has been published allow the posting of the Accepted Manuscript in a repository by the author(s) or with their consent.

examining identity around such transitions may provide key insights into early adolescent identity development.

Transitions may not impact all adolescents' identity in the same way (e.g., Christiaens et al., 2022; Van Doeselaar & Reitz, 2021), and it is important to take into account individual differences in the person and environment which may predict more or less adaptive identity change during transitional periods. In the present study, we examined educational identity development before and after the transition from primary to secondary school, when adolescents are on average 12 years-old. We distinguished different groups of adolescent identity change and predicted membership of these groups using neuroticism and perceived support to better understand which adolescents may change more adaptively and which more maladaptively.

Adolescent identity change and the role of transitions

The question of identity gains prominence during adolescence, when youth start questioning their early identifications and increasingly think about their own values and beliefs (Crocetti et al., 2008; Meeus et al., 2010). Given that later development (e.g., of choosing an education and career that fit with one's strengths and preferences) hinges on the formation of a stable and coherent sense of self, identity development during adolescence is also vital to set the stage for healthy development in later life (Erikson, 1950). The process of identity development can be captured by a dual-cycle model (Crocetti et al., 2008; Luyckx et al., 2006), in which adolescents develop their identity through exploration of different alternatives and selecting the best-fitting one (i.e., the formative cycle), and then maintain their identity by comparing their expectations and needs to their current commitments and identifying with those commitments (i.e., the maintenance cycle). When commitments are no longer satisfactory, adolescents may engage in a process of reconsideration in which they start exploring new options and may eventually choose to relinquish their current commitments (Crocetti et al., 2008). During early adolescence, when identity development will mostly be a process of making new identity commitments, we may expect to see mostly the exploration of new identity choices and commitment to a particular option.

Although identity develops continuously, periods of transition or stress may increase identity salience, and force adolescents to consider or reconsider their identity (Bosma & Kunnen, 2001; Marcia, 1966; Waterman, 1982). This may be especially true in "closed" identity domains such as education (Meeus et al., 1999), where we would not expect much (possibility for) change outside of such key moments. That is, outside of moments where they get to choose a new school, education, or curriculum focus, adolescents may have little opportunity to change their education or school. Before such normative events or transitions, adolescents may be mostly engaged in identity making processes, whereas in the aftermath they may engage more in processes relating to identity evaluation and maintenance. In contrast to a normative transition which individuals can prepare for, when adolescents experience unexpected stressful events they may be forced more abruptly into the identity making cycle, and may as such experience less adaptive identity change. In line with this, several studies have evidenced that the experience of negative events may predict decreases in adolescents' commitments and a greater likelihood of identity diffusion (e.g., Penner et al., 2019; Van Doeselaar et al., 2018). During the normative transition to secondary school, multiple aspects of the transition may be

related to identity. Having to make a choice (e.g., for a certain school) may increase salience of identity as adolescents need to think about their strengths, weaknesses, and preferences. Additionally, the change of physical and social context may impact adolescents' identity development. The transition to secondary school is paired with a change in peer group, a different curriculum with multiple teachers, and often a larger school environment. The presence of major and more minor stressful events (e.g., being excluded in the class, missing the bus) may contribute to differences in adolescent identity change and even make some adolescents more likely to reconsider their school choice. Indeed, studies have emphasized individual differences in the development of identity across the transition from secondary school to tertiary education (Christiaens et al., 2022) and to working life (Van Doeselaar & Reitz, 2021). The present study examined identity development in early adolescence, across the transition from primary to secondary school.

Identity processes around the transition from primary to secondary school

Individuals develop their identity in different life domains, but some domains are more salient than others at different points in their lives (Heaven et al., 2008). The educational domain may be especially salient during adolescence (Crocetti, 2017; Meeus, 2011), because adolescents spend a majority of their time in school. Educational identity reflects commitment and exploration processes related to education (Becht et al., 2016), and may express itself in motivation for and performance in school (e.g., De Moor et al., 2019; Oyserman & Destin, 2010; Roeser et al., 2012). In addition, educational identity may also play a role in selecting a secondary school. Thus, educational transitions present relatively fixed normative moments for educational identity exploration and commitment making, which is in contrast to many other identity domains (e.g., friendships) where transitions are more variable and unforeseeable. In particular, around such moments adolescents are expected to explore different options (e.g., schools) and commit to one particular option. At the same time, even strong commitments, especially in the absence of previous exploration, may be suboptimal, as they may reflect a foreclosed educational identity commitment and may ultimately be related to less positive adjustment (Lannegrand-Willems et al., 2016). Particularly during early adolescence, when adolescents are just starting to give up their earlier identifications, strong commitments might reflect identity foreclosure (Erikson, 1950).

The transition from primary to secondary school is an important moment in adolescents' lives (Pratt & George, 2005; Zeedyk et al., 2003), marking the point from which they gain new relationships, freedoms, and opportunities but also new responsibilities. Many studies have found the school transition to impact adolescents' mental and educational adjustment, often setting them on persistent pathways of adjustment or maladjustment throughout secondary school (see Symonds & Galton, 2014 for an overview). The school transition might be particularly impactful for Dutch adolescents due to the school structure in the Netherlands. Specifically, secondary school is stratified into broad levels of vocational, technical, and theoretical education, which correspond to tertiary education levels and set adolescents onto broad tracks of occupational options. By the end of primary school, when youth are on average 11–12 years-old, Dutch adolescents receive an advice for the level most suited for them based on their teacher's evaluation and a standardized test. Adolescents can then choose a secondary school based upon their

educational level advice, which they will go to after the summer holiday. Given that the transition to secondary school is an important moment in adolescents' lives and its normative character allows adolescents to anticipate it, the school transition may increase the salience of educational identity and drive its development in early adolescence.

Room for individual differences: Personality and social context

As discussed above, the impact of the school transition on identity may not be uniform across adolescents, but rather may depend on the experiences that accompany it. Indeed, as a result of different experiences, the transition may accentuate existing differences in identity (Graber & Brooks-Gunn, 1996). In this case, we would expect that adolescents who were already doing quite well in terms of academic and social functioning will accumulate positive experiences and continue to do even better. In contrast, adolescents who may have been floundering before the transition may experience an even more negative developmental trend after the transition. Alternatively, and additionally, the transition may be a point of deviation due to differences in the extent to which adolescents experience a good person-environment fit in the post-transition environment (e.g., Symonds & Galton, 2014). Following from this model, we may expect that adolescents who experience a good fit with their new school due to more positive experiences have more positive post-transition identity change and adolescents who experience poorer fit have more negative change. Supporting the notion of the school transition as point of deviation in identity change, Christiaens and colleagues (2021) reported increased differences after the transition from secondary to tertiary education. Specifically, whereas some youth experienced stable low or stable high self-certainty before and after the transition, other adolescents experienced identity change marked by increasing self-certainty or decreasing certainty after the transition.

Understanding who develops a stable and coherent sense of identity and who experiences identity issues may be a first step in identifying and targeting vulnerable youth. Factors in the person and in their environment may explain differences in adolescents' change across the school transition in multiple ways. In particular, individual differences may predict poorer fit in the post-transition situation, and/or may predispose adolescents to being more or less able to cope with the transition and associated stressful experiences.

