

Down the Rabbit Hole:  
Identity Across Life  
Events and Transitions



Elisabeth L. de Moor



# **DOWN THE RABBIT HOLE**

Identity Across Life Events and Transitions

**Elisabeth Louise de Moor**

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# **DOWN THE RABBIT HOLE**

Identity Across Life Events and Transitions

**Het Konijnenhol in:  
Identiteit Rondom Levensgebeurtenissen en Transitie**

(met een samenvatting in het Nederlands)

Proefschrift

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# 1

## General Introduction

*“Who are you?” said the Caterpillar. [...]*

*Alice replied, rather shyly, “I—I hardly know, Sir, just at present—at least I know who I was when I got up this morning, but I think I must have been changed several times since then.”*

*“What do you mean by that?” said the Caterpillar, sternly. “Explain yourself!”*

*“I can’t explain myself, I’m afraid, Sir,” said Alice, “because I am not myself, you see.”*

*– Alice’s Adventures in Wonderland (1865) by Lewis Carroll*

Alice fell down the rabbit hole and was changed forevermore. She shrunk, she grew, and all in all experienced so many strange and fantastical things that she no longer felt like Alice – or at least not *the* Alice. In the famous story by Lewis Carroll, Alice’s changing identity is central amidst curious happenstances, strange locations, and even stranger characters. In the more mundane lives of real-world youth, too, they may be able to identify moments which they believe shaped or changed them in some way or another. But to what extent does experiencing a life event or transition such as tumbling into Wonderland really impact who adolescents are as a person? And does how they process such moments matter for their broader functioning? This dissertation aimed to answer these questions, and to identify factors in the person and environment that are related to identity processes around impactful moments or that moderate the association of life events and transitions with identity.

### **What it means to be Alice – The concept of personal identity**

The question that we naturally need to answer at this point before being able to discuss change therein, is what “being Alice” means in the first place. The issue that Alice was grappling with in the books by Carroll is that of identity, and is one that she shares with other youth (Erikson, 1950, 1968). Identity refers to the fundamental question of who one is, and includes such questions as “What do I find important?” and “Who am I in different roles in my life?”. Identity refers to the current self, but also references past (i.e., who was I before?) and future selves (i.e., who do I want to become?), and importantly, their integration. That is, in one’s identity, individuals aim to create a cohesive and coherent whole of who one was,

who one is now, and who one will or wants to become in the future (McAdams, 1985). Identity starts to develop in adolescence, and is considered to be the main developmental task during this life period. During adolescence, youth may experience periods of “crisis”; of a struggle or active questioning of who one is, and solving this crisis is considered vital for healthy adjustment in later life stages (Erikson, 1968). As Alice demonstrates through her adventures in Wonderland, knowing who one is can have a vast impact on adolescents’ lives, for instance in how they interact with others (Swann, 2000; Swann et al., 2000), what experiences they have (Van Doeselaar et al., 2018), and how they navigate those experiences. More generally, having a clear, stable, and coherent sense of identity is linked to higher well-being, and fewer psychological and even personality pathology problems (see Branje et al., 2021 and Lind et al., 2020 for recent reviews).

### *Models of identity*

Identity can be studied using different conceptualizations and operationalizations. This dissertation focuses on personal identity; that is, how individuals differ from other individuals based on their personal characteristics. The dissertation builds upon two broad research traditions in the field of personal identity.

The first research tradition of personal identity is that describing *identity processes*. This perspective examines different processes that individuals go through to “get” and to “have” an identity. Building on Erikson’s theorizing of the process of identity commitment, Marcia (1966) postulated that a second process may explain how individuals get to these commitments to a certain identity choice. Adolescents may be categorized into different statuses of identity development, using the two processes of commitment to an identity choice and exploration of different alternatives. Here, the proposed starting point is a state of “diffusion” with neither exploration nor commitments and the proposed, ideal end point a state of “achievement” characterized by strong commitments following exploration. The commitment and exploration processes may be further distinguished depending on whether one is still “getting” an identity, or already “has” an identity (i.e., dual-cycle models of identity processes; Luyckx et al., 2006 and Crocetti et al., 2008). In particular, a first cycle of identity focuses on identity *formation*, which is in line with the identity processes described by Marcia (1966). In this cycle, individuals start out by exploring in breadth different options that they could commit to (e.g., different possible friends, different schools) and then make a commitment. Then, they enter the identity *maintenance* cycle. After forming commitments,

this second cycle serves to evaluate existing commitments by reflecting on made commitments and the fit with the self (i.e., exploration in depth) and may result in a strengthening of these commitments when they are still considered to be satisfactory. In case the commitment is not strengthened, the individual may begin a process of reconsideration of the commitment and eventually choose to relinquish existing identity choices and return to the formation cycle. In the identity processes tradition, identity has been examined at a global level and at the level of life domains (e.g., friendship domain, educational domain). Thus, following from this perspective commitment and exploration processes help adolescents form and evaluate their identities.

The second research tradition focuses on processes that are reflected in *narrative aspects* to understand identity. In particular, this research tradition has developed from McAdams' theory of three levels of personality (McAdams, 2013a). The third, most advanced layer in this model is that of narrative identity, which is defined as an internalized life story of who one is and how experiences in one's life have contributed to this sense of self (McAdams, 2011). Within these life stories, identity can be examined by looking at different aspects of the story. In particular, it is possible to focus on certain narrative constructions (i.e., *how* someone narrates their story) and narrative content (i.e., *what* someone narrates about). Autobiographical reasoning and meaning making elements are important for identity formation, because they help individuals make sense of their experiences and create a continuous sense of self across time (Habermas & Bluck, 2000; McAdams, 1993). Within the context of the stories that people tell about individual events, they might make explicit connections between the self and the event to attempt to make meaning of an experience (Pasupathi et al., 2007). These self-event connections can be absent or present in adolescents' narratives, but can also vary in what the self-event connection is about (e.g., in terms of valence and the life domain that it pertains to). The meaning assigned to an event may also change over time, which may result in a redemption sequence where an initial negative event comes to have a positive interpretation (McAdams et al., 2001; McAdams, 2013b). In sum, the narrative tradition considers identity as the life story that individuals construct, and particular aspects thereof. The present dissertation examined the central questions from both the identity processes and the narrative identity tradition.

*“I could tell you my adventures – beginning from this morning,” said Alice a little timidly: “but it’s no use going back to yesterday, because I was a different person then.”*

*– Alice’s Adventures in Wonderland (1865) by Lewis Carroll*

### **To no longer be Alice – The impact of life events and transition moments on identity formation and functioning**

Once we have a sense of what being Alice means, the next question should be what makes that one can be Alice at one point, and not (quite) Alice at another. That is, what causes identity change? During the early stages of identity development in adolescence, development will mostly be a process of questioning and, if needed, releasing early identifications and adding new identities. This latter process reflects the task of figuring out who one wants to be in a life domain or role that one had not yet considered themselves in relation to. For instance, in early adolescence youth need to create an educational identity or a relational identity, which are thought to be most salient for adolescents given the amount of time they spend in school and with peers (Heaven et al., 2008). Later, adolescents need to evaluate these identities. During this process, they may strengthen current identities, either by increasingly identifying with one’s commitments or by adding new experiences to their life story that corroborate that identity, or abandon them for new identities through the process of reconsideration and exploration or by making a self-event connection explaining change. Throughout adolescence, there is evidence of modest change in the direction of a more mature identity, characterized by strong commitments and less reconsideration, but also of overwhelming stability in identity processes (see Branje et al., 2021 and Meeus, 2011 for overviews of the past two decades of this work).

Therefore, although identity change may and is even expected to occur in adolescence, this change may be relatively modest. However, there may be particular moments that are catalysts for identity development, temporarily putting this development in acceleration. Experiences such as (stressful) life events and transitions may make the question of who one is more salient (Bosma & Kunnen, 2008; Marcia, 1966; Waterman, 1982), and force adolescents to (re)consider their identities. Such events and transitions can impact identity in different ways, for instance by affirming or threatening one’s identity (Waterman, 2020). Furthermore, these experiences can impact individual differences in identity, for example by accentuating existing differences or forming a point of deviation (Graber & Brooks-Gunn,

1996).

Some support for the role of life events and transitions in identity change has been found. Regarding stressful, non-normative life events, previous work has linked traumatic experiences such as war and childhood maltreatment to identity unclarity (Erikson, 1968; Penner et al., 2019). However, others did not find an association between life events and identity (e.g., Van Doeselaar et al., 2018). If identity change takes place around life events, we may mostly expect it to occur in the aftermath, as stressful, non-normative life events generally occur unexpectedly, with limited or no time to prepare for the event. Regarding normative transitions, major life transitions such as transitions to a different school may be set milestones in adolescents' lives, which they can see coming and therefore can already change their identity in anticipation of. In addition, such transitions may also affect youth in the aftermath, when they may need to adjust to new social roles (e.g., being a secondary school student) and new experiences (e.g., having to wake up earlier). In line with this, one study reported individual differences in youth's identities before the transition to tertiary education and increased heterogeneity afterwards (Christiaens et al., 2021). Therefore, although there is some support that an experience like Alice's tumble into Wonderland *may* affect adolescents' identity, this evidence is scarce and by no means conclusive. A focus on examining life events and transitions in relation to domain-relevant identity is necessary, as previous research in adults has shown evidence for domain-specificity in the association between impactful experiences and identity (Kroger & Green, 1996). That is, life events may particularly impact identity in related life domains (e.g., a relational event affecting relational identity).

However, non-normative and normative experiences may not only impact identity, but may also be interpreted or processed in a certain way because of adolescents' identity. This identity-relevant processing may be important when we want to understand the impact of experiences on broader youth functioning (Skaggs & Barron, 2006). That is, beyond knowing that she tumbled into Wonderland, we need to know how Alice interpreted and processed that experience to understand if and how it would impact her. This processing encompasses adolescents' engagement in identity behaviors around the event, as well as narrative meaning making of the experience afterwards. Using an identity processes approach, we may examine the clarity of Alice's self-views or the level of her commitment and exploration behavior prior to her adventures in Wonderland. We might expect that if she had a more clear identity before the experience, she is more likely to show positive outcomes afterwards. Similarly,



using a narrative approach, we might expect better outcomes if Alice connected the event to her self and was able to give a positive meaning to what was initially a stressful event. Several studies have indeed shown that adolescents' meaning making of their experiences is related to better functioning (for recent overviews, see Adler et al., 2016 and McLean et al., 2020). However, not only meaning making itself but also the kind of meaning might be relevant for functioning (i.e., the *what* aspect of narratives), but this has not yet been studied in great detail (Adler et al., 2016; McLean et al., 2020). Thus, it remains unclear if Alice's identity-relevant processing of her adventures in Wonderland is related to her functioning, and if the type of interpretation (e.g., positive or negative, relating to the relational or the educational life domain) she attaches to those adventures matters. A focus on identity-relevant processing of the event and on the content of meaning making may help us to better understand the association between non-normative and normative life events or transitions, identity, and adolescent functioning.

*"In that direction," the Cat said, waving its right paw round, "lives a Hatter: and in that direction," waving the other paw, "lives a March Hare. Visit either you like: they're both mad."*

*"But I don't want to go among mad people," Alice remarked.*

*"Oh, you can't help that," said the Cat: "we're all mad here. I'm mad. You're mad."*

*– Alice's Adventures in Wonderland (1865) by Lewis Carroll*

### **The Cat, The Hatter, and Alice's adventurous and inquisitive nature – The importance of environmental and personal influences for understanding the impact of life events and transitions on identity**

During Alice's adventures in Wonderland, she encountered quite a few interesting characters. And of course, it could be argued that Alice was quite an interesting character herself. As a result, we may find ourselves wondering if the story would have played out the same way had she met different people, or had she been a different person herself. In other words: we may wonder what the role is of environmental factors and personal characteristics in the effect of important moments on individuals.

Although identity development is often presented as an individualistic process of increasing independence from others, it is actually driven by people's social interactions with others (Fivush et al., 2011). From an early age on, parents help their children shape their stories (Fivush et al., 2006), setting the stage for later narrative building. In adolescence, too, parents and increasingly peers play a role in identity development. In direct interaction, how parents and peers listen and respond to adolescents' self-relevant information and autobiographical stories helps them to think about and even to change aspects of the narratives they form about themselves (e.g., McLean & Jennings, 2012; Pasupathi & Hoyt, 2009). Experiencing supportive relationships with close others also more generally provides a basis for identity development, for instance by being a safe haven from which adolescents feel comfortable to explore identity alternatives (Ainsworth, 1989; Bowlby, 1969; Furman & Buhrmester, 2009). In addition, adolescents' social context also explains individual differences in adjustment to an event, by weakening the negative effects of a normative life transition or a non-normative stressful event on adolescent well-being (e.g., DuBois et al., 1994; Murberg & Bru, 2004; Yang et al., 2010). It has yet to be examined whether the social context may moderate effects of life events or transitions on identity.

Personal characteristics also impact how adolescents go through the identity process and may potentially play a role in how certain contexts impact their identity. For instance, personality differences impact how at ease youth feel to explore different identity options, or how much they are able to commit to any one option (e.g., Klimstra, 2013; Klimstra et al., 2013). Particularly neuroticism, a less adaptive personality trait characterized by emotional instability and negative mood, is associated with weaker commitments and more reconsideration of those commitments (Hatano et al., 2017; Klimstra et al., 2012). Neuroticism also explains why individuals respond to the same experience differently, for instance by making them more vulnerable to the negative experiences that they have (Watkins et al., 2008). As is the case for the social context, however, the role of neuroticism in the association of life events and transitions with identity is yet to be examined.

Thus, both the support Alice received from the Cat, the Hatter, and all other individuals she met in Wonderland and Alice's own emotional (in)stability may play a role in her response to her adventures in Wonderland. In particular, there is evidence that social support and neuroticism are directly related to identity, and that these factors also moderate the effects of events and life transitions on individuals' adjustment around these moments. However, it is not yet clear if individual differences in social support and neuroticism can also be a

resource or vulnerability for identity development in the context of life transitions and events.

## Aims and outline of the thesis

As becomes clear from the above, if and how tumbling into Wonderland will have affected Alice's identity and further functioning is still an outstanding question. In particular, it remains unclear whether life events and transitions impact identity, especially in related life domains, whether processing such experiences is relevant for broader adolescent functioning, and what the role is of factors in the environment and individual. The purpose of this dissertation was to improve our understanding of identity development around life events and transitions, and the importance thereof for adolescent functioning. In particular, this dissertation examined 1) whether life events and transitions are related to identity change, and 2) whether how one processes these events matters for broader functioning. Furthermore, 3) in all of the presented work the role of environmental and personal factors as a resource or vulnerability for identity development around life events and transitions was examined. This dissertation aimed to seek answers to these research questions using a broad range of study designs and diverse operationalizations of important moments, identity, and functioning. Doing so, it has been the goal to provide a nuanced and detailed picture of identity development around life events and transitions, and the interrelations of such events and transitions with identity and functioning.

### **Aim 1 – The impact of life events and transitions on identity**

The first two chapters deal with the question of how certain experiences may shape or change identity development of adolescents. First, **Chapter 2** studied the role of non-normative, stressful life events in predicting identity commitment, exploration, and reconsideration processes. In particular, this chapter examined whether having to repeat a grade in school and experiencing the death of a loved one were predictive of identity change in the educational and relational domain, respectively. **Chapter 3** focused on the impact of a normative life event on identity commitment, exploration, and doubt processes of adolescents. In this chapter, identity change before and after the transition to secondary school was examined. As in the previous chapter, the life transition and identity were domain-matched, with both reflecting the educational life domain.

### **Aim 2 – The role of identity processing of impactful experiences for broader functioning**

Two chapters examined identity around normative life transitions. First, **Chapter 4** studied whether the extent to which adolescents' self-views are clearly and consistently defined (Campbell et al., 1990) could moderate the impact of life transitions on one's personality. In particular, this chapter focused on the impact of the transition to tertiary education and to working life on personality traits. **Chapter 5** examined whether educational identity exploration and commitment processes before the transition to secondary school are important for post-transition adjustment. Educational identity processes in the last year of primary school were specifically focused on the choice for a secondary school, and adjustment related to educational and psychological outcomes. Adolescents' own expectations and their reflections on their parents' expectations were also included as predictors of post-transition adjustment.

Two chapters dealt with how narrative aspects relating to integration of events into life stories are associated with broader adolescent functioning. **Chapter 6** investigated whether making self-event connections and redemption sequences was associated to the social context. In particular, these narrative aspects were linked to adolescents' perceived friendship quality. To investigate the association of self-event connections with adjustment outcomes in greater detail, self-event connections, and the valence of the self and of the event, were examined in relation to personality functioning in **Chapter 7**. Negative affectivity, a pathological personality trait closely related to neuroticism, was included as a control variable. Lastly, **Chapter 8** brings together new information on identity processes, narrative aspects, and in particular the role of identity content, a relatively understudied aspect of identity, and provides an empirical illustration of the importance of identity content.

### **Aim 3 – The importance of environmental and personal influences**

**Chapter 2, 3, and 6** examined the role of environmental and personal differences in identity development across life events and transitions. **Chapter 2** investigated whether the support adolescents experience from their parents and best friend and their level of neuroticism prior to the occurrence of a stressful life event moderates the impact of the event on identity commitment, exploration, and reconsideration. **Chapter 3** studied these same factors in relation to identity development across the transition from primary to secondary school, as predictors of different developmental profiles. Finally, **Chapter 6** examined the cross-sectional and longitudinal associations of making self-event connections and redemption sequences

with perceived friendship quality.

The results and implications of all chapters are summarized and discussed in the final chapter, in which directions for future research are also provided (**Chapter 9**).

## Study designs and samples

In the next seven chapters, empirical findings are presented on the association between life events and transitions, identity, and functioning (see Table 1 for an overview). In these studies identity was examined in different ways, stemming from an identity processes and/or a narrative aspects perspective. As a result, the ways in which identity was measured also differed; some studies made use of self-report questionnaires, whereas in others written accounts or transcripts of oral accounts of identity-relevant stories were used. Across the seven studies, this dissertation specifically looked at identity commitment, exploration, doubt, self-concept clarity, self-event connections, valence, content, and redemption, sometimes in combination with each other.

Data from five different samples were used to answer the research questions. Given the focus on adolescent identity development, all samples included adolescents. Moreover, all data was collected in the Netherlands, meaning that all findings must be situated in the Dutch context. However, four studies focused on early adolescence (mean participant age at the first measurement occasion of 11.6-13.4 years), whereas one study focused on late adolescence (mean age of 19.5 years). Three studies used data from youth in mid-adolescence (mean age of 14.7-14.8 years). Finally, one of the studies tracked participants from early adolescence until early adulthood (mean age of at the start of the study of 13.0 years). In total, the work presented in this dissertation used data from 2,966 Dutch adolescents.

### CONAMORE

For **Chapter 2**, data was used from the longitudinal CONflict And Management Of Relationships (CONAMORE) project. Participants were recruited from randomly selected secondary schools in the province of Utrecht, the Netherlands. Each wave, participants completed questionnaires after school hours or during home visits. Adolescents filled out self-report questionnaires on life events, identity in the educational and interpersonal domain, neuroticism, and social support. In **Chapter 2**, data from CONAMORE Wave 1 to Wave 5 was included, centering individuals' data around the experience of a stressful event.

For individuals who did not experience such an event, three successive datapoints were randomly chosen to match the distribution in the group of adolescents who did experience an event. Data were centered separately for having to repeat a grade (total  $N$  of adolescents with relevant data = 840, 49.4% female,  $M_{\text{age}} = 14.8$  years) and experiencing the death of a loved one ( $N = 682$ , 54.8% female,  $M_{\text{age}} = 13.4$  years).

## **INTRANSITION**

**Chapters 3, 5, and 8** made use of data from the longitudinal INTRANSITION study, which followed adolescents across the year before and after the school transition to secondary school and to tertiary education. Adolescents were recruited from primary and secondary schools across the Netherlands. During Wave 1 (fall of the last pre-transition year) and Wave 4 (spring of the post-transition year) participants were visited at their homes for observations and questionnaires; during Wave 2 (spring pre-transition year) and 3 (fall post-transition year) explanation about the questionnaires was given over the phone.

This dissertation used data from youth in the younger cohort, who were in the last year of primary school at Wave 1 and who made the transition to secondary school after Wave 2. In particular, **Chapter 3** used data from Wave 1-3 of adolescents and their friends who participated at least at Wave 1 ( $N = 314$ , 51.6% female,  $M_{\text{age}} = 11.6$  years). **Chapter 5 and 8** made use of target participant data at Wave 1-4 and Wave 4, respectively ( $N = 241$  at Wave 1, 50.0% female,  $M_{\text{age}} = 11.6$  years and  $n = 160$  at Wave 4, 53.8% female,  $M_{\text{age}} = 13.1$ ). Target participants and their friends filled out questionnaires on educational identity, own and parental expectations of their post-transition adjustment, measures of school and psychological adjustment, neuroticism, and social support. In addition, at Wave 1 and Wave 4, target participants completed a brief interview about the school transition, which was coded for narrative identity aspects.

## **RADAR**

Data from Wave 1 through 10 of the young cohort of the ongoing Research on Adolescent Development And Relationships (RADAR) was used in **Chapter 4**. Participants were recruited via several randomly selected elementary schools in the center of the Netherlands. Questionnaires were filled out by adolescents annually for Wave 1 through Wave 6, and biennially from Wave 7 onwards. At Wave 1, a total of 497 target adolescents participated (43.1% female,  $M_{\text{age}} = 13.0$ ), along with family members and friends. **Chapter 4** made use of

adolescents' self-reported questionnaire data on personality and self-concept clarity, as well as background information on their education at each wave.

### **Project-Me**

Data from the Project-Me study was used for **Chapter 6** and **8**. During the first wave, several secondary schools in the province of Noord Brabant, the Netherlands, were visited by trained assistants and adolescents filled out questionnaires and wrote an autobiographical narrative about a turning point moment during class hours. For the second and third wave, participants were asked one or two years after the initial study, respectively, whether they wanted to participate in an online questionnaire which also included a turning point prompt. **Chapter 6** used data from Wave 1 and available follow-up data from either Wave 2 or 3. Focusing on participants who had written a narrative and provided social support data, this resulted in a cross-sectional sample of  $N = 1,087$  (55.7% female,  $M_{\text{age}} = 14.8$  years) and a longitudinal sample of  $n = 186$  (62.4% female,  $M_{\text{age}} = 14.7$  years). In **Chapter 8**, narrative data was used from the first timepoint in combination with well-being data from the second timepoint, resulting in a sample of 180 adolescents (56.7% female,  $M_{\text{age}} = 14.7$  years).

### **APOLO**

Finally, data from the ongoing "Adolescenten en hun PersoonlijkhedsOntwikkeling: een Longitudinaal Onderzoek" [Adolescents and their personality development: a longitudinal study] (APOLO) project was used for **Chapter 7**. The project follows a group of outpatient youth in two specialized mental health care institutions in the east of the Netherlands, starting from the moment of intake at the institution. In addition to self-report questionnaires that were integrated in the intake procedure, participants were asked to participate in a semi-structured interview about a turning point moment in their lives. Consecutive measurements occurred each six months. Including only participants with self-report data on negative affectivity and personality functioning and who completed the interview, **Chapter 7** had a cross-sectional sample of  $N = 228$  (73.2% female,  $M_{\text{age}} = 19.5$ ) of which a subset of 84 individuals also had longitudinal data on functioning (72.6% female,  $M_{\text{age}} = .20.4$ ).

### **Conclusion**

In sum, the present work examined associations between life events and transitions, identity, and functioning, in a variety of samples, with different conceptualizations (e.g., identity

processes vs. narrative identity aspects) and operationalizations of identity (e.g., quantitative vs. qualitative), and in relation to different life events or transitions (e.g., transition to tertiary education, death of a loved one) and functioning outcomes (e.g., personality functioning, satisfaction with life). Doing so, it has been the aim to provide a complete and nuanced picture of the processes and associations under study.



Table 1  
 Overview of the presented work in this dissertation, including research focus, study design, measured constructs, and sample

Ch.	Research focus	Constructs			Sample
		Study design	Identity constructs	Predictors, correlates, outcomes	
2	<ul style="list-style-type: none"> <li>● Predictive effect of stressful life events on domain-relevant identity (<b>Aim 1</b>)</li> <li>● Moderation of the effect of stressful events by person and environment (<b>Aim 3</b>)</li> </ul>	Longitudinal (2 years)	Commitment; Exploration; Reconsideration Educational and relational identity	Having to repeat a grade  Death of a loved one  Neuroticism Parental support Best friend support	Adolescents (CONAMORE)  $N_{\text{repeating a grade}} = 840$ $M_{\text{age at T1}} = 14.8$  $N_{\text{death of a loved one}} = 682$ $M_{\text{age at T1}} = 13.4$
3	<ul style="list-style-type: none"> <li>● Development of identity across the transition to secondary school (<b>Aim 1</b>)</li> <li>● The role of person and environment in identity development (<b>Aim 3</b>)</li> </ul>	Longitudinal (2 years)	Commitment making; Identification with commitment; Exploration-in-breadth; Exploration-in-depth; Doubt Educational identity	Neuroticism Parental support Best friend support	Adolescents (INTRANSITION)  $N = 241$ $M_{\text{age at T1}} = 11.6$
4	<ul style="list-style-type: none"> <li>● Predictive effect of life transitions on personality (<b>Aim 3</b>)</li> <li>● Moderation of the effect of life transitions by identity (<b>Aim 2</b>)</li> </ul>	Longitudinal (13 years)	Self-concept clarity	Transition to tertiary education Transition to working life  Openness to experience  Conscientiousness Extraversion Agreeableness Neuroticism	Adolescents and young adults (RADAR)  $N = 497$ $M_{\text{age at T1}} = 13.0$

		Constructs			
Ch.	Research focus	Study design	Identity constructs	Predictors, correlates, outcomes	Sample
5	<ul style="list-style-type: none"> <li>• Predictive effects of identity on post-transition school and psychological adjustment (<b>Aim 2</b>)</li> <li>• Reasons provided by adolescents for their school choice (<b>Aim 2</b>)</li> <li>• Own and parental expectations of post-transition functioning as predictors of adjustment (<b>Aim 3</b>)</li> </ul>	Longitudinal (1.5 years)	Commitment and exploration Educational identity	School functioning; School engagement; School belonging  Internalizing problems; Externalizing problems  Own expectations of post-transition academic and social functioning  Reflected negative expectations of parents of post-transition academic functioning  Perceived friendship quality	Adolescents (INTRANSITION)  $N = 314$ $M_{\text{age at T1}} = 11.6$
6	<ul style="list-style-type: none"> <li>• Bidirectional associations between perceived friendship quality and identity (<b>Aim 2 &amp; 3</b>)</li> </ul>	Cross-sectional and longitudinal (1 year)	Self-event connections; Redemption sequences		Adolescents (Project-Me)  $N_{\text{cross-sectional}} = 1,087$ $M_{\text{age at T1}} = 14.8$  $N_{\text{longitudinal}} = 186$ $M_{\text{age at T1}} = 14.7$

Constructs					
Ch.	Research focus	Study design	Identity constructs	Predictors, correlates, outcomes	Sample
7	<ul style="list-style-type: none"> <li>• Predictive effect of identity on personality functioning (<b>Aim 2</b>)</li> <li>• Predictive effect of negative affectivity on personality functioning (<b>Aim 3</b>)</li> </ul>	Cross-sectional and longitudinal (0.5 years)	Self-event connections; Event valence; Connection valence	Self- and interpersonal personality functioning  Negative affectivity	Adolescents and young adults (APOLO)  $N_{\text{cross-sectional}} = 228$ $M_{\text{age at T1}} = 19.5$  $N_{\text{longitudinal}} = 84$ $M_{\text{age at T1}} = 20.4$
8	<ul style="list-style-type: none"> <li>• The role of identity content in associations between different conceptualizations of identity and well-being (<b>Aim 2</b>)</li> </ul>	Cross-sectional (Study 1 and 2) and longitudinal (Study 1: 0.5 years)	<b>Study 1:</b> Self-event connections; Event valence; Content valence; Event content; Self content  <b>Study 2:</b> Commitment making; Identification with commitment; Exploration-in-breadth; Exploration-in-depth; Doubt Educational identity	Satisfaction with life; academic functioning; perceived friendship quality	Adolescents (Project-Me)  $N = 180$ $M_{\text{age at T1}} = 14.7$
			Self-event connections; Connection valence	General well-being; academic functioning; perceived friendship quality	Adolescents (INTRANSITION)  $N = 160$ $M_{\text{age at T4}} = 13.1$

*Note.* Aim 1 = Examining whether transition periods and life events are related to identity change; Aim 2 = Examining whether how one processes life transitions and events is important for broader functioning; Aim 3 = Examining the role of individual and environmental factors in these processes and associations.



# 2

## Stressful Life Events and Identity Development in Early and Mid-Adolescence

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## Abstract

*Introduction.* In the past, stressful life events have been consistently linked to developmental outcomes such as well-being and psychopathological problems. Theory on identity postulates that stressful life events may also predict a regression in identity development. While some support for this link has been found in adult populations, it is important to examine this in adolescence, a time marked by identity development as well as stressful transitions and experiences. *Methods.* In the present study, we examined whether having to repeat a grade and death of a family member or friend were related to regressive change in educational and relational identity in a sample of 840 Dutch adolescents (49% female,  $M_{age} = 12.4$ ) drawn from a large ongoing longitudinal study. We also investigated whether the impact of the events was moderated by neuroticism, and parental and peer support. All analyses were controlled for age, educational level, and gender. *Results.* Results of latent change score models indicated that experiencing an event did not predict regressions in identity. Congruence between the domain of the event and identity (i.e., educational or relational) did not affect the strength of the effects. Neuroticism and parental and peer support did not significantly moderate this link. However, social support was related to relational and educational identity. *Conclusions.* The link between stressful events and identity may not be as straightforward as would be expected based on identity theory, as our results did not show evidence for a link between these events and change in identity for all adolescents.

*Keywords:* stressful life events, identity, adolescence, social support, neuroticism

### Author contributions

EM, JG, and SB conceptualized the study. SB and WM were responsible for data collection. EM and MD analyzed the data, and EM wrote the first draft of the manuscript. All authors provided feedback on the manuscript.

## Stressful Life Events and Identity Development in Early and Mid-Adolescence

Adolescence is a time of continuous change, in which individuals reorient themselves with regard to who they are, how they came to be that person, and who they want to become (Kroger, 2008). The development of identity is an important task in adolescence, and might become even more salient following the occurrence of life events. Life events have been found to be a strong predictor of various developmental outcomes, such as academic achievement (Andrews & Wilding, 2004) and mental health (Laceulle et al., 2014).

Stressful life events can also profoundly impact adolescents' identity by bringing about feelings of discontinuity, forcing adolescents to reconsider the self in order to integrate the event into their identity (Anthis, 2002; McAdams, 2001a). This effect may be especially apparent in adolescence, a period characterized by development and transition (Lewin, 1939), as life events that occur during transitional periods are thought to have more or longer-lasting effects (Graber & Brooks-Gunn, 1996). The effect of life events on identity has as of yet received little empirical investigation in adolescence (however, see Van Doeselaar et al., 2018).

In the present study, we investigated whether the experience of stressful life events predicts identity change in early- to mid-adolescence. In addition, as social support and neuroticism have been found to buffer against or exacerbate the impact of stress (e.g., Vinkers et al., 2014; Yang et al., 2010), we examined whether the link between stressful events and identity is moderated by neuroticism and parental and peer support.

### Adolescent identity development

For adolescents living in Western societies, developing a stable and coherent sense of self is a key developmental task (Erikson, 1950, 1968). Whereas accomplishment of this task is considered pivotal for healthy development in adolescence and beyond (Erikson, 1950), failure to achieve this has been linked to maladaptive outcomes, such as internalizing and externalizing problems (Crocetti et al., 2013; Meeus et al., 1999).

Adolescents develop a sense of identity in multiple domains of life, of which the most salient generally are the relational and educational domain (Heaven et al., 2007). Relational identity is the extent to which adolescents derive self-certainty and confidence in the future from their relationships with friends, and might play a role in their decisions to form or terminate

friendships (Grotevant, 1987). Educational identity reflects the extent to which adolescents have explored and are committed to their education, and may express itself in motivation for different school subjects, and in the process of selecting a vocational profile in secondary school and a higher educational track in tertiary education. Despite theory suggesting an increase in commitment and a decrease in explorative behavior across adolescence, empirical research has evidenced high mean-level stability of identity throughout adolescence (Meeus et al., 2010). However, individual differences in trajectories exist and have been stressed in previous person-centered studies on identity development (e.g., Meeus et al., 2010). Some adolescents are stably committed, others are stably exploring, and again others move from exploring to committed across time. This emphasizes the importance of examining predictors of these individual differences in trajectories. As identity change might especially occur in response to life events that make an identity domain become salient, it is vital to examine the role of life events in shaping and changing adolescent identity.

### **Identity and stressful life events**

Adolescence is characterized by a marked increase in non-normative events that may put stress on youth (Larson & Ham, 1993). As adolescents spend most time in and attach most value to the relational and educational domains (Grotevant, 1987; Smetana et al., 2006; Turner & Cameron, 2016), stressful events interfering with these domains may especially affect adolescents' identity. Events in these domains are relatively common, with nearly 60% of European adolescents reporting to have lost a friend or family member in the past year (Madge et al., 2011), and 5.2% of Dutch adolescents having to repeat a grade (Central Bureau for Statistics, 2018).

The experience of stressful life events is thought to increase the saliency of identity. Regarding trauma, a particular kind of stressful life event, many World War II veterans had lost a sense of sameness and continuity of the self, according to Erikson (1968). This sense of discontinuity may in turn force individuals to reconsider their identity by integrating the experienced event into the self (Anthis, 2002, 2011; McAdams, 2001a). The notion that stressful experiences may bring about identity change has been corroborated in work on trauma (Anthis, 2002; Kroger, 1996; Kroger & Green, 1996). For instance, adult women reported weaker commitments and more exploration and reconsideration behaviors following a traumatic event as compared to before (Kroger, 1996). Interestingly, events appeared especially strongly related to matching (e.g., relational event to relational identity) domains of identity. Although



the consequences of traumatic events may be more far-reaching than other stressful events, a similar process may be at play in which stressful life events affect one's sense of identity. Based on research in adulthood and theory on life events and identity, it could be expected that in the aftermath of a stressful event, such as the death of a family member or a friend or having to repeat a grade, adolescents temporarily show more explorative behavior and weaker commitments in order to reestablish the (changed) self in the changed context. After losing a family member or friend, lower levels of exploration, and either sticking with current commitments or regressing to diffusion can be expected, as was found in a study with adults (Kroger & Green, 1996). One recent study, using data from the same longitudinal project as the current study, has examined this in adolescence, and found that adolescents who experienced more negative life events had weaker occupational, but not relational, commitments three years later than individuals who experienced fewer events (Van Doeselaar et al., 2018).

However, this latter study examined between-person instead of within-person effects on identity, and it is known that results at the between-person level may not translate to the within-person level (e.g., Hamaker, 2012). Furthermore, it only examined the link with commitment, while work in adulthood emphasizes the importance of examining exploration and reconsideration as well (Kroger, 1996; Kroger & Green, 1996). In the present study, we therefore examined between-person differences in within-person change in identity (commitment, exploration, reconsideration) following the experience of stressful events. We examined the effect of specific events, as events may affect certain identity domains more strongly than others (Kroger, 1996). Losing a close relationship may be particularly relevant for relational identity. Although relational identity was assessed in the domain of friends and the experience of death could involve either a friend or family member, both family and friends represent important sources of companionship (Buhrmester, 1996) and support (Scholte et al., 2001) during adolescence, and help adolescents form a coherent sense of self (Becht et al., 2017). As such, the loss of a close other, either a family member or a friend, may be important for how one thinks about and is committed to other close relationships. In contrast, having to repeat a grade might be more impactful for educational identity.