Firstly, adolescents' personality may predict their identity change. In particular, neuroticism, or emotional instability, may be predictive of continued doubts and in-breadth exploration. Neuroticism can be defined as a tendency to experience negative emotions and instability of mood, and is characterized by a lacking capacity to deal effectively with negative emotions (Caspi et al., 2005; McCrae & John, 1992). As such, individuals with high levels of neuroticism are more likely to experience events in their lives as stressful (Brown & Rosellini, 2011) and to ruminate on these events, which may increase their vulnerability to the stress associated with these events (Watkins et al., 2008). Together, this might make adolescents high on neuroticism more likely to experience negative consequences of impactful events for their mental health (Jeronimus et al., 2014). Moreover, with regard to identity, neuroticism has also been linked to less adaptive outcomes. For instance, adolescents high on neuroticism have been found to report weaker commitments (Klimstra et al., 2012) and to ruminate more on their identity

commitments (Hatano et al., 2017), and some studies have reported the associations of neuroticism with identity to be more robust than associations of the other four Big Five personality traits with identity (e.g., Hatano et al., 2017; Lounsbury et al., 2007). In addition, in a period such as the school transition when uncertainty is likely and even normative, it may be expected that youth's inability to deal with uncertainty and associated negative emotions may be an important factor in considering their adjustment. Particularly, across the transition from primary to secondary school adolescents who have higher levels of neuroticism might be more likely to change in the direction of a more unstable identity, as characterized by more doubts, than their peers with lower levels of neuroticism.

Secondly, the social environment may also play a role in predicting how adolescents develop their identity across the school transition. In particular, adolescents' perception of support from parents and friends may be important, as it reflects a broad perception of adolescents on the availability of and closeness with parents and friends rather than a specific behavior on the side of the parents or friends, and may as such act as a general resource. In line with this, social support has been found to buffer against the negative effects of stressful events on adolescents' mental health (e.g., Dubois et al., 1994; Murberg & Bru, 2004; Yang et al., 2010). Moreover, parental and friend support has also been found to be a direct predictor of a more stable identity (e.g., De Moor et al., 2019; Meeus et al., 2002), with adolescents who experience more support reporting more exploration and less reconsideration of their commitments. Therefore, having more supportive relationships with parents and friends may be predictive of change toward increasing certainty during the school transition from primary to secondary school.

The current study

The transition from primary to secondary school is an important moment in young people's lives, and is sometimes even seen as the start of adolescence. The school transition has been shown to have a profound impact on psychological and educational adjustment (e.g., Symonds & Galton, 2014), and may also be a moment around which the question of identity becomes more salient. Therefore, it is important to better understand how the transition impacts identity change. In the present study, we identified groups of adolescents with differing levels of educational commitment (i.e., commitment making, identification with commitment), exploration (i.e., exploration in breadth, exploration in depth), and doubt across the school transition, and examined whether neuroticism and social support predict membership of these groups. We hypothesized that several groups would emerge across the transition. Based on research estimating identity trajectories across adolescence (De Moor et al., 2022) and across the transition to tertiary education (Christiaens et al., 2021), we expected at least three groups of stable low, stable high, and decreasing commitment, exploration, and doubt. We expected that adolescents with lower neuroticism and higher parental and friend support would be more likely to have a more adaptive identity trajectory. The present study's research questions, hypotheses, and analytical plan were pre-registered at <https://osf.io/bm4qk>.

Method

Participants and procedure

For the present study, we used data of Wave 1–4 from the longitudinal INTRANSITION project ($N = 241$), which followed adolescents across the year before (2019–2020) and after (2020–2021) they transitioned to secondary school. The project focused on the development of identity and autonomy during the transition period. Participants, a parent, and a friend filled out a half-yearly questionnaire four times, in the fall and spring of the pre-transition year and in the fall and spring of the post-transition year. Parents and their children provided informed consent and ascent, respectively. Participants received €10,- per measurement occasion for completing the questionnaire and could receive a €5,- bonus for participating at each measurement occasion. The INTRANSITION project was approved by the Ethics Review Board of Utrecht University (protocol number: FETC18–135). Adolescents in our sample were on average 11.6 years-old at Time 1 ($SD = 0.44$, range 10.5–12.8) and 50.0% was female. When asked about the group they identified with most, 97.1% indicated Dutch; the remaining participants indicated either Moroccan (1 participant; 0.4%) or other (6 participants; 2.5%). We included all available data of the participants regarding identity, neuroticism, and social support. There was some attrition after the first measurement occasion, with data on identity of 194 (80.5%), 193 (80.1%), and 171 (71.0%) adolescents at Wave 2–4, respectively.

Measurement instruments

Commitment, exploration, and doubt were measured at Wave 1–4 with the Educational Identity Processes Scale (EIPS; Christiaens et al., 2022), which was newly designed for the INTRANSITION study to capture identity processes around the school transition. The items were based on existing questionnaires that were less context-dependent (i.e., Dimensions of Identity Development Scale, Luyckx et al., 2008; Utrecht-Management of Identity Commitments Scale, Crocetti et al., 2008 Vocational Identity Status Assessment, Porfeli et al., 2011). The questionnaire has a pre- (22 items) and a post-transition (18 items) version, with five subscales each. Before the transition, the subscales were commitment making (3 items), identification with commitment (4 items), exploration in breadth (5 items), exploration in depth (5 items), and self-doubt (5 items). After the transition, they were identification with commitment (4 items), exploration in breadth (3 items), exploration in depth (5 items), and self-doubt (3). A reconsideration scale (3 items) was also included in the post-transition version, but was not used in the present study, as it was strongly correlated with exploration in breadth (which also captures reconsideration after the transition, Christiaens et al., 2022). Across waves, reliability was acceptable for nearly all constructs, with an omega total coefficient in the range of .72–.89 (with the exception of commitment making at Wave 2, see Table 1 for an overview). Example items of the included subscales are “I know which school I want to attend” (commitment making; only measured pre-transition), “The school I want to attend really fits me”/“My school really fits me” (identification with commitment; pre-transition and post-transition wording, respectively), “I try to find out a lot about the different schools I can attend”/“I try to find out a lot about other schools I can attend” (exploration in breadth), “I try to find out a lot about

Table 1. Descriptive statistics and correlations of the study variables.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	
1. Commitment making W1											
2. Identification with commitment W1	.56*										
3. Exploration in breadth W1	.03	.32*									
4. Exploration in depth W1	.14*	.32*	.61*								
5. Doubt W1	-.52*	-.43*	-.02	.07							
6. Commitment making W2	.34*	.27*	.04	.09	-.35*						
7. Identification with commitment W2	.34*	.42*	.13	.19*	-.29*	.62*					
8. Exploration in breadth W2	-.06	.12	.55*	.43*	.02	.10	.22*				
9. Exploration in depth W2	.14	.18*	.36*	.48*	-.01	.12	.26*	.62*			
10. Doubt W2	-.22*	-.19*	-.02	-.01	.32*	-.48*	-.47*	.05	.01		
11. Identification with commitment W3	.16*	.35*	.17*	.13	-.33*	.17*	.39*	.21*	.21*	-.29*	
12. Exploration in breadth W3	-.07	-.05	.15*	.10	.03	-.07	-.01	.17*	.08	.13	
13. Exploration in depth W3	.04	.11	.21*	.19*	-.07	-.01	.15*	.28*	.37*	.01	
14. Doubt W3	-.13	-.26*	-.10	-.08	.26*	-.20*	-.23*	-.13	-.11	.36*	
15. Identification with commitment W4	.12	.32*	.18*	.07	-.33*	.32*	.37*	.13	.24*	-.30*	
16. Exploration in breadth W4	-.12	-.12	.15	-.01	.16*	-.03	-.13	.12	.01	.14	
17. Exploration in depth W4	.06	.18*	.14	.13	-.01	.14	.15	.15	.27*	-.04	
18. Doubt W4	-.11	-.32*	-.03	-.02	.32*	-.25*	-.24*	-.09	-.16*	.40*	
19. Neuroticism W1	<.01	-.02	-.12	-.12	.09	.10	.10	-.11	.01	.02	
20. Parental support W1	.12	.39*	.30*	.27*	-.19*	.09	.25*	.23*	.20*	-.18*	
21. Best friend support W1	.16*	.30*	.18*	.17*	-.21*	.04	.10	.27*	.17*	-.01	
Mean	3.55	4.00	3.60	3.32	2.07	4.35	4.25	3.42	3.17	1.62	
SD	0.94	2.07	0.91	0.86	0.82	0.68	0.63	0.98	0.85	0.72	
Ω	.72	.85	.88	.86	.84	.61	.80	.87	.85	.89	
	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.
11. Identification with commitment W3											
12. Exploration in breadth W3	.01										
13. Exploration in depth W3	.32*	.46*									
14. Doubt W3	-.52*	.38*	.10								
15. Identification with commitment W4	.61*	-.04	.30*	-.40*							
16. Exploration in breadth W4	-.07	.34*	.11	.22*	-.10						
17. Exploration in depth W4	.23*	.24*	.48*	.05	.33*	.39*					
18. Doubt W4	-.39*	.21*	-.07	.58*	-.41*	.38*	-.01				
19. Neuroticism W1	.04	.03	.14	.06	.05	.03	.12	-.04			
20. Parental support W1	.34*	-.02	.19*	-.32*	.22*	-.02	.11	-.26*	.04		
21. Best friend support W1	.24*	.07	.13	-.12	.05	.07	.17*	-.11	.08	.43*	
Mean	3.90	2.06	2.86	1.65	3.71	1.93	2.66	1.67	3.76	4.19	3.72
SD	0.72	1.17	0.83	0.78	0.91	1.01	0.81	0.90	1.12	0.63	0.59
Ω	.79	.91	.79	.88	.87	.88	.80	.89	.79	.87	.86

what I am good at and less good at school" (exploration in depth; same wording pre- and post-transition), and "I worry about which school I really like"/"I worry if I really like my school" (self-doubt). The items were rated on a scale from 1 (*completely disagree*) to 5

(*completely agree*), with higher scores reflecting higher commitment making, identification with commitment, exploration in breadth, exploration in depth, and doubt. More information about the EIPS, its development, and its psychometric properties can be found in Christiaens et al. (2022).

Neuroticism was assessed with the Quick Big Five (Goldberg, 1992; Vermulst & Gerris, 2005) at Wave 1. The measure contained 6 items measuring neuroticism, which were assessed on a scale from 1 (*strongly disagree*) to 7 (*strongly agree*). An example item is "I am touchy." The Quick Big Five has been found in previous research with Dutch youth to have good reliability across adolescence (Branje et al., 2004; De Moor et al., 2022; Klimstra et al., 2010). Reliability for scores on the neuroticism items in the present study was acceptable ($\omega = .79$). The scores were averaged into one score of neuroticism, where higher scores reflected being more neurotic.

Parental support and *friend support* were also measured at Wave 1, using the support subscale from the Network of Relationship Inventory (NRI; Furman & Buhrmester, 1985, 1992). This subscale consisted of 6 items, which were answered on a 5-point Likert scale (1 = *never* to 5 = *often*). The NRI was filled out by adolescents two times: once for the relationship with parents, and once for the relationship with the best friend. An example item is "How much do your parents/does your best friend treat you like you are admired and respected?." Reliability was acceptable for scores on the parental support ($\omega = .87$) and best friend support ($\omega = .86$) items. Scores on all six items were averaged into one support score for the relationship with parents and one for the relationship with the best friend. Higher scores reflected more support.

Analytical plan

To examine the change in identity across the last year of primary school and the first year of secondary school, and potential groups therein, we conducted five Latent Profile Analyses (LPAs).¹ LPA is a statistical technique that generates clusters based on distinct patterns of responses across multiple variables, and estimates the probability of each individual belonging to a certain cluster (Vermunt et al., 2008). In other words, LPA results in clusters of co-occurring scores across variables within individuals. In our models, mean scores of each of the four waves of one identity process (e.g., Wave 1–4 of identification with commitment) were included as the traits around which the profiles were created. For each construct, we first estimated a 1-profile model to capture the general trajectory. Then, we estimated models with 2–4 profiles. The best-fitting model was determined based on the Bayesian Information Criterion (BIC; Schwarz, 1978), the Lo-Mendell-Rubin Likelihood Ratio Test (LMR-LRT; Lo et al., 2001), and the entropy. Specifically, we determined that the best-fitting model would have the lowest BIC and an entropy above .80. Moreover, the best-fitting model would be the model with the number of profiles after which adding an additional profile would no longer significantly improve the model fit. Finally, all profiles also had to contain a substantial number of participants, as to be practically meaningful (Van De Schoot et al., 2017). In the context of our sample of roughly 240 participants, we used a minimum profile size of 10% as cutoff. To test whether scores within profiles (e.g., Wave 1 commitment making and Wave 2 commitment making) and the same scores across profiles differed significantly from each other (e.g., Wave 1 commitment making in profile 1 and profile 2), we performed pairwise

comparisons using the Wald test. A significance level of $p < .05$ was chosen as indicating a significant difference between mean scores. The size of differences was calculated with Cramer's V , which can be interpreted as small = .10, medium = .30, and larger = .50.

Second, to examine whether individual differences before the transition could explain differences in identity trajectories, we added neuroticism and parental and best friend support as predictors of profile membership to the best-fitting model for each identity process. These predictors were added as auxiliary variables following the 3-step method (R3STEP), so that these predictors did not alter profile specification (Asparouhov & Muthén, 2014). All analyses were conducted in *Mplus*, version 8.7 (Muthén & Muthén, 1998–2017). The data used for this study and the analysis scripts are made available at <https://osf.io/gjccqw/>.

Results

Descriptive statistics

Means, standard deviations, and correlations between the main study variables are presented in Table 1. Relatively strong, positive correlations existed between the different subscales of commitment (e.g., at Wave 1: $r = .56$) and between the subscales of exploration (at Wave 1: $r = .61$). Moreover, doubt was inversely related to the commitment subscales, but not substantially related to the exploration scales. Autocorrelations were in the expected direction, with the size of the correlation growing smaller with increasing time intervals (e.g., for commitment making W1-W2: $r = .34$ and W1-W4: $r = .12$). Neuroticism was not significantly correlated with any of the identity constructs at any timepoint. For parental and best friend support, modest associations existed with each of the identity constructs, with somewhat stronger correlations with constructs measured at the same and adjacent timepoints than with constructs measured later in time. Moreover, there was also a sizable and positive correlation between parental support and best friend support, suggesting that adolescents who reported more support from parents also reported more support from their best friend.

1-profile latent profile analysis models: Examination of variation in development

To get a sense of the average trajectory of identity change across the school transition, we first estimated LPAs with one profile for each of the identity processes. Mean scores and test statistics from Wald tests are provided in Table 2; a graphical representation of these average profiles is shown in Figure 1. Effect sizes (Cramer's V) for the changes between

Table 2. Means of the 1-profile solution for each of the identity constructs and outcomes of significance tests.

	Wave 1	Wave 2	Wave 3	Wave 4
Commitment making	3.55 ^b	4.35 ^a		
Identification with commitment	4.00 ^{bcd}	4.24 ^{acd}	3.88 ^{abd}	3.72 ^{abc}
Exploration in breadth	3.60 ^{bcd}	3.42 ^{acd}	2.06 ^{ab}	1.93 ^{ab}
Exploration in depth	3.32 ^{bcd}	3.16 ^{acd}	2.86 ^{abd}	2.67 ^{abc}
Doubt	2.07 ^{bcd}	1.61 ^a	1.68 ^a	1.68 ^a

Subscripts are used to denote significant mean-level differences between scores, as tested with the Wald test and significant at $p < .05$; a = different from Wave 1; b = different from Wave 2; c = different from Wave 3; d = different from Wave 4.