### **Person and environment moderators**

Past research has identified several individual and relational factors that make adolescents more or less resilient to the impact of stressful life events (e.g., Grant et al., 2006). In the

present study we examined the impact of one intra-individual (i.e., neuroticism) and one inter-individual (i.e., social support) factor. Individuals high in neuroticism are more likely to experience an event as stressful (Brown & Rosellini, 2011), which may increase the negative consequences for their mental health (e.g., Jeronimus et al., 2014; Ormel et al., 2013). In addition, rumination, a key feature of neuroticism (Clark et al., 1994), is more likely to take place when events are important (Matarazzo, 2009) and may also increase sensitivity to the stress of a life event (Watkins et al., 2008). Regarding relational characteristics, support from family and friends has been found to weaken the effect of stressful events on mental health (e.g., DuBois et al., 1994; Murberg & Bru, 2004; Yang et al., 2010), suggesting that social support acts as a buffer. Thus, we expected neuroticism to exacerbate, and parental and peer support to weaken, the association between life events and identity.

### **The current study**

We examined whether the death of a family member or close friend and having to repeat a grade predict early- to mid-adolescent relational and educational identity in the year after the event, and one year later. Based on previous work on trauma and identity, the experience of a stressful life event was hypothesized to predict a decrease in commitment. For the educational event, we additionally expected an increase in exploration and reconsideration in the aftermath of the event. For the relational event, a decrease in exploration and reconsideration was expected. These effects were hypothesized to be especially strong when the domain of the event matched the identity domain (e.g., death of a family member or friend and relational identity). Moreover, while we expected decreases in commitment following the occurrence of an event, we did not exclude the possibility that after working through the event, it may strengthen adolescents' existing identities by confirming their commitments or by providing more clarity about what they want in life. Finally, the effect of the experience of a stressful event was thought to be less strong for individuals who were lower in neuroticism and perceived higher support from family and friends.

## **Method**

### **Participants and procedure**

Data were used from a subsample of adolescents ( $N = 840$ ) participating in the longitudinal CONflicts And Management Of RELationships (CONAMORE) project (Meeus, 2016). The first

five waves were collected annually, and the sixth wave was collected several years after Wave 5. The total sample of the CONAMORE study consisted of two age cohorts with a total of 1,331 adolescents. To ensure that participants were still in adolescence at the time of the event, we only included data from the younger cohort (i.e., age 12 or 13 at Wave 1), and who had data on repeating a grade ( $n = 840$ , 49% female). Only a subsection of this sample ( $N = 682$ , 55% female) was asked about experiencing deaths.

For the CONAMORE project, adolescents were recruited from several randomly selected secondary schools in the province of Utrecht, the Netherlands. Participating adolescents and their parents were informed about the general aims of the study and provided written informed consent. Confidentiality of responses was assured, and participants were told that they could withdraw at any time during the study. Respondents received €10 per annual assessment.

## Measures

### *Life events*

To assess experienced *deaths of a family member or friend* (from here on referred to as the relational event), we used an adapted version of the Life History Calendar (LHC; Freedman et al., 1988; Meeus, 2009), which was completed during the sixth wave of data collection. Participants reported whether they had experienced deaths in their family or among intimate friends since they were 12, and, if so, when this happened (i.e., date) and who had died (i.e., someone from their immediate family, another family member, or an intimate friend). Because of the relatively low prevalence of these events, we did not distinguish between types of relations. Using the reported dates, we calculated between which waves the event took place. Past research revealed acceptable reliability and validity of this instrument (Caspi et al., 1996).

Whether or not participants had *repeated a grade* (referred to as the educational event) was calculated based on their answers to the question about the grade they were in, which was asked every wave. They were concluded to have repeated a grade when the same or a lower grade was reported in a subsequent year.

### *Identity*

Relational and educational identity were measured each wave with the Utrecht-Management of Identity Commitments Scale (U-MICS; Crocetti et al., 2008), a self-report instrument

consisting of 13 items which are rated on a 5-point scale ranging from 1 (*completely true*) to 5 (*completely untrue*). The U-MICS taps into the identity processes of commitment (5 items), in-depth exploration (5 items), and reconsideration of commitment (3 items). Example items of the scale are “My best friend/education gives me certainty in life” (commitment), “I think a lot about my best friend/education” (in-depth exploration), “I often think it would be better to try to find a different best friend/education” (reconsideration). To facilitate interpretation, we reversed the scoring so that high scores indicate high commitment, exploration, and reconsideration. Validity and reliability of the scale were acceptable in previous research (Crocetti et al., 2008). In the present study, reliability coefficients ranged between .78 and .92 (see Table S1 of the Supplementary Material for a complete overview).

### *Neuroticism*

Neuroticism was measured each wave with six items of the shortened Dutch version of the Quick Big Five questionnaire, which were evaluated on a 7-point Likert scale, ranging from 1 (*completely incorrect*) to 7 (*completely correct*; Vermulst & Gerris, 2005). An example item indicating high neuroticism is “I am irritable”. Past research revealed acceptable validity and reliability (Akse et al., 2004). In the present study, the reliability coefficient ranged between .82 and .83 (see Table S1).

### *Support from parents and best friend*

Each wave, adolescents reported on the support from parents and their best friend with 12 items from the Network of Relationship Inventory (NRI; Furman & Buhrmester, 1985), rated on a 5-point scale ranging from 1 (*a little or not at all*) to 5 (*more is not possible*). An example item of the scale is “How much does your best friend/mother/father really care about you?”. Scores for mother and father were averaged to form a general score of parental support. Previous work revealed acceptable validity and reliability of the NRI (Edens et al., 1999). Moreover, previous work on CONAMORE data revealed adequate factor loadings for the support scale (De Goede et al., 2009). In the present study, reliability of the support scale for the different relationships (i.e., mother, father, best friend) ranged between .82 and .93.

### **Statistical strategy**

We first examined missingness in our data. In the relational event sample, missingness was between 2.2 and 4.4% for the identity scales at  $T_1$  and  $T_2$ , and between 22.3 and 22.4% at  $T_3$ .

Missingness for the moderators ranged between 1.6-29.8%. For the educational event sample, missingness was in the range of 0.4-2.0% for identity at  $T_1$  and  $T_2$ , and 53.8-54.3% at  $T_3$ . Missingness ranged from 0.1 to 4.5% for the moderators. The higher missingness at  $T_3$  was expected, as we included events that were reported at the last annual measurement (i.e., events that took place between Wave 4 and 5). Because the data were centered around the event, this meant that for those adolescents with an event reported at Wave 5, there was no second post-event measurement. In each of the analyses, we used Full Information Maximum Likelihood estimation to deal with missing data.

As our data spanned five years, we then checked for measurement invariance across all waves for both relational and educational identity. Findings of these analyses suggested that requirements were met for strict invariance for both identity domains (for a full description of the analyses, see Supplementary Material, pp. 2-3).

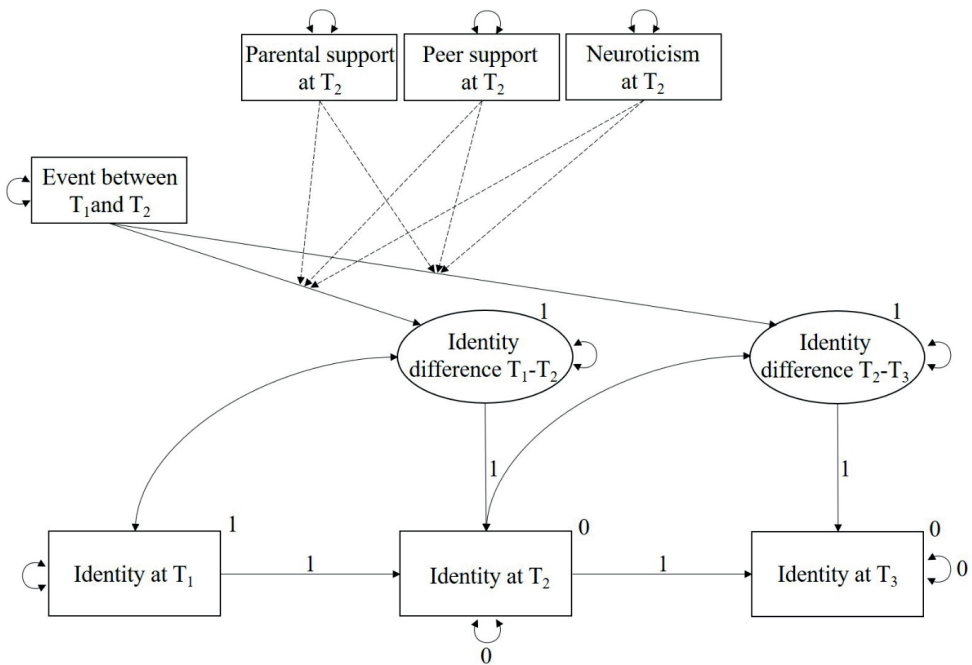
To examine to what extent the experience of a stressful event affects identity, we conducted Latent Change Score (LCS) models in the “lavaan” R package (Rosseel, 2012) for both types of events, for each of the two identity domains, and for each of the three identity behaviors separately, resulting in a total of twelve combinations (see a general version of the LCS model in Figure 1). As we were interested in change in identity relative to pre-event identity, we centered our data around the event for all adolescents with an event between the first and fifth wave of data collection ( $n = 242$  and  $n = 172$  for the relational and educational event, respectively). For each individual, we selected a pre-event measurement (i.e.,  $T_1$ ; the year before the event), and two post-event identity measurements (i.e.,  $T_2$  and  $T_3$ ; the two years after the event). If multiple events of a kind had taken place, we used the first occurrence in the analyses. For adolescents who did not experience an event ( $n = 440$  and  $n = 668$  for the relational and educational event), we randomly selected waves so that the distribution of included waves would be the same for the groups with and without events.

As centering around the event meant that participant ages varied, we controlled the observed variables for age, along with gender and education, which have been found to be related to identity (e.g., Klimstra et al., 2010). Before fitting the LCS models, we used independent sample *t*-tests to determine whether the groups differed on any of the study variables (i.e., age, gender, education, and identity) pre-event.

For each event×identity behavior combination, we tested the full model, which included the effect of the event and the moderating effect of neuroticism and support from parents and the best friend. We controlled for the direct effects of the moderating variables on identity

change and for the effects of age, gender, and educational level on the observed identity variables. Fit of the model was evaluated using the Root Mean Squared Error of Approximation (RMSEA; Steiger, 1989) and the Comparative Fit Index (CFI; Bentler, 1990). An RMSEA of  $\leq .08$  and a CFI of  $\geq .90$  were considered to indicate acceptable model fit (Hooper et al., 2008). When fit of this model was not acceptable, we fitted a simpler model, including only the effect of the event and the control variables. As twelve models were tested, a more stringent alpha was used to determine significance of effects. Specifically, as we tested six models for each identity domain, we divided an alpha of .05 by six, resulting in an adjusted alpha of .008.

Figure 1  
Representation of the general Latent Change Score model.



Note. All analyses were controlled for the direct effects of social support and neuroticism on the latent change variables, and for age, gender, and educational level on the observed identity variables. The solid lines represent direct effects, the dashed lines represent moderation effects.

## Results

We calculated descriptive statistics for the study variables for the relational event sample (see Table 1) and the educational event sample (see Table 2). Zero-order correlations are

presented in Table S2 and S3 of the Supplementary Material for the relational and educational event sample, respectively.

### Equivalence of groups

*T*-tests did not reveal significant differences between adolescents who did and did not experience the *relational event* on the background variables or on any of the identity behaviors (see last column Table 1). For the *educational event*, repeating a grade occurred more often among males and among adolescents who were in a lower academic track. Moreover, adolescents who repeated a grade reported lower commitment and higher reconsideration (see last column Table 2)<sup>1</sup>.

### LCS models

Model fit statistics of each of the fitted models are reported in Table 3. Effect sizes and *p* values for the event and the moderators are reported in Table 4 (relational event) and in Table 5 (educational event). In addition, Table S4 of the Supplementary Material presents change statistics (means and variances) for the two intervals. Only significant effects of the control variables and the direct effects of the moderating variables are reported in-text (see Table S5 and S6 of the Supplementary Material for the full overview).

#### *Relational event*

The full model showed acceptable fit to the data for *relational commitment* and for *relational exploration*. For *relational reconsideration* the fit of the full model was unacceptable (RMSEA = .119, CFI = .817)<sup>2</sup>, but the simple model showed acceptable fit. We found no evidence that experiencing a death predicted change in relational commitment, exploration, or reconsideration from  $T_1$  to  $T_2$  or from  $T_2$  to  $T_3$ . Furthermore, there was no support for a moderating effect of parental support, best friend support, and neuroticism in the link of experiencing a death with change in commitment and exploration.

The full model also showed acceptable fit for *educational commitment*, for *educational exploration*, and for *educational reconsideration*. Experiencing the relational event did not

- 
- 1 We also tested the link between  $T_1$  identity and the event using LCS models, which also revealed a significant link between educational commitment and repeating a grade ( $\beta = -0.13, p < .001$ ) and educational reconsideration and repeating a grade ( $\beta = 0.17, p < .001$ ). Because of the complexity of our models, it was decided to leave this link out of the main analyses.
  - 2 In line with findings of other models, we found no significant effect of the event, nor of the moderators (see an overview of the effects of the unacceptably fitting models in Table S5).

significantly predict change in commitment, exploration, or reconsideration in the first or second interval. Moreover, parental support, best friend support, or neuroticism did not significantly moderate the effect of experiencing a death in either interval.

Table 1  
*Descriptive statistics of the variables for the relational event sample (N = 682)*

Variable	Mean (SD)/ N (%)	Range	Comparison event vs. no event group at T <sub>1</sub>	
Age at T <sub>1</sub>	13.36 (1.02)	11–16	$t(678) = -2.54$	$p = .011$
Gender (female)	374 (54.8%)		$t(680) = -1.01$	$p = .312$
Educational level at T <sub>1</sub>			$t(673) = 0.11$	$p = .910$
Low	112 (16.6%)			
Middle	129 (19.2%)			
High	434 (64.3%)			
Deaths of family or friend *			–	–
Wave 2	74 (10.9%)			
Wave 3	58 (8.5%)			
Wave 4	76 (11.1%)			
Wave 5	77 (11.3%)			
Relational identity **				
Commitment	3.63 (.58)	1.93–5	$t(652) = -1.46$	$p = .144$
In-depth exploration	3.19 (.56)	1–5	$t(651) = -0.78$	$p = .439$
Reconsideration	1.71 (.66)	1–4.56	$t(650) = -2.11$	$p = .036$
Educational identity **				
Commitment	3.78 (.59)	1.27–5	$t(661) = -1.82$	$p = .070$
In-depth exploration	3.12 (.64)	1.20–5	$t(661) = -0.59$	$p = .555$
Reconsideration	1.97 (.68)	1–4.56	$t(661) = -1.93$	$p = .054$
Parental support at T <sub>2</sub>	3.49 (.61)	1.25–4.83	–	–
Best friend support at T <sub>2</sub>	3.28 (.71)	1–5	–	–
Neuroticism at T <sub>2</sub>	3.45 (1.09)	1–7	–	–

*Note.* An alpha level of .008 was used to determine the significance of effects.

\* = Summing the individuals who had experienced deaths in each of the waves is not equal to the total number of individuals who had experienced deaths in our sample, as we only included first occurrences.

\*\* = average across the selected waves.



Table 2

*Descriptive statistics of the variables for the educational event sample (N = 840)*

Variable	Mean (SD)/ N (%)	Range	Comparison event vs. no event group at T <sub>1</sub>	
Age at T <sub>1</sub>	14.75 (.97)	11–17	$t(836) = 0.47$	$p = .636$
Gender (female)	415 (49.4%)		$t(272.82) = 3.86$	$p < .001^*$
Educational level at T <sub>1</sub>			$t(836) = 3.09$	$p = .002^*$
Low	192 (22.9%)			
Middle	229 (27.3%)			
High	417 (49.7%)			
Repeating a grade *			–	–
Wave 2	5 (.6%)			
Wave 3	18 (2.1%)			
Wave 4	59 (7.0%)			
Wave 5	95 (11.3%)			
Relational identity **				
Commitment	3.66 (.61)	1.40–5	$t(821) = -0.93$	$p = .352$
In-depth exploration	3.18 (.60)	1–5	$t(821) = 0.16$	$p = .874$
Reconsideration	1.75 (.68)	1–4.67	$t(821) = -0.17$	$p = .867$
Educational identity **				
Commitment	3.81 (.61)	1.40–5	$t(832) = 3.59$	$p < .001^*$
In-depth exploration	3.17 (.67)	1.20–5	$t(832) = -0.61$	$p = .546$
Reconsideration	2.02 (.76)	1–5	$t(235.64) = -4.42$	$p < .001^*$
Parental support at T <sub>2</sub>	3.41 (.64)	1.17–4.79	–	–
Best friend support at T <sub>2</sub>	3.29 (.72)	1–5	–	–
Neuroticism at T <sub>2</sub>	3.41 (1.07)	1–7	–	–

*Note.* An alpha level of .008 was used to determine the significance of effects.

\* = Summing the individuals who had experienced deaths in each of the waves is not equal to the total number of individuals who had experienced deaths in our sample, as we only included first occurrences.

\*\* = average across the selected waves.

Table 3  
*Model fit of the tested models*

	Relational event		Educational event	
	RMSEA	CFI	RMSEA	CFI
<b>Relational identity</b>				
Commitment	.068	.938	<b>.079</b>	<b>.971</b>
Exploration	.020	.993	.040	.977
Reconsideration	<b>.052</b>	<b>.983</b>	.063	.949
<b>Educational identity</b>				
Commitment	.072	.910	<b>.047</b>	<b>.987</b>
Exploration	.049	.961	.062	.923
Reconsideration	.071	.926	.076	.920

*Note.* In cases where the full model did not fit the data acceptably, the simple model was reported (cases bolded).

**Control variables.** In addition, gender was related to level of relational identity (see Table S5 for an overview). Specifically, girls reported higher exploration and lower reconsideration at  $T_1$ , and lower commitment and exploration at  $T_2$  than boys. A higher educational level was related to lower relational reconsideration at  $T_1$ . Adolescents of higher education also experienced lower levels of educational exploration and reconsideration at  $T_1$  than peers of lower education. Moreover, the moderators had a direct effect on change in identity (see Table S4 and Table 4 for the change scores and the direct effects, respectively). Adolescents who reported higher best friend support reported relatively smaller decreases in relational commitment and exploration from  $T_1$  to  $T_2$  than adolescents with lower support, and smaller increases in commitment and exploration from  $T_2$  to  $T_3$ . Moreover, higher neuroticism was related to a smaller decrease in relational exploration from  $T_1$  to  $T_2$ . Finally, adolescents who reported higher parental support showed smaller decreases in educational exploration than those with lower parental support.