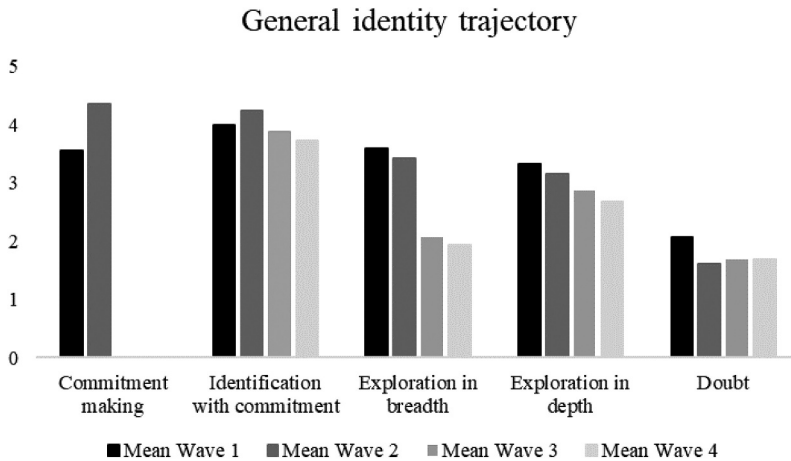


Figure 1. Average profiles of identity trajectories.

consecutive waves are available in Supplementary Material Table S1. Commitment making was only assessed before the transition, and so only scores across the two pre-transition timepoints were available. On average, commitment making increased across the final year of primary school (small effect). Identification with commitment increased slightly from the start to the end of the last year in primary school, and then dropped (very small to small effects). For exploration in breadth and in depth, mean scores dropped across the school transition, indicating less engagement in exploration over time (very small to large effects and small effects, respectively). Finally, for doubt there was a decrease across the year prior to the transition, but relative stability during the post-transition year (very small to small effects).

Multiprofile latent profiles analyses: Different subgroups in change

To examine whether subgroups existed in change in identity processes, we again performed Latent Profile Analyses (LPAs) for each of the identity constructs. We estimated models with 2, 3, and 4 classes (Table 3). For identification with commitment and doubt none of the multiprofile solutions fit well. In these models, there also was a high percentage of the sample in one of the profiles (for all 2-profile solutions, > 90%), suggesting that most individuals had a similar pattern of change. Thus, for these identity processes we maintained the 1-profile solution.

For commitment making, two profiles could be distinguished based on adolescents' levels across waves (see Table 4, see Figure 2 for a graphical representation; see Table S2 for effect sizes of differences between profiles and consecutive waves). The first profile ("stable commitment makers", 79.3% of the sample) had slightly above-average initial levels of commitment making and remained at approximately the same level across the year (very small effect size). The second profile ("increasing committers", 20.7%) showed slightly higher commitment making at baseline compared to the "stable commitment makers" (very small effect) and also showed an increase across the year (large effect).

Table 3. Fit of the latent profile analyses with multiprofile solutions with 2 to 4 profiles for each of the identity constructs.

	BIC	LMR-LRT	Entropy	% of participants in profile			
				Profile 1	Profile 2	Profile 3	Profile 4
Commitment making	1007.81	33.55, $p = .270$	.75	20.7	79.3		
	997.17	25.44, $p < .001$	.83	0.6	76.2	23.2	
	938.99	24.71, $p = .263$	.79	0.6	17.3	31.9	50.2
Identification with commitment	1644.02	41.93, $p = .173$	.85	9.1	90.9		
	1642.52	27.83, $p < .001$	.91	90.3	8.6	1.1	
	1653.20	16.07, $p = .144$	.81	80.6	8.6	1.1	9.7
Exploration in breadth	2187.13	63.50, $p < .001$	.68	66.5	33.5		
	2155.95	56.45, $p = .001$	.78	56.4	14.0	29.5	
	2120.66	60.42, $p = .001$	.75	22.4	47.5	9.4	20.6
Exploration in depth	1914.58	24.78, $p = .003$	.64	75.3	24.7		
	1927.48	13.94, $p = .013$	.78	8.6	22.9	76.2	
	1941.85	12.51, $p = .266$	.74	9.1	24.4	9.6	65.1
Doubt	1712.09	78.79, $p = .020$	.89	90.2	9.8		
	1754.30	43.75, $p = .174$	.83	16.9	76.4	6.7	
	1695.36	83.24, $p = .537$	.81	58.1	24.0	15.0	2.9

Percentage of sample in profiles is based on most likely membership. Best-fitting solution bolded.

Table 4. Unstandardized mean scores per profile and denotations of significant differences between scores.

		Wave 1	Wave 2	Wave 3	Wave 4
Commitment making	Profile 1: "stable low commitment makers"	3.12 ^f	3.30 ^f	–	–
	Profile 2: "increasing committers"	3.66 ^{be}	4.62 ^{ae}	–	–
Exploration in breadth	Profile 1: "pre-transition explorers"	3.55 ^{cdf}	3.38 ^{cdf}	1.17 ^{abdfg}	1.57 ^{abcfg}
	Profile 2: "sudden-stop explorers"	4.08 ^{deg}	4.06 ^{deg}	4.20 ^{deg}	2.35 ^{abce}
	Profile 3: "gentle decliners"	3.47 ^{bcd}	3.21 ^{acdf}	2.73 ^{abef}	2.43 ^{abe}
Exploration in depth	Profile 1: "stable explorers"	3.30 ^{cd}	3.20 ^{cd}	2.92 ^{ab}	3.01 ^{abf}
	Profile 2: "decliners"	3.38 ^{cd}	3.06 ^d	2.68 ^{ad}	1.62 ^{abce}

Subscripts are used to denote significant mean-level differences between scores, as tested with the Wald test and significant at $p < .05$.

a = different from Wave 1 of the same profile; b = different from Wave 2 of the same profile; c = different from Wave 3 of the same profile.

d = different from Wave 4 of the same profile; e = different from the same wave of profile 1; f = different from the same wave of profile 2; g = different from the same wave of profile 3.

A three-profile solution was found to best fit the data for exploration in breadth. There was a decrease in exploration in breadth over time for all profiles. In profile 1 ("pre-transition explorers", 56.4%), levels of exploration were relatively stable at a slightly above-average level across Wave 1 and 2 (very small effect), but then decreased markedly after the school transition at Wave 3 and recover a little bit at Wave 4 (large effect and very small effect, respectively). Profile 2 ("sudden-stop explorers", 14.0%) was characterized by stable high exploration in breadth across the two timepoints before the transition and the first timepoint after the transition (very small effects), after which exploration decreased to a below-average level (small effect). Individuals in profile 3 ("gentle decliners", 29.5%) had an initial level of exploration similar to that of the pre-transition explorers (very small effect), and showed gradual decreases in exploration behavior across the first three timepoints (very small to small effects).