#### *Educational event*

The full model had unacceptable fit for *relational commitment* (RMSEA = .105, CFI = .848), but the simple model fitted acceptably. For *relational exploration* and *relational reconsideration*, the full model showed acceptable fit. Having to repeat a grade did not significantly predict change in identity from  $T_1$  to  $T_2$  and from  $T_2$  to  $T_3$ . Moreover, parental support, best friend support, and neuroticism were not found to significantly moderate the

link between the event and change in exploration and reconsideration in either interval. The full model also fitted unacceptably for *educational commitment* (RMSEA = .085, CFI = .891)<sup>3</sup>, but the simple model showed acceptable fit. For both *educational exploration* and *educational reconsideration*, the full model showed acceptable fit to the data. Repeating a grade was not significantly related to change from  $T_1$  to  $T_2$ , or from  $T_2$  to  $T_3$ . Moreover, we did not find support for a moderating effect of any of the moderators in either interval for educational exploration or reconsideration.

**Control variables.** As for the relational event sample, girls generally reported higher relational exploration than boys at  $T_1$  (see Table S6 for an overview). Girls on average also had higher relational commitment and lower reconsideration at  $T_1$ , higher reconsideration at  $T_2$ , and again lower reconsideration at  $T_3$ . Compared to boys, girls also had lower educational reconsideration at  $T_1$ . Higher educational level was related to lower relational reconsideration at  $T_1$ . Educational level was also related to educational identity, with adolescents of a higher educational level reporting higher educational commitment at  $T_1$ , and lower at  $T_2$ , than adolescents of a lower educational level. Higher educational level was also linked to less educational reconsideration at  $T_1$ , and less educational exploration at  $T_1$  and  $T_2$ . Adolescents who experienced higher levels of best friend support reported smaller decreases in relational exploration from  $T_1$  to  $T_2$  and larger decreases from  $T_2$  to  $T_3$  than adolescents who experienced lower support (see Table S4 and Table 5 for the change scores and direct effects, respectively). Best friend support was also related to smaller increases in relational reconsideration from  $T_1$  to  $T_2$ , and smaller decreases from  $T_2$  to  $T_3$ . Higher best friend support and parental support were related to a smaller increase in educational reconsideration in the first interval.

3 In line with findings of other models, we found no significant effect of the event, nor of the moderators (see an overview of the effects of the unacceptably fitting models in Table S5).

Table 4  
Effect sizes for event and moderators for the relational event sample

	Relational Identity					
	$T_1-T_2$			$T_2-T_3$		
	$\beta$	SE	p	$\beta$	SE	p
<b>Commitment</b>						
Event	0.02	0.43	.938	-0.17	0.55	.659
Parental support	0.01	0.07	.866	0.08	0.09	.276
Best friend support	0.34	0.06	< .001*	-0.24	0.08	.003*
Neuroticism	0.04	0.04	.362	-0.02	0.04	.784
Event×Parental support	0.04	0.11	.831	0.07	0.14	.829
Event×Best friend support	-0.03	0.09	.858	0.14	0.12	.605
Event×Neuroticism	0.01	0.06	.945	-0.03	0.07	.888
<b>Exploration</b>						
Event	0.31	0.45	.238	-0.23	0.58	.541
Parental support	0.02	0.07	.692	0.02	0.10	.769
Best friend support	0.28	0.07	< .001*	-0.24	0.09	.002*
Neuroticism	0.14	0.04	.001*	-0.03	0.05	.650
Event×Parental support	0.06	0.11	.783	-0.18	0.15	.597
Event×Best friend support	-0.31	0.10	.104	0.44	0.12	.100
Event×Neuroticism	-0.08	0.06	.539	-0.04	0.07	.805
<b>Reconsideration</b>						
Event	0.01	0.06	.711	-0.05	0.09	.221
Parental support	-	-	-	-	-	-
Best friend support	-	-	-	-	-	-
Neuroticism	-	-	-	-	-	-

	$\beta$	SE	$p$	$\beta$	SE	$p$
Event×Parental support	–	–	–	–	–	–
Event×Best friend support	–	–	–	–	–	–
Event×Neuroticism	–	–	–	–	–	–
<b>Educational Identity</b>						
	$T_1-T_2$			$T_2-T_3$		
	$\beta$	SE	$p$	$\beta$	SE	$p$
<b>Commitment</b>						
Event	0.42	0.44	.139	-0.13	0.54	.722
Parental support	0.10	0.07	.062	0.06	0.09	.440
Best friend support	0.09	0.07	.154	-0.16	0.08	.051
Neuroticism	-0.03	0.04	.504	-0.03	0.04	.600
Event×Parental support	-0.35	0.11	.162	-0.21	0.14	.542
Event×Best friend support	0.17	0.09	.413	0.19	0.11	.481
Event×Neuroticism	-0.24	0.06	.088	0.12	0.07	.493
<b>Exploration</b>						
Event	0.38	0.49	.166	0.20	0.61	.600
Parental support	0.15	0.08	.007*	-0.06	0.10	.469
Best friend support	0.05	0.07	.386	-0.02	0.09	.762
Neuroticism	0.09	0.04	.045	0.03	0.05	.683
Event×Parental support	-0.41	0.12	.098	-0.06	0.15	.858
Event×Best friend support	0.14	0.11	.492	0.01	0.13	.986
Event×Neuroticism	-0.08	0.07	.564	-0.12	0.08	.487
<b>Reconsideration</b>						
Event	0.11	0.54	.656	0.51	0.69	.167
Parental support	-0.08	0.09	.094	-0.04	0.11	.567

	$\beta$	SE	$p$	$\beta$	SE	$p$
Best friend support	-0.12	0.08	.029	0.16	0.10	.050
Neuroticism	0.09	0.04	.033	0.04	0.05	.527
EventxParental support	0.08	0.13	.727	-0.11	0.17	.753
EventxBest friend support	-0.11	0.12	.548	-0.23	0.15	.392
EventxNeuroticism	-0.07	0.07	.592	-0.23	0.09	.202

Note. SE represents the standard error of the unstandardized effect.

\* An alpha level of .008 was used to determine the significance of effects.

For relational reconsideration, we could not test for moderation as the full model showed inadequate fit to the data.

Table 5  
*Effect sizes for event and moderators for the educational event sample*

	Relational identity					
	$T_1 \rightarrow T_2$			$T_2 \rightarrow T_3$		
	$\beta$	SE	p	$\beta$	SE	p
<b>Commitment</b>						
Event	0.04	0.06	.247	< 0.01	0.09	.966
Parental support	-	-	-	-	-	-
Best friend support	-	-	-	-	-	-
Neuroticism	-	-	-	-	-	-
Event×Parental support	-	-	-	-	-	-
Event×Best friend support	-	-	-	-	-	-
Event×Neuroticism	-	-	-	-	-	-
<b>Exploration</b>						
Event	0.31	0.42	.124	0.29	0.64	.403
Parental support	0.01	0.05	.873	0.08	0.08	.239
Best friend support	0.22	0.05	< .001*	-0.19	0.07	.005*
Neuroticism	0.07	0.03	.038	-0.01	0.04	.850
Event×Parental support	-0.18	0.10	.268	-0.16	0.15	.551
Event×Best friend support	-0.09	0.09	.552	-0.04	0.13	.879
Event×Neuroticism	-0.02	0.06	.849	-0.10	0.09	.550
<b>Reconsideration</b>						
Event	-0.15	0.45	.392	0.74	0.80	.026
Parental support	-0.03	0.05	.351	-0.03	0.09	.680
Best friend support	-0.32	0.05	< .001*	0.25	0.09	< .001*
Neuroticism	0.05	0.03	.115	0.04	0.05	.501

	$\beta$	SE	p	$\beta$	SE	p
EventxParental support	0.04	0.11	.807	-0.37	0.19	.167
EventxBest friend support	0.02	0.10	.851	-0.34	0.24	.139
EventxNeuroticism	0.13	0.06	.112	-0.15	0.12	.351
<b>Educational identity</b>						
	$T_1-T_2$			$T_2-T_3$		
	$\beta$	SE	p	$\beta$	SE	p
<b>Commitment</b>						
Event	-0.07	0.06	.017	0.10	0.09	.029
Parental support	-	-	-	-	-	-
Best friend support	-	-	-	-	-	-
Neuroticism	-	-	-	-	-	-
EventxParental support	-	-	-	-	-	-
EventxBest friend support	-	-	-	-	-	-
EventxNeuroticism	-	-	-	-	-	-
<b>Exploration</b>						
Event	-0.27	0.43	.214	-0.11	0.61	.737
Parental support	0.06	0.05	.145	0.04	0.07	.543
Best friend support	0.01	0.05	.831	-0.07	0.07	.294
Neuroticism	0.06	0.03	.083	-0.08	0.04	.160
EventxParental support	0.01	0.11	.950	0.36	0.15	.187
EventxBest friend support	0.10	0.09	.514	-0.29	0.13	.205
EventxNeuroticism	0.10	0.06	.304	0.14	0.09	.395
<b>Reconsideration</b>						
Event	0.09	0.50	.631	0.30	0.85	.380
Parental support	-0.14	0.06	< .001*	0.05	0.10	.417



	$\beta$	SE	p	$\beta$	SE	p
Best friend support	-0.12	0.06	.001*	0.10	0.09	.143
Neuroticism	0.07	0.03	.036	-0.03	0.05	.620
EventxParental support	-0.17	0.12	.277	-0.24	0.21	.387
EventxBest friend support	0.11	0.11	.448	-0.10	0.17	.678
EventxNeuroticism	0.05	0.07	.600	-0.04	0.12	.811

Note. SE represents the standard error of the unstandardized effect.

\* An alpha level of .008 was used to determine the significance of effects.

For relational and educational commitment, we could not test for moderation as the full model showed inadequate fit to the data.

## Discussion

Identity theory states that the experience of impactful events may increase the salience of identity, and may force individuals to reconsider their personal identity (Erikson, 1968). The present study examined whether experiencing the death of a family member or friend or having to repeat a grade was related to change in identity. Moreover, we investigated whether this link was stronger for adolescents with lower levels of parental and best friend support, and higher neuroticism. We found no evidence that experiencing a stressful event predicts change in identity in the year after the event, or in the subsequent year. Furthermore, neither neuroticism, nor support from parents and the best friend, was found to significantly impact the strength of this relation.

### Identity and stressful life events

Contrary to our expectation, we did not find evidence that the experience of a stressful event is related to change in identity (Tables 4 and 5). As such, our findings are partially consistent with an earlier study which revealed that stressful events were related to occupational, but not relational commitment, in adolescence (Van Doeselaar et al., 2018). However, our findings are inconsistent with studies on stressful events and identity in adulthood, which revealed decreases in commitment and increases in exploration and reconsideration within individuals following the occurrence of an event (e.g., Anthis, 2002). Furthermore, whereas previous research in adult samples suggested that the links between life events and identity may be especially strong when the event matched the identity domain (e.g., Kroger, 1996), we also found no support for an effect when events matched the domain. A possible explanation for the difference in findings of this study compared to those conducted in adulthood is that stressful events affect adults differently than adolescents. Adolescents are still in the process of forming an identity (Erikson, 1950, 1968) and will be adjusting and readjusting their ideas of who they are regardless of whether or not they experience a stressful event. In the midst of many experiences that might impact their identity development, the experience of a stressful event may be of only limited impact. In contrast, adults are expected to have completed this developmental task, and thus will typically be involved in less identity adjustment. As a result, the impact of stressful events may be more noticeable in adults as compared to adolescents. More research examining adolescents and adults simultaneously is needed to test this possibility.

Furthermore, although we found no support for a relation between stressful life events and identity (Table 4 and 5), both our *t*-tests (Table 1 and 2) and LCS models (footnote 1) evidenced a link of low educational commitment and high educational reconsideration to the educational event. This is in line with work by Van Doeselaar et al. (2018), who found that occupational commitment was related to the experience of fewer events. This suggests that in the case of life events which may, in part, be triggered by the individual (e.g., repeating a grade), identity could be a predictor rather than a consequence. Of course, in the case of events that are independent of a person such as experiencing the death of a close other, this principle does not hold. Alternatively, this finding may indicate that changes in identity already happen earlier, in anticipation of the event.

### **Person and environment as moderators**

Moreover, in contrast to earlier findings on life events and mental health (e.g., Yang et al., 2010), we did not find evidence that neuroticism exacerbated, or social support buffered against, the impact of stressful events (Table 4 and 5). It should be noted, however, that three of our full models (i.e., that of relational reconsideration for the relational event sample, and those of relational and educational commitment for the educational event sample) did not fit adequately. This may have been due to a relatively small explanatory contribution of these factors, compared to the added complexity to the models. This explanation is in line with the findings from these full models. Although they should be interpreted with caution, the estimates from these models suggest there were no significant effects of the stressful events or of the moderators (see Table S5 for a complete overview of the estimates).

Despite finding no support for moderating effects of neuroticism and social support, both the large standard errors of the effects of stressful events on identity (Table 4 and 5) and the significant variance in the change scores (Table S4) suggest that there are individual differences in this link. Whereas for some adolescents stressful events lead to a reconsideration of who they are, for others, they may serve as confirmation of their identity thus leading to a strengthening of their current commitments (Pasupathi et al., 2007). Still some others may not connect the event to the self, thus discouraging any change in identity (Merrill et al., 2016). In short, the manner in which individuals interpret and make meaning of an event may be important to understanding the effect on their identity (Skaggs & Barron, 2006). Future work should therefore also take into account the personal meaning that adolescents attach to events.

While this is a plausible explanation for the absence of an average effect of stressful events in our data, it is important to consider why adolescents are more or less likely to do “identity work” – or to do certain kinds of identity work (e.g., creation of a redemption sequence in which a bad event turns out positively; McAdams, 2007). In the present study, neither neuroticism, nor social support, could explain individual differences in the link between the event and the self. Previous work on narrative identity identified other person factors related to making self-event connections, such as advanced age and need for continuity (Pasupathi et al., 2007). But specific environmental factors should also be considered. For instance, school processes such as climate towards the importance of education may moderate the link between having to repeat a grade and educational identity. Future work needs to consider the role of both personal and environmental factors in understanding why and how adolescents connect events to their identity.

Interestingly, best friend and parental support, and to a lesser extent also neuroticism, directly predicted change in identity behavior in the relational and educational domain (Tables 4 and 5). While the link between best friend support and relational identity may show that if adolescents perceive high support from their best friend, they are less likely to reconsider this friendship, the link with educational identity suggests that the social environment can play a role in identity formation. That is, our findings have shown that experiencing high support from a friend and parent may predict how much adolescents identify with their education. This is in line with previous findings (Marcia, 1983; Meeus et al., 2002), and is particularly fascinating in light of our other findings, as it may suggest that adolescents’ social environment is more important than actual events taking place.

### **Strengths and limitations**

The present study was the first to examine the links between specific stressful life events and identity in adolescence. A combined between- and within-person approach allowed us to examine between-person differences in within-person change following the occurrence of a stressful event. However, our findings need to be interpreted in light of some limitations. First, as our study focused on specific stressful life events, our examination covered only a small selection of events that adolescents may experience. Therefore, if adolescents also experienced stressful life events in other domains, this might interfere with the effect of these specific events. Indeed, research on stressful events and psychopathology has shown that the accumulation of risk is especially important in understanding this link (Flouri & Kallis,

2007). A similar principle may hold for identity; more stressful events need to happen before adolescents start to reconsider who they are. However, as the number of adolescents that experienced more than one event per year was very low in our sample (3.8%), this possibility could not be tested. Second, our assessment of life events did not tap into the subjective experience of the event. That is, although we assumed losing a family member or friend and having to repeat a grade to be stressful, we cannot be certain that adolescents indeed experienced it as such. For future studies, we recommend including a measure of life events that also provides information on the subjective experience of the events.

## **Conclusion**

The current study did not find evidence that experiencing the death of a family member or friend or having to repeat a grade, predicts change in identity during adolescence. Furthermore, neuroticism and support from parents and the best friend were not found to moderate this link. However, social support had a direct effect on identity change, indicating that the social environment may sometimes be more important than actual events. Our findings suggest that adolescents do not necessarily reconsider who they are following the occurrence of a stressful experience. This suggests that there are interindividual differences in adolescents' tendency to make connections between an event and the self, and emphasizes the importance of identifying personal and environmental factors that are involved in distinguishing between adolescents who do and do not.



# 3

## Identity Development Across the Transition from Primary to Secondary School: The Role of Personality and the Social Context

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Study pre-registered at: <https://osf.io/bm4qk>

## **Abstract**

The secondary school transition may be important for adolescent 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 the first year of secondary school from 241 adolescents ( $M_{\text{age}} = 11.6$ ). 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.

*Keywords:* adolescence, identity, primary to secondary school transition, neuroticism, social support

### **Author contributions**

EM, JG, and SB conceptualized the study. EM and SB were responsible for data collection. EM analyzed the data and wrote the first draft of the manuscript. All authors provided feedback on the manuscript.



## **Identity Development Across the Transition from Primary to Secondary School: The Role of Personality and the Social Context**

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 Meeus, 2011 and Branje et al., 2021), often starting from when adolescents are in secondary 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., 2021). Therefore, 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., 2021; Van Doeselaar & Reitz, 2022), 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. 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 (Luyckx et al., 2006; Crocetti et al., 2008), 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).

Although identity develops continuously, periods of transition or stress may increase identity salience, and force adolescents to consider or reconsider their identity (Marcia, 1966; Waterman, 1982; Bosma & Kunnen, 2001). 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 a normative transition such as that to secondary school, the presence of major and more minor stressful events (e.g., being excluded in 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., 2021) and to working life (Van Doeselaar & Reitz, 2022). 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, because adolescents spend a majority of their time in school. Educational identity reflects commitment and exploration processes related to education, and may express itself in motivation for and performance in school. 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.

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, 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. 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 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, 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. Adolescents' personality may predict their identity change. In particular, neuroticism, or emotional instability, may be predictive of continued doubts and in-breadth exploration. 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, 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). Thus, 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.

The social environment may also play a role in predicting how adolescents develop their identity across the school transition. Experiencing support from one's family and friends 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, 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%).

### **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 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”. Reliability for scores on the neuroticism items 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). 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)<sup>1</sup>. In these 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 should be 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.

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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, because the identity measure was context-specific to the pre- and post-transition context and contained different scales and items in each version, the resulting models fitted very poorly. 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.

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



*Continued*

	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.
11. Identification with commitment W3	.01										
12. Exploration in breadth W3	.32*	.46*									
13. Exploration in depth W3	-.52*	.38*	.10								
14. Doubt W3	.61*	-.04	.30*	-.40*							
15. Identification with commitment W4	-.07	.34*	.11	.22*	-.10						
16. Exploration in breadth W4	.23*	.24*	.48*	.05	.33*	.39*					
17. Exploration in depth W4	-.39*	.21*	-.07	.58*	-.41*	.38*	-.01				
18. Doubt W4	.04	.03	.14	.06	.05	.03	.12	-.04			
19. Neuroticism W1	.34*	-.02	.19*	-.32*	.22*	-.02	.11	-.26*	.04		
20. Parental support W1	.24*	.07	.13	-.12	.05	.07	.17*	-.11	.08	.43*	
21. Best friend support W1	3.90	2.06	2.86	1.65	3.71	1.93	2.66	1.67	3.76	4.19	3.72
Mean	0.72	1.17	0.83	0.78	0.91	1.01	0.81	0.90	1.12	0.63	0.59
SD	.79	.91	.79	.88	.87	.88	.80	.89	.79	.87	.86
Ω											

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.

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/gjcqw/>.

## Results

### Descriptive statistics

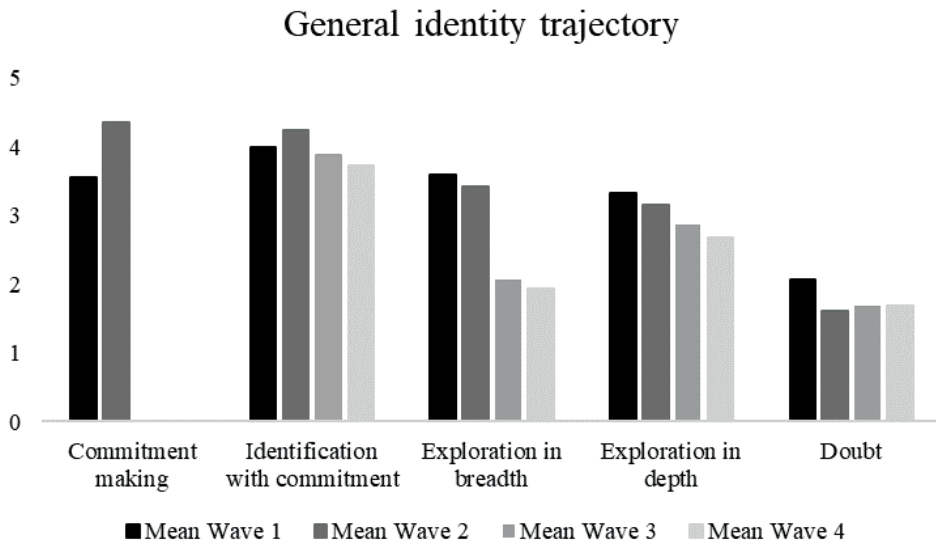
Means, standard deviations, and correlations between the main study variables are presented in Table 1. Relatively strong, positive correlations existed between the different subscales of commitment (e.g., at Wave 1:  $r = .56$ ) and between the subscales of exploration (at Wave 1:  $r = .61$ ). Moreover, 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 sizeable 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**

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. 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. Identification with commitment increased slightly from the start to the end of the last year in primary school, and then dropped. For exploration in breadth and in depth, mean scores dropped across the school transition, indicating less engagement in exploration over time. Finally, for doubt there was a decrease across the year prior to the transition, but relative stability during the post-transition year.

Figure 1  
*Average profiles of identity trajectories*



### 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). 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. The second profile ("increasing committers", 20.7%) showed slightly higher commitment making at baseline compared to the "stable commitment makers" and also showed an increase across the year.

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 <sup>b</sup>	4.35 <sup>a</sup>		
Identification with commitment	4.00 <sup>bcd</sup>	4.24 <sup>acd</sup>	3.88 <sup>abd</sup>	3.72 <sup>abc</sup>
Exploration in breadth	3.60 <sup>bcd</sup>	3.42 <sup>acd</sup>	2.06 <sup>ab</sup>	1.93 <sup>ab</sup>
Exploration in depth	3.32 <sup>bcd</sup>	3.16 <sup>acd</sup>	2.86 <sup>abd</sup>	2.67 <sup>abc</sup>
Doubt	2.07 <sup>bcd</sup>	1.61 <sup>a</sup>	1.68 <sup>a</sup>	1.68 <sup>a</sup>

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

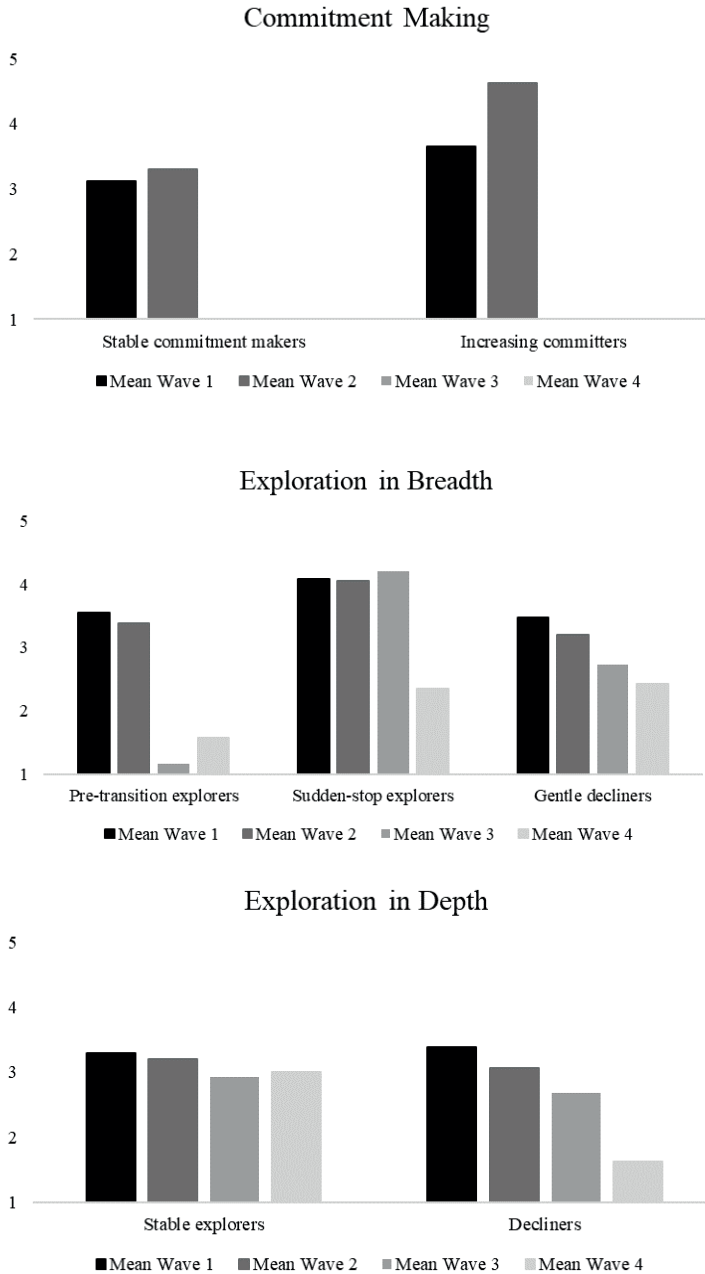


Table 3  
*Fit of the Latent Profile Analyses with multiprofile solutions with 2 to 4 profiles for each of the identity constructs*

	BIC	LMR-LRT	Entropy	% of participants in profile			
				Profile 1	Profile 2	Profile 3	Profile 4
Commitment making	<b>1007.81</b>	<b>33.55, <math>p = .270</math></b>	<b>.75</b>	<b>20.7</b>	<b>79.3</b>		
	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		
	<b>2155.95</b>	<b>56.45, <math>p = .001</math></b>	<b>.78</b>	<b>56.4</b>	<b>14.0</b>	<b>29.5</b>	
	2120.66	60.42, $p = .001$	.75	22.4	47.5	9.4	20.6
Exploration in depth	<b>1914.58</b>	<b>24.78, <math>p = .003</math></b>	<b>.64</b>	<b>75.3</b>	<b>24.7</b>		
	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

Note. 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 <sup>f</sup>	3.30 <sup>f</sup>	—	—
	Profile 2: "increasing committers"	3.66 <sup>be</sup>	4.62 <sup>ae</sup>	—	—
Exploration in breadth	Profile 1: "pre-transition explorers"	3.55 <sup>cdf</sup>	3.38 <sup>cdf</sup>	1.17 <sup>hdfg</sup>	1.57 <sup>abcfg</sup>
	Profile 2: "sudden-stop explorers"	4.08 <sup>deg</sup>	4.06 <sup>deg</sup>	4.20 <sup>deg</sup>	2.35 <sup>alice</sup>
Exploration in depth	Profile 3: "gentle decliners"	3.47 <sup>bcd</sup>	3.21 <sup>acdf</sup>	2.73 <sup>abef</sup>	2.43 <sup>abe</sup>
	Profile 1: "stable explorers"	3.30 <sup>cd</sup>	3.20 <sup>cd</sup>	2.92 <sup>ab</sup>	3.01 <sup>abf</sup>
	Profile 2: "decliners"	3.38 <sup>cd</sup>	3.06 <sup>d</sup>	2.68 <sup>cd</sup>	1.62 <sup>alice</sup>

Note. 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.

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		

*Note.* \*  $p < .05$ .

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.



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, but then decreased markedly after the school transition at Wave 3 and recover a little bit at Wave 4. 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, after which exploration decreased to a below-average level. Individuals in profile 3 (“gentle decliners”; 29.5%) had an initial level of exploration similar to that of the pre-transition explorers, and showed gradual decreases in exploration behavior across the first three timepoints.

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, with only a significant decrease from the end of primary school to the start of secondary school (“stable explorers”). Youth in the second profile (24.7%) experienced a gradual decrease in exploration in depth over time (“decliners”), with only a significant change from Wave 3 to Wave 4.

### **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.

### **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 (e.g., near 1 scale point or more 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). 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, 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 relatively young age group, where identity may have only just started to develop. In part, it 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. 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 reported 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, this may be because these adolescents feel more confident to initially start exploring and later about their choice and thus to stop exploring their options broadly. 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, 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 reduced 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 interindividual 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. 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.

## **Conclusion**

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.







# 4

## Personality Development Across Adolescence and Young Adulthood: The Role of Life Transitions and Self-Concept Clarity

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Study pre-registered at: <https://osf.io/nhs5t>

## Abstract

Personality develops across the lifespan, but most development occurs in adolescence and young adulthood. Life transitions to new social roles may be important drivers of mean-level personality development. The present study examined mean-level personality development in adolescence and young adulthood, and the role of the transition to tertiary education and working life therein in a sample of Dutch young people that were followed across 14 years ( $N = 497$ ,  $Age_{w1} = 13.03$  years). We explored whether young people's self-concept clarity moderated these associations. Our hypotheses and analytical plan were pre-registered. Findings from Latent Growth Models showed support for maturation in personality across adolescence and young adulthood, but not a maturity dip. Having the role of employee was associated with higher conscientiousness, but no associations were found of the transition to tertiary education and the transition to work with mean-level development of any of the personality traits. Self-concept clarity did not moderate the role of transitions in mean-level personality development. Our findings suggest that socialization effects may not explain associations between life transitions and personality development in adolescence and young adulthood.

*Keywords:* adolescence, young adulthood, Big Five personality traits, life transitions, self-concept clarity

### Author contributions

EM, SN, and SB conceptualized the study. SB and WM were responsible for data collection. EM analyzed the data and wrote the first draft of the manuscript. All authors provided feedback on the manuscript.

## Personality Development Across Adolescence and Young Adulthood: The Role of Life Transitions and Self-Concept Clarity

Although there is considerable rank-order stability in personality across time (e.g., Damian et al., 2019), it is now well-recognized that there is also considerable mean-level change in personality across the lifespan (e.g., Bleidorn & Hopwood, 2019; Ferguson, 2010; Roberts et al., 2006). This change is thought to happen most rapidly during the second and third decade of individuals' lives (e.g., Bleidorn et al., 2022). During this period, young people have to adapt to many personal and environmental transitions, which may bring about change in their personality. Personality is related to diverse life outcomes, such as relationships with peers (Van Aken & Asendorpf, 2018) and psychological adjustment (Tackett & Mullins-Sweatt, 2021), and developing a well-adapted personality is therefore important for well-being not just during this life period but also in later life (e.g., Atkins et al., 2020). Changes in individuals' personality may depend on the specific transition young people experience (Specht et al., 2014). Moreover, the impact of transitions on personality change may depend on the extent to which individuals have a clear sense of who they are at that point.

In this study, we therefore examined a) mean-level personality development across adolescence and young adulthood, b) the impact of the transition to tertiary education and working life on personality development across adolescence and young adulthood, and c) the extent to which self-concept clarity moderates the impact of these transitions on personality development. The present study extends previous work on adolescents' and young adults' personality change by following youth from early adolescence into their mid-twenties. As youth's developmental tasks such as finishing one's education and entering the job market increasingly extend into and are even postponed until young adulthood (Schoon, 2015), such a longer age range is vital to capture development around developmental tasks such as choosing an education and a career, and the influences of these tasks on personality development. The study's research questions and corresponding hypotheses, as well as the analytical plan were pre-registered prior to conducting the study (<https://osf.io/nhs5t>).

### Big Five personality development

Across the lifespan, people's personalities continue to develop (Ferguson, 2010). Personality can be defined very broadly as the typical way in which an individual thinks, feels, and

behaves (Roberts et al., 2008), and inter-individual differences in personality may be captured in traits reflecting five broad domains. Overall, individuals develop higher levels of conscientiousness, agreeableness, and openness to experience, and lower levels of neuroticism as they get older (Bleidorn & Hopwood, 2019; Bleidorn et al., 2022; Roberts et al., 2006). For extraversion, social dominance tends to increase towards mid-adulthood before leveling off, whereas social vitality tends to decrease after individuals reach adulthood. This positive personality growth reflects the maturity principle, which states that individuals grow towards a personality profile that facilitates functioning and adjustment in society (Bleidorn et al., 2013; Hogan & Roberts, 2004; Roberts & Mroczek, 2008; Roberts et al., 2008).

Most of this mean-level personality growth happens in the second and third decade of life (Bleidorn et al., 2018). Whereas individuals were traditionally expected to have figured out who one is and to have taken on mature roles that fit with one's personality by the end of adolescence, these major developmental tasks now increasingly extend to and are even postponed until young adulthood (Schoon, 2015). In line with this, most young people may increase in openness to experience, conscientiousness, extraversion, and agreeableness, and/or decrease in neuroticism across adolescence and young adulthood (e.g., Klimstra et al., 2009; Van Dijk et al., 2020). For instance, using a combination of longitudinal (i.e., following the same youth across time) and cohort sequential (i.e., following groups of youth of different age cohorts across a shorter time period) data, Luan et al. (2017) found an increase in openness to experience, conscientiousness, and agreeableness across adolescence and young adulthood, with extraversion and neuroticism remaining stable across the same period. Moreover, Borghuis et al. (2017), using data from the first seven waves of the same longitudinal study that was used in the present work, tracked personality development across adolescence until the start of young adulthood (i.e., from age 13 to 22). They reported small but significant increases for agreeableness in boys and girls and conscientiousness in girls. This study as well as previous work also found evidence for a temporary "maturity dip" in several personality traits around the middle of the adolescent years. Specifically, young people may experience a temporary increase in neuroticism and a decrease in openness to experience (Denissen et al., 2013; Soto et al., 2011), conscientiousness (Borghuis et al., 2017; Van den Akker et al., 2014; Van den Akker et al., 2021), and agreeableness (Van den Akker et al., 2021). Exactly for which personality traits this dip (or peak) occurs and at what age remains unclear. Moreover, as key developmental tasks

traditionally confined to adolescence are now extended into adulthood (e.g., prolonged education), it is important to also extend our examination of personality development until such tasks are finished. Therefore, the present study builds on the study by Borghuis et al. (2017) with four additional years of data, by examining personality development across a period of 14 years from early adolescence into young adulthood (i.e., from age 13 to 26), and by focusing on the role of transitions in personality development.

### **Big Five personality development and the role of transitions**

Across the lifespan, personality development is thought to be partially driven by environmental factors that impact how individuals tend to behave. This may be especially true in adolescence and young adulthood, where young people have to adapt to many transitions in their personal and professional lives. These transitions may impact personality through transactional processes between the person and their environment. Following the *social investment principle* (Roberts & Wood, 2006; Roberts et al., 2005), investing in the social roles they take up (e.g., student, employee) drives young people to gradually adapt their personalities to better fit that role. For instance, investing in tertiary education, youth in late adolescence may be expected to become more punctual and less emotionally volatile, which will ultimately help them to perform better in their studies. Similarly, entering the job market youth may also be expected to become more punctual, disciplined, and committed, and emotionally stable, in addition to becoming less agreeable and more assertive to get ahead in their job. Thus, individuals' adaption to social roles may affect their personality (McAdams, 2013a).