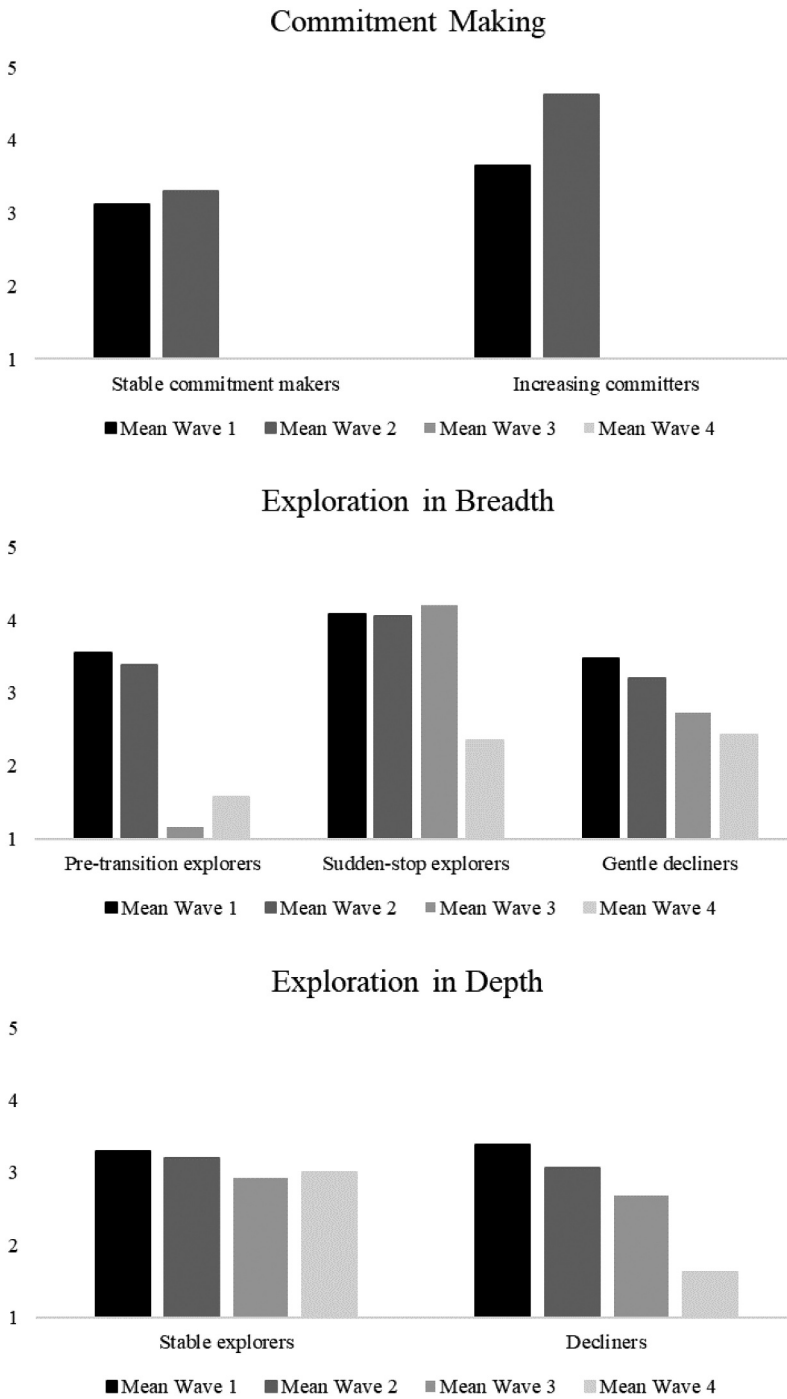


Figure 2. Profiles from the best-fitting multiprofile solutions for commitment making, exploration in breadth, and exploration in depth.

Finally, a two-profile solution also was optimal for exploration in depth. The first profile (75.3%) showed relatively stable patterns of average exploration in depth scores across all four timepoints (very small effects), with only a significant decrease from the end of primary school to the start of secondary school (“stable explorers”). Youth in the second profile (“decliners”, 24.7%) experienced a gradual decrease in exploration in depth over time (very small effects from Wave 1 to Wave 3), with only a significant change from Wave 3 to Wave 4 (small effect).

Latent profiles analyses with covariates: Predicting subgroup membership

Finally, we examined whether factors in the person (i.e., neuroticism) and environment (i.e., support from parents, support from the best friend) could predict identity change in the year before and after the transition. To do this, we added these factors as predictors of class membership to the LPAs (Table 5). Because none of the solutions with 2–4 profiles proved acceptable for identification with commitment and doubt because of too little variation, we did not examine the role of these factors for these constructs. Neuroticism, parental support, and best friend support at Wave 1 did not significantly predict identity profile membership for commitment making and exploration in depth. For exploration in breadth, parental support predicted a greater likelihood of being in profile 2 (“sudden-stop explorers”) compared to profile 3 (“gentle decliners”).

Discussion

The transition from primary to secondary school marks an important moment in young people’s lives, and may make the question of identity more salient. In the present study, we examined how educational identity develops before and after the transition to secondary school and whether subgroups of development could be distinguished. Neuroticism and parental and best friend support were investigated as factors that could potentially explain interindividual differences in development of identity. Our findings showed evidence of identity change before and after the transition. We only found evidence for subgroups of change for three out of five processes, and support for the explanatory role of person and environmental factors was limited.

Table 5. Odds ratios of neuroticism, parental support, and best friend support as predictors of profile membership.

		Profile 1 odds	Profile 2 odds	Profile 3 odds
Commitment making (2-profile solution)	Neuroticism	0.68	ref. cat.	
	Parental support	1.75		
	Best friend support	0.89		
Exploration in breadth (3-profile solution)	Neuroticism	0.95	1.02	ref. cat.
	Parental support	1.53	3.48*	
	Best friend support	0.78	1.18	
Exploration in depth (2-profile solution)	Neuroticism	1.11	ref. cat.	
	Parental support	0.81		
	Best friend support	1.43		

* $p < .05$.

ref. cat. = reference category for odds ratios.

For exploration in breadth, there were no other significant odds ratios when profile 1 or 2 were used as reference category.

Transition from primary to secondary school and identity

The primary aim of the study was to examine how educational identity changes as adolescents make the transition from primary to secondary school, taking into account that the direction and shape of change may be different across individuals. Our findings suggest that change in identity does indeed occur, both in the runup and in the aftermath of the school transition. In particular, commitment processes tended to increase before the transition, but exploration processes and doubt tended to decrease across the transitional period. This suggests that for the transition to secondary school, most identity work is conducted in the formative identity cycle and less work in the maintenance cycle. Given that educational identity as it was measured referred specifically to educational identity in the context of the school transition, it seems reasonable that after the school choice is made, adolescents become less involved in identity processes and return to a closure status. Furthermore, these findings are in line with the notion that during this period adolescents release early identifications and engage in identity work by moving out of a status of foreclosure into a status of moratorium or even achievement (Archer & Waterman, 1983; Meeus, 2011).

In addition to a general increase before the transition and a decrease after the transition, we also found support for variation in identity change for several processes, before and after the transition. Thus, although on average adolescents' commitment making increased before the transition and identity exploration tended to decrease across the transition, these trends and their timing were not the same for all adolescents. For commitment making, exploration in breadth, and exploration in depth, several profiles of change could be distinguished. Across these identity processes, for the majority of adolescents we saw stable or decreasing exploration and stable or increasing commitment before the transition, and decreasing levels of commitment and exploration after the transition. Where change occurred, it tended to be substantial. For instance, there were changes with medium to large effect sizes from Wave 1 to 2 for the "increasing committers" and from Wave 3 to 4 for "sudden-stop explorers" for exploration in breadth and the "decliners" in exploration in depth (Table S2). However, there were also profiles marked by relative stability across time (i.e., "stable commitment makers" and the "stable explorers" for exploration in depth), with levels that centered around the midpoint of the scale. Thus, for the identity processes where multiple profiles could be distinguished, there was large variation in the direction and timing of change across profiles and across identity processes.

These findings partially support our expectations for groups of stable low, stable high, and decreasing identity levels over time, which were based on identity development across the transition to tertiary education (Christiaens et al., 2021). In particular, for commitment making and exploration in depth we found evidence of subgroups with stable levels across the year before and across the transition, respectively. However, for the other subgroups for these and the other traits there was substantial change across time. Potentially, the fact that we found only limited evidence for stability might be explained by our focus on a normative life transition in combination with a relatively young age group, where identity may have only just started to develop. The transition to secondary school is a normative event, which occurs for all Dutch adolescents at approximately the same age. It goes paired with identity-relevant choices (e.g., "What subjects do I enjoy?"), but also contextual changes (e.g., being part of a larger student body with older and more diverse peers), which may each contribute to change in identity. Moreover,

because previous studies have often only started tracking identity once adolescents were in secondary school (e.g., see Meeus, 2011; Branje et al., 2021 for recent overviews), it is possible that the greater change we evidenced is characteristic of this younger age. As such, our findings highlight the importance of studying identity already before the transition to secondary school. In part, the substantial changes we found may also be a result of the use of a context-specific measure, which was more attuned to identity processes specific to the context of the school transition.