Different life transitions may affect personality differently (Bleidorn et al., 2018; Specht et al., 2014). In the present study, we focused on the transition to tertiary education and the transition to working life because they are highly universal experiences in Western societies (Bleidorn et al., 2018), and are thought to be linked to clear expectations of how one "should" change in terms of one's personality. Previous studies have shown that adolescents who made the transition to tertiary education experience a greater mean-level increase in openness to experience, conscientiousness, and extraversion than peers who did not experience this transition (Klimstra et al., 2018; Leikas & Salmela-Aro, 2015; Lütke et al., 2011). Adolescents who make the transition also experience a greater decrease in neuroticism. Similarly, adolescents and young adults transitioning to working life tend to experience a greater increase in conscientiousness and a greater decrease in neuroticism

than peers who do not transition to working life (Leikas & Salmela-Aro, 2015; Specht et al., 2011). Moreover, they also experience a smaller increase in agreeableness (Lüdtke et al., 2011). However, several studies found no evidence for an effect of either the transition to tertiary education or to working life on personality change (Den Boer et al., 2019; Neyer & Asendorpf, 2001; Van Dijk et al., 2020). It should be noted that these studies often only examined the association between having a particular role and personality, or linked having a social role to personality across a much longer time interval. It is possible that personality development would be visible when tracking it more closely across the transition to tertiary education and to working life. The current study examined whether having a particular role, that is, being a tertiary education student or being an employee, is related to personality. Moreover, based on the social investment principle, the current study examined whether entering a particular social role was related to mean-level personality change.

### **The impact of life transitions on personality development: Self-concept clarity as a moderator**

Given the mixed evidence for an impact of the transition to tertiary education and working life, it is especially important to keep in mind that the extent to which life transitions impact young people's personality may not be the same for everyone. Some individuals may be more strongly impacted by transitioning to tertiary education or to working life than others. In particular, the extent to which young people's personality changes after adopting the social role of student or employee may depend on the extent to which they already experience identity synthesis or self-concept clarity. Self-concept clarity refers to how certain individuals are of who they are (Schwartz et al., 2011) and how much their beliefs about themselves are clearly defined, and internally and temporally stable (Campbell et al., 1990). Although positively related to self-esteem, self-concept clarity concerns the clarity of the self-beliefs rather than the positivity versus negativity of those beliefs. Low self-concept clarity has been linked to poorer psychological well-being (Campbell et al., 2003) and diverse forms of psychopathology (Cicero, 2017), and is considered a key component of identity (Campbell, 1990; Schwartz et al., 2011; Van Dijk et al., 2014).

Having lower self-concept clarity, and a less clear identity in general, has been hypothesized to be associated with a greater susceptibility to external influences (Brechtwald & Prinstein, 2011; Campbell, 1990). Individuals who have a less clear idea of who they are or whose self-beliefs are not consistent may be more likely to be affected by external, and particularly

interpersonal, influences. In part, this may be the case because individuals with low self-concept clarity also have poorer self-regulation and goal-directedness (Light, 2017), which results in greater susceptibility to external influences. In contrast, individuals who have a clearer sense of self rely more on self-information when determining behavior and may be more goal-focused and therefore less susceptible to external influences. Consistent with this suggestion, individuals with low self-concept clarity were more susceptible to interpersonal influence (Mittal, 2015), positive feedback (Bharti et al., 2022), false feedback (Guadagno & Burger, 2007), and friends' delinquency (Levey et al., 2019) than individuals with higher self-concept clarity. Thus, it is possible that when faced with the transition to tertiary education or working life, young people with a less clear view of who they are will be more susceptible to external influences, thus increasing their likelihood of mean-level personality change.

Alternatively, having a clear and consistent self-concept may make young people more open to changing in a maturing pattern. That is, having clear and consistent views of who they are, these individuals may be more likely to change in ways that help them function well in their new role (e.g., by becoming more conscientious when starting a new education or job). In contrast, peers with a less clear selfview may change in ways that are not consistent with a certain purpose such as a new social role. In sum, young people's self-concept clarity may both weaken and strengthen the association between the transition to tertiary education and working life on personality development.

Moreover, self-concept clarity is likely not an equally efficient moderator of the association between life transitions and all personality traits. Specifically, it is likely a stronger moderator for personality traits that young people are more aware of. People's reports of their own personality reflect their internal view of who they are, and these perceptions are generally in line with more objective measures of their personality (Vazire & Carlson, 2010). However, some traits are easier to perceive accurately in oneself than other traits, for instance due to introspective limits, self-enhancement, and social desirable responding (Back & Vazire, 2012). People are better at evaluating highly internal or highly observable traits (i.e., neuroticism and extraversion) and less well at evaluating highly evaluative traits (i.e., openness to experience and conscientiousness; Vazire, 2010). Therefore, we may expect stronger moderating effects of self-concept clarity for extraversion and neuroticism, moderately strong effects for agreeableness, and less strong effects for openness to experience and conscientiousness.

### The current study

Great leaps in mean-level personality development are thought to occur in the second and third decade of life (Bleidorn & Hopwood, 2019; Roberts et al., 2006) due to major personal and environmental transitions that young people have to adapt to. The present study had three aims. First, we wanted to extend knowledge on mean-level personality development in adolescence and young adulthood, by extending the examined period to approximately 26 years of age. Given that major transitions like choosing an education and a career are increasingly postponed until young adulthood (Schoon, 2015), it is vital to extend the investigation of personality accordingly. We expected that the Big Five personality traits would develop during the period from early adolescence to young adulthood following the principle of overall maturation and the maturity dip in adolescence (Borghuis et al., 2017; Denissen et al., 2013; Klimstra et al., 2009; Soto et al., 2011). Specifically, for openness to experience, conscientiousness, extraversion, and agreeableness (Hypotheses 1a, 1b, 1c, and 1d, respectively), we expected a decrease in early adolescence and an increase in late adolescence and young adulthood. For neuroticism (Hypothesis 1e), we hypothesized an increase in early adolescence and a decrease in late adolescence and young adulthood.

Second, we studied the role of the transition to tertiary education and of the transition to working life in this mean-level development. Given the mixed evidence for the effects of transitions in previous work, we examined this role in two different ways. First, we examined the concurrent association between having a role and personality, comparing individuals who made the transition to those who had not (yet). Then, we examined whether the transition to a role was preceded or followed by personality change, to see whether the transition to a role predicts personality change relative to the pre-transition level. We hypothesized several changes in personality based on previous research on the transition to tertiary education (Klimstra et al., 2018; Leikas & Salmela-Aro, 2015; Lüdtke et al., 2011) and working life (Leikas & Salmela-Aro, 2015; Lüdtke et al., 2011; Specht et al., 2011)<sup>1</sup>. For openness to experience and extraversion (Hypotheses 2a and 2c), we expected a relatively higher level for individuals who made the transition to tertiary education than for those who did not make the transition. Moreover, we expected an increase in openness and extraversion after making the transition relative to one's own previous level. For conscientiousness and

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1 We have further specified the hypotheses for our second research question compared to those listed in the pre-registration. Here, we spelled out the hypotheses for both sets of analyses that were performed to test the second research question. The content of the hypotheses was not altered.



neuroticism (Hypotheses 2b and 2e), we hypothesized that individuals making the transition to tertiary education or to working life would report relatively higher and lower levels than youth not making these transitions, respectively. Furthermore, we hypothesized an increase for conscientiousness and a decrease for neuroticism after both life transitions relative to one's own previous levels. For agreeableness (Hypothesis 2d), we hypothesized lower levels in individuals who made the transition to working life than in those who did not make the transition. We further expected an increase in individuals' levels of agreeableness after the transition to working life.

Our third aim was to examine whether self-concept clarity moderated the impact of these transition moments on mean-level development of personality. We hypothesized that young people with higher self-concept clarity would experience smaller changes in their personality traits around a transition than young people with lower self-concept clarity (Hypothesis 3a). Alternative to this hypothesis, we also considered that instead of making young people more resistant to change, having high self-concept clarity may make them more likely to change towards maturity (Hypothesis 3b). We expected these moderation effects to be especially strong for extraversion and neuroticism, which are more (accurately) perceivable in oneself than agreeableness, openness to experience, and conscientiousness.

## Method

### Participants and procedure

The present study used data from the Research on Adolescent Development and Relationships-younger cohort (RADAR-Y; Van Lier et al., 2008; Branje & Meeus, 2018). RADAR is an ongoing longitudinal research project focused on the development of youth across adolescence and young adulthood. A sample size of about 500 was determined for RADAR, to facilitate different types of analyses including multigroup models. For this project, data were collected from adolescents, their parents, a sibling, and a friend, who were followed longitudinally. Data collection started in 2005 and new annual (i.e., Wave 1-6) or biannual (i.e., Wave 7 and onwards) waves have been added ever since, with Wave 10 data collected in 2018-2019. Initial ethical approval for the project was gained from the medical ethical committee of the University Medical Center in Utrecht (the Netherlands, project number: #05/159-K). In the present study, we included data from all 497 main participants who participated in the first wave, with a mean age of 13.01 ( $SD = 0.46$ ) and of which 214 were

girls (43.06%). The large majority had either a medium or high socioeconomic status ( $n = 436, 89.16\%$ ). We included data from Wave 1-10. At Wave 1, there was data on personality from 493 (99.2%) adolescents. There was some attrition across waves, with personality data at the following nine waves of 465 (93.6% of the total 497 adolescents), 451 (90.7%), 437 (87.9%), 420 (84.5%), 424 (85.3%), 383 (77.1%), 365 (73.4%), 367 (73.8%), and 341 (68.6%) adolescents, for Waves 2-10 respectively. The data used to answer our research questions is made available on the project OSF page: <https://osf.io/tuch5/>. A codebook of all included measurement instruments is available at <https://easy.dans.knaw.nl/ui/datasets/id/easy-dataset:113721/tab/2> for Wave 1-7; the included instruments for later waves were highly comparable.

Participants were recruited via 230 randomly selected elementary schools from several medium-sized cities in the center of the Netherlands. From these schools, 497 adolescents, their families, and their friends consented to participate (with a maximum of 3 participants per school). Both parents and adolescents provided written consent (or assent in the waves where adolescents were < 16 years-old).

## **Measurement instruments**

### *Big Five personality traits*

Participants reported on their Big Five personality traits using an adjusted version of the Big-Five questionnaire (Goldberg, 1992), called the Quick Big Five personality test (in Dutch: Vermulst & Gerris, 2005). Each wave, participants rated to what extent they possessed each characteristic of a list of 30 adjectives (e.g., “withdrawn”, “nervous”, “sympathetic”), on a scale from 1 (*not at all*) to 7 (*completely*). Each Big Five trait was assessed with 6 items, some of which were reverse-scored (e.g., “quiet” as a reverse-scored indicator of extraversion). Reverse-coded items were recoded such that high scores reflected high openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. Across the ten waves of data, reliability for each of the subscales was good, with  $\omega$  total ranging between .72 and .92 (see Table S1 for the reliability per subscale per wave).

### *Transition to tertiary education and working life*

Life transitions were not measured directly but were deduced using background data provided in Wave 4-10. Specifically, we used answers to the question: “Which educational program are/were you following in the school year 20xx-20xx? If you were not at school

anymore, or did not follow an educational program, please answer “otherwise” or “I work/worked””. Responses to this item were used to identify the point at which participants transitioned to tertiary education (as indicated by an educational program of this type) and to working life (as indicated by the “I work/worked” response). Identification was done based on work by Christiaens et al. (2021) on the transition from secondary to tertiary education in the same dataset.

### *Self-concept clarity*

Self-concept clarity was assessed at each wave using the Dutch version of the Self-Concept Clarity Scale (Campbell et al., 1996). The scale consists of 12 items related to the extent to which participants have an idea of themselves as an individual that is clearly defined, internally consistent, and stable over time. Most items were originally coded such that high scores on the items reflect low self-concept clarity (e.g., “My ideas about myself are often in conflict with each other”). Participants rated the items on a scale from 1 (*totally disagree*) to 5 (*totally agree*). As for the Big Five personality traits, the items for self-concept clarity were reverse-scored such that high scores reflected high self-concept clarity. Across waves, the scale demonstrated good internal consistency, with  $\omega$  total ranging between .87 and .93 (see Table S1 for a breakdown per wave).

### **Analytical plan**

Before starting our analyses, we tested the normality of the Big Five personality traits and self-concept clarity data using the Shapiro-Wilk’s test for normality in combination with a visual inspection of the histograms of the variables. Because nearly all variables showed signs of non-normality (with the exception of conscientiousness at Wave 1-8 and self-concept clarity at Wave 1; see Table S2), a robust variant of the Maximum Likelihood (ML) estimator was used for the main analyses (i.e., MLR, see Rosseel, 2012).

To check whether we could meaningfully track personality across adolescence and young adulthood, we next tested for measurement invariance across time. Specifically, we examined whether the structure (configural invariance), loadings onto the personality factors (weak invariance), and item intercepts (strong invariance) were equal across time. Per personality trait, we combined the six items randomly into parcels with two items each, keeping the same items per parcel across time, in line with the item-to-construct balance technique (Little et al., 2002). As shown in more detail in Table S3 of the Supplementary Material, we

found evidence of strong invariance for all traits, indicating that we could examine personality development across all ten waves of data.

We computed power estimates at the model level for all Latent Growth Models (LGMs; e.g., Duncan et al., 1999) described below. Based on the RMSEA fit indicator, this method indicates whether potential model misspecification could be detected based on the model complexity (*df*) and the sample size (Preacher & Coffman, 2006). To test for sensitivity to misspecification, we tested a close-fit hypothesis, with an RMSEA of  $\leq .05$  as the null RMSEA and  $\leq .08$  as the alternative RMSEA. All analyses had enough power to detect poor-fitting models (see Table S4 in the Supplementary Material).

### *Main analyses*

All LGMs below were estimated using a second-order framework, with item parcels serving as indicators for latent personality factors at each timepoint which in turn served as indicators of latent intercept and slope factors<sup>2</sup>. Following the findings from our measurement invariance tests, we constrained all parcel intercepts and parcel loadings to be equal across time. To examine our first research question regarding the mean-level development of personality, we first (*Step 1*) ran three models for each personality trait: one with an intercept and a linear slope, one with an additional quadratic slope, and one with an additional cubic slope. As previous work has evidenced meaningful differences in the timing of personality development in adolescence between boys and girls (Borghuis et al., 2017; Klimstra et al., 2009; Van den Akker et al., 2021), gender was included as a time-invariant covariate of the latent growth factors (i.e., intercepts and slopes).

In a second step (*Step 2a*; first test of research question #2), we investigated the association between having a social role and personality at each timepoint. To do this, we included both life transitions in the best-fitting LGMs from Step 1 as time-varying covariates that were associated with the latent manifest personality variables at each time point. These dichotomous scores were 0 for all waves before the transition took place and 1 for the wave at which the transition occurred and all succeeding waves (e.g., if a participant transitioned to tertiary education in Wave 5, they would have 0s on Wave 1-4 and 1s for Wave 5-10 for that dichotomous variable). When youth did not experience a transition in the period of the study, they had 0s on all time points for this transition.

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2 We initially pre-registered first-order LGMs, where mean scores at each timepoint were used as indicators of the latent growth factors. This strategy was adjusted following suggestions from the editor.

Next (*Step 2b*), we tested research question #2 by examining personality change around the transitions. We did this by centering the waves of personality data around the occurrence of the life transition and then modeling mean-level personality development across the transition including 3 waves of personality data before the transition and 3 waves of data after the transition using piecewise LGMs separately per life transition. These models each had an intercept and two slope factors: one for the first piece on which only the first 3 waves of data loaded and one for the second piece on which only the second 3 waves of data loaded. Thus, each model had two pieces: one before the life transition (consisting of Waves -3, -2, and 1) and one after (consisting of Wave 1, 2, and 3). As the transition moments themselves were not a separate data wave but rather happened between waves, they were represented in the models as the break between the two pieces of the model. Due to the centering of data, in Step 2b we controlled for age in all models in addition to gender by including both as covariates of the latent growth factors. Importantly, centering the data around the life transitions meant that the number of individuals also slightly differed between the analyses for each of the transitions, as some participants may have experienced one transition but not the other.

Finally (*Step 3*), we examined the third research question regarding the role of self-concept clarity as a potential moderator in the previously described piecewise LGMs of personality. To do so, we first performed a Latent Class Growth Analysis (LCGA; Jung & Wickrama, 2008) for self-concept clarity on all ten waves of data<sup>3</sup>. Based on previous work estimating such trajectories (Crocetti et al., 2016), we expected at least two trajectories of consistently low and consistently high self-concept clarity across time. Therefore, we estimated models with 2-4 classes. The optimal number of classes was selected based on a combination of the Bayesian Information Criterion (BIC; Schwartz, 1978), the Lo-Mendell-Rubin Likelihood Ratio Test (LMR-LRT; Lo et al., 2001), entropy, and the size of the classes. Specifically, the best-fitting LCGA was selected based on the lowest BIC and with the number of classes after which adding more classes did not significantly improve the model according to the LMR-LRT. Furthermore, entropy was examined for classification accuracy; values of entropy above .75 were considered to represent good classification (Reinecke, 2006). Finally, with regard to class size, each class had to contain at least 10% of the sample (Van de Schoot et al., 2017),

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3 In our pre-registration, we originally stated that we would conduct this procedure on the three waves of data also included in the pre-transition piece of the LGMs, separately for both transitions. We decided against this because doing so limits the cases that can be included in the later multigroup analyses, because missing values on the grouping variable are not allowed.

such that it also covered a meaningful portion of the sample population. From the best-fitting LCGA we got estimates of class membership for each of the participants in our dataset. This class membership was then used as a grouping variable in a subsequent multigroup piecewise LGM. We fitted a constrained model in which the slopes were set to be equal between groups, as well as two unconstrained models in which either the pre- or post-transition slope was allowed to vary between groups.

For all LGMs, model fit was examined and compared with the CFI, RMSEA, and SRMR indices. Specifically, model fit of CFI  $\geq .90$ , RMSEA of  $\leq .08$ , and SRMR  $\leq .10$  was seen as indicative of acceptable model fit (Hu & Bentler, 1999; Hooper et al., 2008). Change of  $\Delta\text{CFI} \geq -.01$ , supplemented by  $\Delta\text{RMSEA} \geq .015$  and by  $\geq .030 \Delta\text{SRMR}$  was indicative of significant change in model fit (Chen, 2007). As the effects of the transitions on personality were tested for each of the five personality traits separately, we applied a Bonferroni correction of  $\alpha = .05$  divided by 5, which resulted in a more conservative alpha level of  $< .01$  as a criterium of significance for the covariate effects. Full information likelihood estimation (FIML) was used to deal with missing data. Effect size was evaluated using the proposed rules of thumb by Funder and Ozer (2019). All LGMs were performed using the “lavaan” R package (Rosseel, 2012). The “lcm” package was used to estimate the LCGA (Proust-Lima et al., 2017).

## Results

### Descriptive statistics

Young people in our sample tended to report above the average point of the scale on all study variables, indicating that they generally reported favorable levels of personality traits and self-concept clarity (e.g., high agreeableness, conscientiousness, and self-concept clarity; see Table S5). The exception was neuroticism, where participants tended to score around the midpoint of the scale. Correlations within waves were in the expected direction, with effect sizes ranging from small to large (see Table S6). Across waves, there was medium to very high rank-order stability of the variables from one wave to the next (as represented by the correlation of the same variable across waves).

We compared individuals who still participated in the study at Wave 10 with participants who dropped out across waves, using an independent sample t-test on each of the key study variables (i.e., Wave 1 Big Five personality traits and self-concept clarity) as well as age, and using a  $\chi^2$  test for gender. In total, we identified 156 individuals who dropped out across

waves; 341 were still participating in Wave 10. These two groups did not differ at Wave 1 on self-concept clarity ( $t(318.64) = -1.80, p = .073$ , Cohen's  $d = 0.17$ ) or openness to experience, conscientiousness, agreeableness, and neuroticism ( $t(274.02) = -.10, p = .917$ , Cohen's  $d = 0.01$ ,  $t(296.12) = -1.16, p = .246$ , Cohen's  $d = 0.11$ ,  $t(260.03) = -1.54, p = .125$ , Cohen's  $d = 0.16$ , and  $t(282.22) = -.26, p = .795$ , Cohen's  $d = 0.03$ , respectively). However, the group with missing data on average scored lower on extraversion ( $t(295.86) = -2.71, p = .007$ , mean difference = .27, Cohen's  $d = 0.26$ ) and was somewhat older ( $t(230.63) = 4.16, p < .001$ , mean difference = .21, Cohen's  $d = 0.45$ ). They were also more likely to be boys ( $\chi^2(1) = 7.12, p = .008$ , Cramer's  $V = .12$ ). All participants were included in the main analyses<sup>4</sup>. Selectivity in attrition should be considered in the interpretation of the results.

### Mean-level personality development

To answer our first question regarding mean-level development of the Big Five traits during adolescence and young adulthood, we ran a series of Latent Growth Models (LGMs) per personality trait (Step 1). Specifically, for each trait we tested whether a linear, a quadratic, or a cubic model fit the data best<sup>5</sup>. Table 1 shows an overview of the fit statistics of each of the models. For each personality trait, we found that a linear model fit the data best. Across waves, there was a linear increase in openness to experience and agreeableness, and a decrease in extraversion (see Table 2 for an overview of the intercept and slope parameters, and the effect of the covariate gender; see Figure 1 for a graphical representation of all the trends). The maximum standardized average change observed from age 13 to age 26 was 0.84, 1.27, and -0.55 for openness to experience, agreeableness, and extraversion, respectively (with 95% of the people being expected to fall within a plausible value range of

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4 Given the differences in extraversion, age, and gender between the two groups, we reran our main analyses with only the participants with complete data to see whether findings were different for solely this group. Findings from these analyses were similar to those from the main analyses, with a few exceptions. First, the effect of gender on the slope factor of agreeableness in Step 1 fell away, which might be explained by the more even gender distribution in the sample of participants who were still in the study in Wave 10. Second, in the LGM for conscientiousness, there was no significant effect of the time-varying covariate working life status. Third, there was a significant, positive slope of extraversion after the transition to working life. Finally, a LCGA with four classes was found to best fit the data, although the multigroup LGM with these classes did not point to any group differences. Estimates from these analyses can be found in the Supplementary Material Tables S7-S16.

5 Because our data spanned ten timepoints, the multipliers for the quadratic and especially the cubic slope factors reached very high numbers which caused convergence issues. To deal with this issue, we made use of orthonormal polynomial contrast codes for the loadings which preserve the original relative distance between multipliers but remain relatively small in size (i.e., between -1 and 1). These alternative multipliers have not impacted the model comparison (e.g., see Langenberg et al., 2022; Voelkle et al., 2012 for previous application of these codes in LGMs). After a linear model was determined to best fit the data for each personality trait, we reran the models using more easily interpretable multipliers (e.g., 0, 1, 2, 3, 4, 5, 7, 9, 11, 13 for the 10-wave data) to make simple interpretation of the intercept and slope parameters possible.

0.64;1.04, 1.07;1.47, and -0.75;-0.35, Raudenbush & Bryk, 2002). For conscientiousness and neuroticism, there was a non-significant linear slope, indicating a stable level of these traits across adolescence and young adulthood. For these two variables, maximum standardized change was 0.33 and 0.10, respectively (with a plausible value range of 0.05;0.61 and -0.10;0.30). Gender was associated with the intercept factor of agreeableness and neuroticism, with girls on average scoring higher. Girls also had a smaller linear increase in openness to experience and agreeableness over time. The effects of gender were in the range of small to medium effects, with the exception of the effect on the intercept of neuroticism, which was medium to large.

Figure 1  
Graphical illustration of the mean-level development of each of the Big Five traits

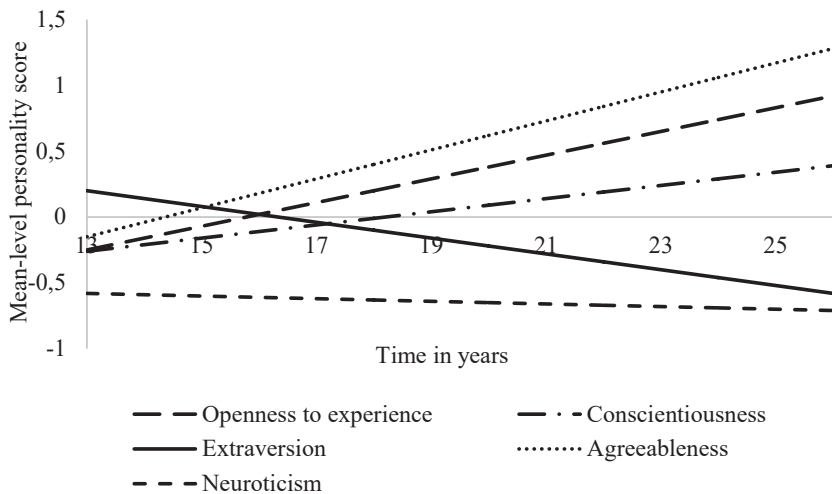




Table 1  
Fit statistics of the Linear Growth Models for each of the Big Five traits

	Openness to experience			Conscientiousness		
	CFI	RMSEA	SRMR	CFI	RMSEA	SRMR
Linear model	<b>.954</b>	<b>.043</b>	<b>.086</b>	<b>.972</b>	<b>.039</b>	<b>.068</b>
Quadratic model	.958	.042	.085	.981	.032	.045
Cubic model	.961	.041	.084	.987	.027	.038
	Extraversion					
Linear model	<b>.963</b>	<b>.042</b>	<b>.086</b>	<b>.930</b>	<b>.046</b>	<b>.072</b>
Quadratic model	.969	.039	.074	.939	.043	.066
Cubic model	.976	.034	.064	.945	.042	.060
	Neuroticism					
Linear model	<b>.963</b>	<b>.043</b>	<b>.099</b>			
Quadratic model	.974	.036	.080			
Cubic model	.981	.031	.068			

Note. Change of  $\Delta CFI \geq -.01$ , supplemented by  $\Delta RMSEA \geq .015$  and by  $\geq .030 \Delta SRMR$  was indicative of significant change in model fit (Chen, 2007). Fit statistics of the best-fitting model for each of the Big Five traits are in bold.

Table 2  
Parameter estimates of the best fitting Linear Growth Models for each of the Big Five traits

Intercept and slope parameters				Effect of gender on				
Mean	$p$	Variance	$p$	$b$	$SE(b)$	$\beta$	$p$	[LLCI, ULCI]
Openness to experience (linear model)								
Intercept	-0.25	.174	<b>&lt; .001</b>	0.26	.14	0.09	.065	[-0.02, 0.53]
Linear slope	<b>0.09</b>	<b>&lt; .001</b>	<b>&lt; .001</b>	<b>-0.05</b>	<b>.01</b>	<b>-0.21</b>	<b>.002</b>	<b>[-0.07, -0.02]</b>
Conscientiousness (linear model)								
Intercept	-0.26	.236	<b>&lt; .001</b>	0.18	.17	0.06	.273	[-0.14, 0.51]
Linear slope	0.05	.066	<b>&lt; .001</b>	0.03	.02	0.11	.057	[<-0.01, 0.07]
Extraversion (linear model)								
Intercept	0.20	.245	<b>&lt; .001</b>	-0.16	.13	-0.07	.219	[-0.40, 0.09]
Linear slope	<b>-0.06</b>	<b>.004</b>	<b>&lt; .001</b>	0.03	.01	0.16	.013	[0.01, 0.06]
Agreeableness (linear model)								
Intercept	-0.15	.371	<b>&lt; .001</b>	<b>0.32</b>	<b>.12</b>	<b>0.15</b>	<b>.008</b>	<b>[-0.08, 0.56]</b>
Linear slope	<b>0.11</b>	<b>&lt; .001</b>	<b>&lt; .001</b>	<b>-0.03</b>	<b>.01</b>	<b>-0.19</b>	<b>.005</b>	<b>[-0.06, -0.01]</b>
Neuroticism (linear model)								
Intercept	<b>-0.58</b>	<b>.021</b>	<b>&lt; .001</b>	<b>0.70</b>	<b>.13</b>	<b>0.28</b>	<b>&lt; .001</b>	<b>[0.45, 0.95]</b>
Linear slope	-0.01	.677	<b>&lt; .001</b>	-0.01	.01	-0.05	.393	[-0.04, 0.01]

Note. Figure 1 provides a visual representation of the shape of the mean-level development in each of the traits. Covariate effects were significant when  $p < .01$ .

LLCI and ULCI = 95% lower limit and upper limit confidence interval.

Covariance estimates between the intercept and slope factors are presented in Table S17 of the Supplementary Material.

### **Impact of life transitions on personality at each wave**

Next, we examined whether having the role of student or employee was related to personality, by including the occurrence (i.e., yes or no) of the events as time-varying covariates in our models (Step 2a)<sup>6</sup>. All of these models fit the data well (see Table 3). Regarding associations between the assumption of roles and personality, young people who were employed reported higher conscientiousness compared to non-working peers. Neither role assumption was related to young people's level of openness to experience, extraversion, agreeableness, or neuroticism. The significant associations between having the role of employee and conscientiousness were small ( $\beta \leq .06$ ).

### **Impact of transitions on mean-level personality development around the life transitions**

We then studied mean-level personality development around life transitions, by centering the data around the transition to tertiary education and working life so that we could examine personality three waves before and three waves after the transition took place (Step 2b). Then, we estimated linear LGMs per personality trait, per life transition (see Table 4 and 5 for the transition to tertiary education and to working life, respectively). Across all personality traits and both transitions, we found no significant slope effects, indicating that there was no mean-level personality development before or after the transition. In the model with the transition to tertiary education, gender was associated with the intercept of neuroticism (large effect). Specifically, girls had a higher intercept than boys. Similarly, for the transition to working life, girls reported a higher intercept in neuroticism (large effect). Age was not significantly associated with the intercept or slopes in either set of analyses.

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6 To facilitate convergence of the models, we only included the dichotomous time-varying covariates for waves at which there was sufficient variation (i.e., there were sufficient young people who had made the transition and who had not made the transition). The required number of individuals who had and had not made the transition was decided in an iterative manner, in which we dropped the time-varying covariate one wave at a time, starting with the wave that had the least variation, until the model converged. For the transition to tertiary education, the time-varying covariates were included for Wave 5-7. The smallest included category was at Wave 7 and consisted of 34 individuals who had not yet made the transition. For the transition to working life, time-varying covariates were included for Wave 7-10. Here, the smallest included category was similarly at Wave 7 and consisted of 30 individuals who had made the transition.

Table 3  
*Parameter estimates of the effects of educational and work role status as time-varying covariates in the Latent Growth Models for each of the Big Five traits*

	Openness to experience (linear model)				Conscientiousness (linear model)					
	<i>b</i>	SE( <i>b</i> )	$\beta$	<i>p</i>	[LLCI, ULCI]	<i>b</i>	SE( <i>b</i> )	$\beta$	<i>p</i>	[LLCI, ULCI]
<b>Effects of tertiary education status on</b>										
Wave 5	0.10	.05	0.03	.055	[<-0.01, 0.20]	-0.02	.05	-0.01	.705	[-0.12, 0.08]
Wave 6	0.10	.05	0.03	.055	[<-0.01, 0.20]	-0.02	.05	-0.01	.705	[-0.12, 0.08]
Wave 7	0.10	.05	0.02	.055	[<-0.01, 0.20]	-0.20	.05	<-0.01	.705	[-0.12, 0.08]
<b>Effects of working life status on</b>										
Wave 7	-0.02	.07	<-0.01	.802	[-0.16, 0.12]	<b>0.26</b>	<b>.10</b>	<b>0.04</b>	<b>.007</b>	<b>[0.07, 0.45]</b>
Wave 8	-0.02	.07	-0.01	.802	[-0.16, 0.12]	<b>0.26</b>	<b>.10</b>	<b>0.06</b>	<b>.007</b>	<b>[0.07, 0.45]</b>
Wave 9	-0.02	.07	-0.01	.802	[-0.16, 0.12]	<b>0.26</b>	<b>.10</b>	<b>0.06</b>	<b>.007</b>	<b>[0.07, 0.45]</b>
Wave 10	-0.02	.07	-0.01	.802	[-0.16, 0.12]	<b>0.26</b>	<b>.10</b>	<b>0.06</b>	<b>.007</b>	<b>[0.07, 0.45]</b>
<b>Extraversion (linear model)</b>										
	<i>b</i>	SE( <i>b</i> )	$\beta$	<i>p</i>	[LLCI, ULCI]	<i>b</i>	SE( <i>b</i> )	$\beta$	<i>p</i>	[LLCI, ULCI]
<b>Effects of tertiary education status on</b>										
Wave 5	-0.08	.05	-0.03	.099	[-0.18, 0.02]	0.09	.05	0.04	.039	[0.01, 0.18]
Wave 6	-0.08	.05	-0.03	.099	[-0.18, 0.02]	0.09	.05	0.04	.039	[0.01, 0.18]
Wave 7	-0.08	.05	-0.02	.099	[-0.18, 0.02]	0.09	.05	0.02	.039	[0.01, 0.18]
<b>Effects of working life status on</b>										
Wave 7	-0.02	.08	<-0.01	.828	[-0.17, 0.13]	0.04	.07	0.01	.514	[-0.09, 0.17]
Wave 8	-0.02	.08	<-0.01	.828	[-0.17, 0.13]	0.04	.07	0.02	.514	[-0.09, 0.17]
Wave 9	-0.02	.08	-0.01	.828	[-0.17, 0.13]	0.04	.07	0.02	.514	[-0.09, 0.17]
Wave 10	-0.02	.08	<-0.01	.828	[-0.17, 0.13]	0.04	.07	0.02	.514	[-0.09, 0.17]

Neuroticism (linear model)					
	<i>b</i>	SE( <i>b</i> )	$\beta$	<i>p</i>	[LLCI, ULCI]
<b>Effects of tertiary education status on</b>					
Wave 5	-0.02	.05	-0.01	.732	[-0.10, 0.07]
Wave 6	-0.02	.05	-0.01	.732	[-0.10, 0.07]
Wave 7	-0.02	0.05	<-0.01	.732	[-0.10, 0.07]
<b>Effects of working life status on</b>					
Wave 7	-0.14	.07	-0.03	.051	[-0.27, <0.01]
Wave 8	-0.14	.07	-0.04	.051	[-0.27, <0.01]
Wave 9	-0.14	.07	-0.05	.051	[-0.27, <0.01]
Wave 10	-0.14	.07	-0.04	.051	[-0.27, <0.01]

*Note.* Fit to the data was acceptable for all models: CFI = .952, RMSEA = .036, SRMR = .081, CFI = .966, RMSEA = .034, SRMR = .068, CFI = .959, RMSEA = .036, SRMR = .077, CFI = .923, RMSEA = .039, SRMR = .070, and CFI = .956, RMSEA = .038, SRMR = .089, respectively. Time-varying covariates were only included for waves at which there was sufficient variation between individuals to run the analyses. This meant that we had to exclude waves at which no one had yet made a transition and waves at which everyone had. Effects of the time-varying covariates of the same transition were set equal as we had no expectations about the effects of the assumption of the role of tertiary education student or employee differing depending on the time at which it was assumed. Covariate effects were significant when  $p < .01$ .

LLCI and ULCI = 95% lower limit and upper limit confidence interval.