Moreover, the limited evidence for interindividual differences in general, as also evidenced by the fact that we could not find a multi-profile solution for identification with commitment and doubt, suggests that for these constructs the variation in patterns of change between adolescents at this age is likely small. Possibly, at this age identity change may be driven by a more uniform developmental process and room for individual differences might thus be smaller. Alternatively, it may be that the transition has a strong normative character and requires identity work from adolescents uniformly. However, the present study also differed from that by Christiaens et al. (2021) in the length of time across which adolescents were followed. In particular, the present study consisted of four half-yearly timepoints, whereas this previous study made use of nine yearly timepoints. Possibly, stable differences between individuals take a longer time to manifest, and may therefore not have been captured in the present study. Thus, future work on early adolescent populations with longer study periods is needed, to better understand normative development and the impact of life transitions during this period.

Interestingly, there was more evidence of differences in change after the school transition than before the school transition. For instance, for exploration in breadth all three groups scored above the midpoint of the scale on both timepoints before the transition, but one group remained at this level post-transition whereas the other groups decreased. This increased variability after the transition is in line with previous work on general adjustment after the school transition (e.g., Nelemans et al., 2018), and corroborates the notion that impactful moments can form a point of deviation in individuals' development (Graber & Brooks-Gunn, 1996). Possibly, the above-mentioned normative character of the transition may be stronger pre-transition, when adolescents are required to make a school choice, than post-transition, when differences in context and the person-environment fit may also predict identity change. For example, whether or not an adolescent experiences a good relationship with fellow students and teachers may impact to what extent they experience doubts about their choice for a secondary school. Furthermore, the increase in variability also underlines the importance of taking a context-dependent approach to measuring identity.

Room for individual differences: Personality and social context

In addition to examining identity change across the school transition and whether there are subgroups of adolescents with different developmental patterns, we examined whether factors in the person and environment may explain differences in identity change. In contrast to our expectation that adolescents with lower neuroticism and higher parental and friend support would have more adaptive identity development, we found limited support for a role of neuroticism, parental support, and best friend support in identity change. These factors did not explain individual differences in commitment making and

exploration in depth, and only parental support predicted subgroup membership for exploration in breadth. In particular, adolescents who perceived a higher level of parental support were more likely to have a high starting level and a sudden stop of exploration in breadth than to have a closer to average starting level and a gentle decline in their exploration behavior across time. Possibly, these adolescents feel more confident to initially start exploring and later stop exploring their options broadly because they are more confident about their choice. As such, this finding is in line with our expectations, and corroborates earlier work showing that support may help buffer the negative effects of stressful events (Dubois et al., 1994; Murberg & Bru, 2004; Yang et al., 2010), and is a direct predictor of more adaptive identity (e.g., De Moor et al., 2019; Meeus et al., 2002). Possibly, in the context of the school transition, perceived support from parents may have contributed to more thorough exploration in breadth, which may have resulted in a better fit with the new school environment and have less transition-related stress altogether.

The relatively limited impact of neuroticism and support on identity change might be due to the specific context in which adolescents' identity was assessed. In particular, during most times in adolescents' school career, options to actually change one's education may be limited. When that is the case, adolescents who report high commitment and low exploration may report better adjustment, which may be associated with low neuroticism (Hatano et al., 2017; Klimstra et al., 2012) and high social support (De Moor et al., 2019; Meeus et al., 2002). However, during and especially before the school transition, high exploration of alternatives may be a much more important and adaptive process, which may explain why the usual associations with neuroticism and social support were not found.

Strengths and limitations

The present study took a prospective approach to studying the school transition, examining adolescent identity not just in the aftermath of the transition, but also in the runup. In addition, it took a context-specific approach to studying identity, allowing us to pick up on context-specific processes of identity as adolescents prepared for the school transition and as they settled in to their new schools. As a result, our study may have picked up on more context-specific fluctuations in identity that would not have been visible with a more general, context-independent measure of identity.

At the same time, the present study had several limitations. First, our analyses showed that for two identity constructs, change could be characterized in the same way for most adolescents (>90%). However, a small number of adolescents fit in an alternative profile of change, which in the present study was too small to examine. In future work, larger groups should be studied to be able to examine predictors and outcomes of these small but potentially meaningful subgroups. It is possible that in a context where change is normative, these adolescents with divergent development are most at risk for maladjustment.

Furthermore, it is important to take into account that data for the present study were, in part, collected during the COVID-19 pandemic. As a result, it is possible that inter-individual differences were smaller, due to the fact that there was less room for identity behaviors (e.g., exploration through visiting schools or going to presentations might have occurred online). At the same time, it is important to keep in mind that identity behaviors

may also be expressed through more everyday behaviors, such as talking to a friend. Therefore, although it is important to replicate our findings in a context where identity processes are not restricted by COVID-19 measures, it is unlikely that the findings will differ substantially from the present findings. It is also important to keep in mind the Dutch context in which this study was conducted. In the Netherlands, adolescents, together with their parents, make a choice for a secondary school based on an education advice they receive in the last year of primary school. Identity development during this time, then, may be expected to be at least partially driven by the necessity to make this choice. It is important to examine identity development around the transition from primary to secondary school also in other educational systems, where adolescents may not have to make a choice but instead are assigned (e.g., in the US based on geographic location), or in more rural areas where all adolescents attend the same primary and secondary school and the peer context remains the same. In such cases, adolescents do not have to make a choice but rather explore their new role in the new context, and we may expect the school transition to have a less normative effect on identity, and perhaps be more driven by other factors such as contextual changes and events surrounding the school transition.

Finally, the context-specific measure of identity was a strength of the present study, but also proved to be a challenge analytically. The different pre- and post-versions of our measure were too different to examine as a single or piece-wise growth process, as was our original plan. Relatedly, the use of a new questionnaire in combination with a relatively younger sample than previous studies meant that we could not perform a power analysis. Therefore, we cannot exclude the possibility that we lacked the power to detect certain effects. Power for Latent Profile Analyses can be estimated with Monte Carlo simulations, and the results of such analyses are highly specific for the estimated model and population values (e.g., see Wang & Rhemtulla, 2021 for a discussion of this issue). Given that insufficient information was a priori available to make appropriate estimates of all parameters in our model, and because the results of post-hoc analyses based on our own study results are uninformative (e.g., Sebyhed & Gunnarsson, 2020; Zhang et al., 2019), we decided against running such analyses. However, we strongly encourage future research to use the present study's findings as input for such simulation analyses.

Conclusions

The present study examined interindividual differences in identity change before and after the transition to secondary school. We included neuroticism, parental support, and best friend support as predictors of subgroup membership. Our findings provided support for increasing pre-transition commitment and decreasing exploration across the transition and individual differences therein, although these differences existed only for commitment making, exploration in breadth, and exploration in depth, and tended to exist mostly after the transition. This, and the limited role for neuroticism and support in predicting change, suggests that identity development during this life period and this life transition may be relatively normative and uniform. However, adolescents who experienced greater support from their parents were more likely to have more adaptive identity change, suggesting that even in this normative development there may be a role for

parents to help their children. More research is needed that examines identity at this early age and takes a context-dependent approach.

Note

1. Initially, we planned to examine latent growth curve trajectories of identity across the year before and after the transition (i.e., four time points). However, the identity measure was context-specific to the pre- and post-transition context, consisting of different scales and items in each version. As a result, a latent growth modeling approach was not feasible and, in preliminary modeling attempts, resulted in very poorly-fitting models. Separate models (e.g., piecewise latent growth curve models or latent change scores) for the pre- and post-transition waves were not possible because such models require at least three waves of data.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

The INTRANSITION data collection and De Moor and Branje were supported by the European Research Council under grant ERC-2017-CoG-773023 INTRANSITION.

ORCID

Elisabeth L. De Moor  <http://orcid.org/0000-0001-7049-5959>

Jolien Van der Graaff  <http://orcid.org/0000-0002-1522-7596>

Susan Branje  <http://orcid.org/0000-0002-9999-5313>

References

- Archer, S. L., & Waterman, A. S. (1983). Identity in early adolescence: A developmental perspective. *The Journal of Early Adolescence*, 3(3), 203–214. <https://doi.org/10.1177/0272431683033003>
- Asparouhov, T., & Muthén, B. (2014). Auxiliary variables in mixture modeling: Three-step approaches using M plus. *Structural Equation Modeling: A Multidisciplinary Journal*, 21(3), 329–341. <https://doi.org/10.1080/10705511.2014.915181>
- Becht, A. I., Branje, S. J. T., Vollebergh, W. A. M., Maciejewski, D. F., van Lier, P., Koot, H. M., Denissen, J. J., & Meeus, W. H. J. (2016). Assessment of identity during adolescence using daily diary methods: Measurement invariance across time and sex. *Psychological Assessment*, 28, 660–672. <https://doi.org/10.1037/pas0000204>
- Bosma, H. A., & Kunnen, E. S. (2001). Determinants and mechanisms in ego identity development: A review and synthesis. *Developmental Review*, 21, 39–66. <https://doi.org/10.1006/drev.2000.0514>
- Branje, S., De Moor, E. L., Spitzer, J., & Becht, A. I. (2021). Dynamics of personal identity development in adolescence. *Journal of Research on Adolescence*, 31(4), 908–927. <https://doi.org/10.1111/jora.12678>
- Branje, S., Van Lieshout, C. F. M., & Van Aken, M. A. G. (2004). Relations between big five personality characteristics and perceived support in adolescents' families. *Journal of Personality and Social Psychology*, 86(4), 615–628. <https://doi.org/10.1037/0022-3514.86.4.615>
- Brown, T. A., & Rosellini, A. J. (2011). The direct and interactive effects of neuroticism and life stress on the severity and longitudinal course of depressive symptoms. *Journal of Abnormal Psychology*, 120, 844–856. <https://doi.org/10.1037/a0023035>

- Caspi, A., Roberts, B. W., & Shiner, R. L. (2005). Personality development: Stability and change. *Annual Review of Psychology, 56*, 453–484. <https://doi.org/10.1146/annurev.psych.55.090902.141913>
- Christiaens, A. H. T., Nelemans, S., De Moor, E. L., Vosylis, R., Erentaite, R., & Branje, S. (2022). Psychometric qualities of the Educational Identity Processes Scale (EIPS). *Frontiers in Psychology, 13*, 893–904. <https://doi.org/10.3389/fpsyg.2022.861220>
- Christiaens, A. H. T., Nelemans, S. A., Meeus, W. H. J., & Branje, S. (2021). Identity development across the transition from secondary to tertiary education: A 9-wave longitudinal study. *Journal of Adolescence, 93*, 245–256. <https://doi.org/10.1016/j.adolescence.2021.03.007>
- Crocetti, E. (2017). Identity formation in adolescence: The dynamic of forming and consolidating identity commitments. *Child Development Perspectives, 11*, 145–150. <https://doi.org/10.1111/cdep.12226>
- Crocetti, E., Rubini, M., & Meeus, W. (2008). Capturing the dynamics of identity formation in various ethnic groups: Development and validation of a three-dimensional model. *Journal of Adolescence, 31*, 207–222. <https://doi.org/10.1016/j.adolescence.2007.09.002>
- De Moor, E. L., Nelemans, S. A., Becht, A. I., Meeus, W., & Branje, S. (2022). Personality development across adolescence and young adulthood: The role of life transitions and self-concept clarity. *European Journal of Personality*. Advance online publication. <https://doi.org/10.1177/08902070221119782>
- De Moor, E. L., Van der Graaff, J., Van Dijk, M. P. A., Meeus, W., & Branje, S. (2019). Stressful life events and identity development in early and mid-adolescence. *Journal of Adolescence, 76*, 75–87. <https://doi.org/10.1016/j.adolescence.2019.08.006>
- Dubois, D. L., Felner, R. D., Meares, H., & Krier, M. (1994). Prospective investigation of the effects of socioeconomic disadvantage, life stress, and social support on early adolescent adjustment. *Journal of Abnormal Psychology, 103*, 511–522. <https://doi.org/10.1037/0021-843X.103.3.511>
- Erikson, E. H. (1950). *Childhood and society*. Norton.
- Furman, W., & Buhrmester, D. (1985). Children's perceptions of the personal relationships in their social networks. *Developmental Psychology, 21*, 1016.
- Goldberg, L. R. (1992). The development of markers for the big-five factor structure. *Psychological Assessment, 4*, 26–42. <https://doi.org/10.1037/1040-3590.4.1.26>
- Graber, J. A., & Brooks-Gunn, J. (1996). Transitions and turning points: Navigating the passage from childhood through adolescence. *Developmental Psychology, 32*, 768–776. <https://doi.org/10.1037/0012-1649.32.4.768>
- Hatano, K., Sugimura, K., & Klimstra, T. A. (2017). Which came first, personality traits or identity processes during early and middle adolescence? *Journal of Research in Personality, 67*, 120–131. <https://doi.org/10.1016/j.jrp.2016.06.014>
- Heaven, P. C. L., Ciarrochi, J., & Vialle, W. (2008). Self-nominated peer crowds, school achievement, and psychological adjustment in adolescents: Longitudinal analysis. *Personality and Individual Differences, 44*, 977–988. <https://doi.org/10.1016/j.paid.2007.10.031>
- Jeronimus, B. F., Riese, H., Sanderman, R., & Ormel, J. (2014). Mutual reinforcement between neuroticism and life experiences: A five-wave, 16-year study to test reciprocal causation. *Journal of Personality and Social Psychology, 107*, 751–764. <https://doi.org/10.1037/a0037009>
- Klimstra, T. A., Hale, W. W., III, Raaijmakers, Q. A. W., Branje, S. J. T., & Meeus, W. H. J. (2010). A developmental typology of adolescent personality. *European Journal of Personality, 24*, 309–323. <https://doi.org/10.1002/per.744>
- Klimstra, T. A., Luyckx, K., Germeijs, V., Meeus, W. H. J., & Goossens, L. (2012). Personality traits and educational identity formation in late adolescents: Longitudinal associations and academic progress. *Journal of Youth and Adolescence, 41*, 346–361. <https://doi.org/10.1007/s10964-011-9734-7>
- Lannegrand-Willems, L., Perchec, C., & Marchal, C. (2016). Vocational identity and psychological adjustment: A study in French adolescents and emerging adults. *Journal of Adolescence, 47*, 210–219. <https://doi.org/10.1016/j.adolescence.2015.10.005>
- Lo, Y. T., Mendell, N. R., & Rubin, D. B. (2001). Testing the number of components in a normal mixture. *Biometrika, 88*(3), 767–778. <https://doi.org/10.1093/biomet/88.3.767>

- Lounsbury, J. W., Levy, J. J., Leong, F. T., & Gibson, L. W. (2007). Identity and personality: The big five and narrow personality traits in relation to sense of identity. *Identity: An International Journal of Theory and Research*, 7, 51–70. <https://doi.org/10.1080/15283480701319641>
- Luyckx, K., Goossens, L., & Soenens, B. (2006). A developmental contextual perspective on identity construction in emerging adulthood: Change dynamics in commitment formation and commitment evaluation. *Developmental Psychology*, 42, 366–380. <https://doi.org/10.1037/0012-1649.42.2.366>
- Luyckx, K., Schwartz, S. J., Berzonsky, M. D., Soenens, B., Vansteenkiste, M., Smits, I., & Goossens, L. (2008). Capturing ruminative exploration: Extending the four-dimensional model of identity formation in late adolescence. *Journal of Research in Personality*, 42, 58–82. <https://doi.org/10.1016/j.jrp.2007.04.004>
- Marcia, J. E. (1966). Development and validation of ego-identity status. *Journal of Personality and Social Psychology*, 3, 551–558. <https://doi.org/10.1037/h0023281>
- McCrae, R. R., & John, O. P. (1992). An introduction to the five-factor model and its applications. *Journal of Personality*, 60, 175–215. <https://doi.org/10.1111/j.1467-6494.1992.tb00970.x>
- Meeus, W. (2011). The study of adolescent identity formation 2000–2010: A review of longitudinal research. *Journal of Research on Adolescence*, 21(1), 75–94. <https://doi.org/10.1111/j.1532-7795.2010.00716.x>
- Meeus, W. H. J., Iedema, J., Helsen, M., & Vollebergh, W. (1999). Patterns of adolescent identity development: Review of literature and longitudinal analysis. *Developmental Review*, 19, 419–461. <https://doi.org/10.1006/drev.1999.0483>
- Meeus, W., Oosterwegel, A., & Vollebergh, W. (2002). Parental and peer attachment and identity development in adolescence. *Journal of Adolescence*, 25, 93–106. <https://doi.org/10.1006/jado.2001.0451>
- Meeus, W., Van de Schoot, R., Keijsers, L., Schwartz, S. J., & Branje, S. (2010). On the progression and stability of adolescent identity formation: A five-wave longitudinal study in early-to-middle and middle-to-late adolescence. *Child Development*, 81, 1565–1581. <https://doi.org/10.1111/j.1467-8624.2010.01492.x>
- Murberg, T. A., & Bru, E. (2004). Social support, negative life events and emotional problems among Norwegian adolescents. *School Psychology International*, 25, 387–403. <https://doi.org/10.1177/0143034304048775>
- Muthén, L. K., & Muthén, B. O. (1998–2017). *Mplus user's guide* (8th ed.). Muthén & Muthén.
- Nelemans, S. A., Hale, W. W. I., Branje, S. J. T., Meeus, W. H. J., & Rudolph, K. D. (2018). Individual differences in anxiety trajectories from Grades 2 to 8: Impact of the middle school transition. *Development and Psychopathology*, 30, 1487–1501. <https://doi.org/10.1017/S0954579417001584>
- Oyserman, D., & Destin, M. (2010). Identity-based motivation: Implications for intervention. *The Counseling Psychologist*, 38, 1001–1043. <https://doi.org/10.1177/0011000010374775>
- Penner, F., Gambin, M., & Sharp, C. (2019). Childhood maltreatment and identity diffusion among inpatient adolescents: The role of reflective function. *Journal of Adolescence*, 76, 65–74. <https://doi.org/10.1016/j.adolescence.2019.08.002>
- Porfeli, E. J., Lee, B., Vondracek, F. W., & Weigold, I. K. (2011). A multi-dimensional measure of vocational identity status. *Journal of Adolescence*, 34, 853–871. <https://doi.org/10.1016/j.adolescence.2011.02.001>
- Pratt, S., & George, R. (2005). Transferring friendships: Girls' and boys' friendships in the transition from primary to secondary school. *Children & Society*, 19(1), 16–26. <https://doi.org/10.1002/chi.830>
- Roeser, R. W., Peck, S. C., & Nasir, N. S. (2012). Self and identity processes in school motivation, learning, and achievement. In P. A. Alexander & P. H. Winnie (Eds.), *Handbook of educational psychology* (pp. 391–426). Taylor & Francis.
- Schwarz, G. (1978). Estimating the dimension of a model. *Annals of Statistics*, 6(2), 461–464. <https://doi.org/10.1214/aos/1176344136>
- Sebyhed, H., & Gunnarsson, E. (2020). *The impotency of post hoc power*. Dissertation. Retrieved from <http://urn.kb.se/resolve?urn=urn:nbn:se:uu:diva-433274>

- Symonds, J., & Galton, M. (2014) Moving to the next school at age 10–14 years: An international review of psychological development at school transition, *Review of Education*, 2, 1–27. <https://doi.org/10.1002/rev3.3021>
- Van De Schoot, R., Sijbrandij, M., Winter, S. D., Depaoli, S., & Vermunt, J. K. (2017). The GROLTS-checklist: Guidelines for reporting on latent trajectory studies. *Structural Equation Modeling*, 24, 451–467. <https://doi.org/10.1080/10705511.2016.1247646>
- Van Doeselaar, L., Klimstra, T. A., Denissen, J. J. A., Branje, S., & Meeus, W. (2018). The role of identity commitments in depressive symptoms and stressful life events in adolescence and young adulthood. *Developmental Psychology*, 54, 950–962. <https://doi.org/10.1037/dev0000479>
- Van Doeselaar, L., & Reitz, A. K. (2021). Personal narratives as a predictor of state fluctuations and trait change in self-esteem and life satisfaction during the transition from university to work. *Identity*, 23 (1), 18–35. <https://doi.org/10.1080/15283488.2022.2106229>
- Vermulst, A. A., & Gerris, J. R. M. (2005). *QBF: Quick big five persoonlijkheidstest handleiding [quick big five personality test manual]*. LDC Publications.
- Vermunt, J. K., Tran, B., & Magidson, J. (2008). Latent Class Models in longitudinal research. In S. Menard (Ed.), *Handbook of longitudinal research: Design, measurement, and analysis* (pp. 373–386). Elsevier.
- Wang, Y. A., & Rhemtulla, M. (2021). Power analysis for parameter estimation in structural equation modeling: A discussion and tutorial. *Advances in Methods and Practices in Psychological Science*, 4, Article 2515245920918253. <https://doi.org/10.1177/2515245920918253>
- Waterman, A. S. (1982). Identity development from adolescence to adulthood: An extension of theory and a review of research. *Developmental Psychology*, 18, 341–358. <https://doi.org/10.1037/0012-1649.18.3.341>
- Watkins, E., Moberly, N. J., & Moulds, M. L. (2008). Processing mode causally influences emotional reactivity: Distinct effects of abstract versus concrete construal on emotional response. *Emotion*, 8, 364–378. <https://doi.org/10.1037/1528-3542.8.3.364>
- Yang, J., Yao, S., Zhu, X., Zhang, C., Ling, Y., Abela, J. R. Z., Esseling, P. G., & McWhinnie, C. (2010). The impact of stress on depressive symptoms is moderated by social support in Chinese adolescents with subthreshold depression: A multi-wave longitudinal study. *Journal of Affective Disorders*, 127, 113–121. <https://doi.org/10.1016/j.jad.2010.04.023>
- Zeedyk, M. S., Gallacher, J., Henderson, M., Hope, G., Husband, B., & Lindsay, K. (2003). Negotiating the transition from primary to secondary school: Perceptions of pupils, parents and teachers. *School Psychology International*, 24, 67–79. <https://doi.org/10.1177/0143034303024001010>
- Zhang, Y., Hedo, R., Rivera, A., Rull, R., Richardson, S., & Tu, X. M. (2019). Post hoc power analysis: Is it an informative and meaningful analysis? *General Psychiatry*, 32, e100069. <https://doi.org/10.1136/gpsych-2019-100069>