Table 4  
 Parameter estimates of the piecewise Linear Growth Models for each of the Big Five traits for the centered data around the transition to tertiary education

		Openness to experience							
	Mean	<i>p</i>	Variance	<i>p</i>	<i>b</i>	<i>SE(b)</i>	$\beta$	<i>p</i>	[LLCI, ULCI]
Intercept	0.74	.756	<b>3.69</b>	<b>.048</b>					
					0.24	.24	0.06	.329	[-0.24, 0.71]
Slope 1	0.97	.539	0.00*	–	Intercept				
				.052	Slope 1	.11	0.39	.772	[-0.18, 0.24]
Slope 2	0.40	.577	0.06		Slope 2	.05	-0.16	.113	[-0.18, 0.02]
					<b>Effect of age on</b>				
					Intercept		-0.31	.26	[-0.83, 0.20]
					Slope 1		-0.08	.12	[-0.31, 0.16]
					Slope 2		-0.02	.06	[-0.13, 0.09]
Conscientiousness									
	Mean	<i>p</i>	Variance	<i>p</i>	<i>b</i>	<i>SE(b)</i>	$\beta$	<i>p</i>	[LLCI, ULCI]
Intercept	-0.53	.839	<b>4.16</b>	<b>&lt; .001</b>					
				.111	Intercept		0.40	.25	[0.10, 0.89]
Slope 1	-1.32	.334	0.24		Slope 1	.10	0.08	.396	[-0.11, 0.27]
				.006	Slope 2	.05	0.05	.475	[-0.04, 0.15]
Slope 2	-0.56	.374	<b>0.10</b>		<b>Effect of age on</b>				
					Intercept		0.16	.24	[-0.31, 0.63]
					Slope 1		0.10	.10	[-0.11, 0.30]
					Slope 2		0.05	.05	[-0.04, 0.15]

Extraversion										
	Mean	<i>p</i>	Variance	<i>p</i>		<i>b</i>	<i>SE(b)</i>	$\beta$	<i>p</i>	[LLCI, ULCI]
Intercept	0.60	.849	<b>5.52</b>	<b>.010</b>	<b>Effect of gender on</b>					
Slope 1	-0.56	.757	0.34	.203	Intercept	-0.43	.29	-0.09	.129	[-0.99, 0.13]
Slope 2	-0.33	.702	0.19	.015	Slope 1	0.15	.12	0.13	.216	[-0.09, 0.39]
					Slope 2	0.12	.06	0.13	.056	[<-0.01, 0.24]
					<b>Effect of age on</b>					
					Intercept	-0.11	.32	-0.02	.726	[-0.75, 0.52]
					Slope 1	0.03	.14	0.02	.832	[-0.24, 0.30]
					Slope 2	0.01	.07	0.01	.887	[-0.12, 0.14]
Agreeableness										
	Mean	<i>p</i>	Variance	<i>p</i>		<i>b</i>	<i>SE(b)</i>	$\beta$	<i>p</i>	[LLCI, ULCI]
Intercept	-0.31	.874	<b>2.20</b>	<b>&lt; .001</b>	<b>Effect of gender on</b>					
Slope 1	0.71	.637	0.00*	–	Intercept	0.15	.21	0.05	.496	[-0.27, 0.57]
Slope 2	0.76	.280	<b>0.06</b>	<b>.007</b>	Slope 1	0.10	.10	0.89	.290	[-0.09, 0.29]
					Slope 2	0.02	.04	0.04	.686	[-0.07, 0.10]
					<b>Effect of age on</b>					
					Intercept	0.01	.22	< 0.01	.975	[-0.42, 0.44]
					Slope 1	-0.05	.12	-0.42	.660	[-0.28, 0.18]
					Slope 2	-0.05	.05	-0.09	.374	[-0.15, 0.06]

Neuroticism										
	Mean	<i>p</i>	Variance	<i>p</i>		<i>b</i>	<i>SE(b)</i>	$\beta$	<i>p</i>	[LLCI, ULCI]
Intercept	0.05	.986	<b>4.20</b>	<b>.001</b>	<b>Effect of gender on</b>					
Slope 1	5.67	.297	<b>4.78</b>	<b>.029</b>	Intercept	<b>0.90</b>	<b>.23</b>	<b>0.25</b>	<b>&lt; .001</b>	<b>[0.44, 1.35]</b>
Slope 2	-6.15	.212	<b>3.85</b>	<b>.030</b>	Slope 1	0.20	.09	0.23	.033	[0.02, 0.38]
					Slope 2	0.01	.04	0.02	.785	[-0.07, 0.10]
					<b>Effect of age on</b>					
					Intercept	0.07	.23	0.02	.757	[-0.39, 0.53]
					Slope 1	-0.01	.10	-0.01	.932	[-0.20, 0.18]
					Slope 2	< 0.01	.05	0.01	.949	[-0.09, 0.10]

Note. Fit to the data was acceptable for all models: CFI = .973, RMSEA = .038, SRMR = .056, CFI = .986, RMSEA = .033, SRMR = .043, CFI = .985, RMSEA = .031, SRMR = .045, CFI = .952, RMSEA = .043, SRMR = .061, CFI = .996, RMSEA = .017, SRMR = .053, respectively.

Covariate effects were significant when  $p < .01$ .

LLCI and ULCI = 95% lower limit and upper limit confidence interval.

\* = Variance of Slope 1 was fixed after it was originally estimated to be negative.

Covariance estimates between the intercept and slope factors are presented in Table S18 of the Supplementary Material.



Table 5  
Parameter estimates of the piecewise Linear Growth Models for each of the Big Five traits for the centered data around the transition to working life

Openness to experience										
	Mean	<i>p</i>	Variance	<i>p</i>	<i>p</i>	<i>b</i>	SE( <i>b</i> )	<i>B</i>	<i>p</i>	[LLCI, ULCI]
Intercept	0.55	.892	8.99	.403						
<b>Effect of gender on</b>										
Slope 1	2.84	.438	0.41	.655	Intercept	0.01	.42	<0.01	.976	[-0.81, 0.84]
Slope 2	0.67	.706	0.39	.432	Slope 1	-0.29	.26	-0.22	.268	[-0.81, 0.22]
					Slope 2	-0.24	.18	-0.19	.178	[-0.60, 0.11]
<b>Effect of age on</b>										
					Intercept	-0.01	.59	<-0.01	.984	[-1.18, 1.15]
					Slope 1	-0.18	.27	-0.13	.493	[-0.71, 0.34]
					Slope 2	-0.02	.13	-0.02	.869	[-0.27, 0.23]
Conscientiousness										
	Mean	<i>p</i>	Variance	<i>p</i>	<i>p</i>	<i>b</i>	SE( <i>b</i> )	$\beta$	<i>p</i>	[LLCI, ULCI]
Intercept	-1.00	.777	5.24	.063						
<b>Effect of gender on</b>										
Slope 1	2.96	.198	0.33	.364	Intercept	0.82	.40	0.17	.043	[0.03, 1.61]
Slope 2	2.08	.142	0.22	.088	Slope 1	0.02	.14	0.02	.867	[-0.26, 0.31]
					Slope 2	0.01	.09	0.01	.960	[-0.17, 0.18]
<b>Effect of age on</b>										
					Intercept	0.33	.36	0.07	.358	[-0.37, 1.03]
					Slope 1	-0.20	.17	-0.16	.238	[-0.54, 0.13]
					Slope 2	-0.13	.10	-0.13	.208	[-0.34, 0.07]

Extraversion										
	Mean	<i>p</i>	Variance	<i>p</i>	<b>.041</b>	<i>b</i>	<i>SE(b)</i>	$\beta$	<i>p</i>	[LLCI, ULCI]
Intercept	0.55	.845	<b>2.27</b>							
					<b>Effect of gender on</b>					
Slope 1	-2.71	.119	0.13	.481	Intercept	-0.21	.25	-0.07	.385	[-0.70, 0.27]
Slope 2	0.02	.985	0.08	.138	Slope 1	0.11	.11	0.15	.299	[-0.10, 0.33]
					Slope 2	0.09	.06	0.15	.176	[-0.04, 0.21]
					<b>Effect of age on</b>					
					Intercept	-0.32	.26	-0.10	.221	[-0.82, 0.19]
					Slope 1	0.20	.13	0.24	.128	[-0.06, 0.45]
					Slope 2	-0.01	.06	-0.02	.848	[-0.13, 0.11]
Agreeableness										
	Mean	<i>p</i>	Variance	<i>p</i>	<i>b</i>	<i>SE(b)</i>	$\beta$	<i>p</i>	[LLCI, ULCI]	
Intercept	-0.89	.784	3.53	.127						
					<b>Effect of gender on</b>					
Slope 1	3.50	.354	0.24	.500	Intercept	0.40	.33	0.11	.218	[-0.24, 1.04]
Slope 2	0.87	.628	0.19	.156	Slope 1	-0.25	.17	-0.24	.138	[-0.57, 0.08]
					Slope 2	-0.16	.09	-0.17	.101	[-0.34, 0.03]
					<b>Effect of age on</b>					
					Intercept	0.28	0.49	0.07	.563	[-0.68, 1.24]
					Slope 1	-0.23	.28	-0.21	.413	[-0.79, 0.32]
					Slope 2	-0.04	.13	-0.04	.778	[-0.30, 0.22]

Neuroticism										
	Mean	<i>p</i>	Variance	<i>p</i>	Effect of gender on	<i>b</i>	<i>SE(b)</i>	$\beta$	<i>p</i>	[LLCI, ULCI]
Intercept	-0.77	.830	<b>4.13</b>	<b>.023</b>	<b>Effect of gender on</b>					
Slope 1	6.07	.409	4.82	.115	Intercept	<b>1.12</b>	<b>.33</b>	<b>0.31</b>	<b>.001</b>	<b>[0.47, 1.77]</b>
Slope 2	-13.02	.227	14.18	.071	Slope 1	-0.08	.12	-0.12	.495	[-0.31, 0.15]
					Slope 2	-0.06	.07	-0.09	.427	[-0.19, 0.08]
					<b>Effect of age on</b>					
					Intercept	0.32	.29	0.08	.280	[-0.26, 0.89]
					Slope 1	-0.09	.12	-0.13	.440	[-0.33, 0.14]
					Slope 2	0.02	.06	0.03	.772	[-0.11, 0.14]

Note. Fit to the data was acceptable for all models: CFI = .975, RMSEA = .028, SRMR = .088, CFI = .962, RMSEA = .040, SRMR = .088, CFI = .981, RMSEA = .026, SRMR = .073, CFI = .963, RMSEA = .028, SRMR = .071, CFI = .965, RMSEA = .038, SRMR = .077, respectively.

Covariate effects were significant when  $p < .01$ .

LLCI and ULCI = 95% lower limit and upper limit confidence interval.

Covariance estimates between the intercept and slope factors are presented in Table S19 of the Supplementary Material.

Table 6  
*Fit statistics of the Latent Class Analysis solutions with two to four classes of self-concept clarity*

	BIC	Test value of LMR-LRT	Entropy	Membership in percentage			
				Class 1	Class 2	Class 3	Class 4
2 classes	8,380.06	388.27, $p < .001$	.83	55.33	44.67		
3 classes	8,039.25	180.76, $p < .001$	.81	23.14	46.08	30.78	
4 classes	7,917.08	134.04, $p < .001$	.79	11.27	31.19	36.62	20.93

*Note.* The solution with three classes was chosen as the best-fitting, as the entropy of the 4-class solution dropped below .80, which was our criterium for acceptable entropy.

### **Moderating role of self-concept clarity in mean-level personality development**

Our third research question was whether youth's self-concept clarity would moderate mean-level personality development around the life transitions (Step 3). To answer this question, we estimated three LCGAs for self-concept clarity on all ten waves of data (Table 6). A three-class solution was found to best fit the data. Roughly, these classes represented individuals with low, middle, and high self-concept clarity. The classes each showed a relatively stable pattern over time, although there were some significant slopes (See Table S20). In particular for the low self-concept clarity class, there was a dip in clarity around the end of adolescence (Figure S1).

Then, this class membership was used as a grouping variable in multigroup piecewise LGMs per personality trait, per transition. We estimated three versions of these models, one with the slopes of the pre- and post-transition piece constrained to be equal across groups, one allowing the slope parameter of the pre-transition piece to vary, and one allowing the slope parameter of the post-transition piece to vary. Then, we compared the fit of the less constrained models to the constrained model. For the transition to tertiary education, the constrained and unconstrained models showed acceptable fit for all personality traits (see Table 7). Moreover, the unconstrained models did not fit significantly better for any personality trait, indicating that young people's self-concept clarity did not moderate the impact of the transition on mean-level personality development. For the transition to working life, we experienced convergence problems for all multigroup models, except for the model with the unconstrained pre-transition slope for agreeableness (CFI = .909, RMSEA = .064, SRMR = .088). Given that the non-multigroup models converged properly and the groups produced no coverage problems (and were in fact the same groups successfully used for the models for tertiary education), we concluded this to be a likely result of a very small contribution relative to model complexity. Thus, we found no group differences in mean-level personality development around the transition to tertiary education based on youth's self-concept clarity, and also expected no differences in the transition to working life.

### **Post-analyses with self-concept clarity**

#### *Using continuous scores of self-concept clarity*

In addition to the above pre-registered analyses, we conducted two sets of additional analyses to further explore the role of self-concept clarity. First, to test whether self-concept clarity would predict differences in how youth's personality changes around the school

transition, we additionally examined whether continuous scores of self-concept clarity pre-transition were associated with post-transition personality change. To test this, self-concept clarity at timepoint-1 was included in the centered piecewise LGMs of Step 2b as predictor of the post-transition slope. All of these models fitted acceptably, with the exception of the models for neuroticism around the transition to tertiary education (below cutoff for the SRMR criterium: SRMR = .102) and to working life (SRMR = .103). Consistent with our main analyses, these analyses did not point to any effects of self-concept clarity on personality change (Table S21).

#### *Using self-concept clarity as a time-varying predictor of personality*

Second, we investigated whether self-concept clarity was a time-varying predictor of personality. We again extended the models from Step 2b, this time by including self-concept clarity scores at each timepoint (i.e., -3, -2, -1, 1, 2, 3) as predictors of the latent personality factors at the same point. Model fit was acceptable for all models for the transition to tertiary education, but for the models for the transition to working life four out of five models had less-than-acceptable fit in one of three indicators. The findings indicated several significant associations. For the transition to tertiary education, there were significant associations between self-concept clarity and scores on all personality traits except openness to experience (Table S22). Youth with higher scores on self-concept clarity reported more extraversion and lower neuroticism than their peers with lower self-concept clarity across all timepoints, and more agreeableness on all but the first timepoint. Moreover, providing some support for moderation by self-concept clarity of the effects of the transition, youth with a clearer sense of self were more conscientious than their peers after the transition to tertiary education. For the transition to working life, having higher self-concept clarity was similarly related to more extraversion and less neuroticism across all timepoints (Table S23). In addition, youth high on self-concept clarity reported being more conscientious and agreeable on some timepoints. Effects were very small to small (conscientiousness), small to medium (agreeableness), and large (extraversion and neuroticism).

Table 7  
Summary of model fit statistics of the constrained and unconstrained multigroup piecewise LGMs around the transition to tertiary education for each of the Big Five traits

	Openness to experience			Conscientiousness		
	CFA	RMSEA	SRMR	CFA	RMSEA	SRMR
Constrained model	.949	.054	.089	.966	.051	.072
Unconstrained pre-transition slope	.950	.054	.089	.966	.050	.072
Unconstrained post-transition slope	.950	.054	.088	.967	.050	.072
	Extraversion					
Constrained model	.970	.044	.077	.907	.065	.095
Unconstrained pre-transition slope	.970	.044	.077	.907	.065	.095
Unconstrained post-transition slope	.970	.044	.077	.906	.065	.095
	Neuroticism					
Constrained model	.971	.040	.071			
Unconstrained pre-transition slope	.971	.040	.071			
Unconstrained post-transition slope	.971	.040	.071			

Note. In the unconstrained models the slope parameters were allowed to vary across the different self-concept clarity classes. In the constrained model, the slope parameters of the pre- and post-transition piece were constrained to be equal across groups. Change of  $\Delta CFI \geq .01$ , supplemented by  $\Delta RMSEA \geq .015$  and by  $\geq .030 \Delta SRMR$  was indicative of significant change in model fit (Chen, 2007).

## Discussion

The present study examined the associations of personality development with two transitions that may be considered nearly universal: the transition to tertiary education and the transition to working life. Our findings indicated that there was some mean-level personality development across adolescence and young adulthood and that having the role of employee was related to level of conscientiousness at each timepoint. However, making the transition to tertiary education or working life was not accompanied by mean-level personality change. Moreover, personality change across these transitions was not moderated by young people's self-concept clarity.

### **Big Five personality development**

Across life, individuals generally develop in the direction of a personality profile that allows them to function well in the society that they are a part of (Hogan & Roberts, 2004; Roberts & Mroczek, 2008; Roberts et al., 2008). Supporting this maturity principle and in line with previous research by Van Dijk et al. (2020), we found a linear increase for openness to experience and agreeableness across adolescence and young adulthood, and a decrease for extraversion. In contrast to the maturity principle and our expectations, we found no overall change in conscientiousness and neuroticism, which adds to previous inconsistent findings regarding change in these traits (Klimstra et al., 2009; Luan et al., 2017). However, it should be noted that our study tracked adolescents annually or biannually across 14 years, whereas the study by Klimstra et al. (2009) used 5 annual waves and Luan et al. (2017) tracked youth across relatively large gaps between measurements (i.e., 5 years and 12 years) in addition to using data with a cohort sequential design (where youth between 11.5 years and 15.5 years were followed for three timepoints across 2 years). As a result of these differences in the period of measurement and the lags between measurements compared to Klimstra et al (2009) and Luan et al. (2017), respectively, our analyses may not have picked up on relatively temporary trends in change that were found across shorter time spans or greater measurement intervals.

In contrast to previous research, we did not find support for a temporary maturity dip in personality (e.g., Denissen et al., 2013; Soto et al., 2011; Van den Akker et al., 2014; Van den Akker et al., 2021). That is, our findings suggested that a linear change best characterized the pattern of development in the Big Five personality traits, with no change occurring for



conscientiousness and neuroticism. Again, it is possible that by tracking youth across longer time periods, more subtle, relatively temporary changes in personality are not captured. Interestingly, the absence of a maturity dip not just contradicts previous studies using cross-sectional cohort data (Denissen et al., 2013; Soto et al., 2011; Van den Akker et al., 2021) and longitudinal data (Klimstra et al., 2009; Luan et al., 2017; Van den Akker et al., 2014; Van Dijk et al., 2020), but is also in contrast to a previous study using part of the same data and sample as the present study (Borghuis et al., 2017). In this previous study, youth were followed from adolescence into their early twenties (i.e., from age 13 to 22), whereas the present study extended this period to age 26. Therefore, although tracking youth until their early twenties suggests a temporary dip in conscientiousness, following them for an additional four years indicates that a stable pattern best characterizes their overall development. It may thus be the case that temporary fluctuations are less noticeable when we examine personality across a longer period, because they represent only small bumps in overall development.

When we are interested in the development of personality across the life span, such temporary dips or fluctuations may even be less meaningful. Focusing on life transitions, it is possible that certain traits and behaviors become temporarily accentuated, but will mostly bounce back after the transition. However, these fluctuations during and around transition periods might also reflect that transitions are moments of larger potential for change, and research interested in differential trajectories could focus on transition periods to better understand which youth continue on adaptive trajectories and which youth diverge into less adaptive trajectories. When the focus is on such relatively short-term personality fluctuations in relation to longer-term outcomes, more complex statistical analyses may be needed to capture developmental dips across longer time periods (e.g., Ram & Grimm, 2007). Visually inspecting the raw mean scores of conscientiousness at each timepoint (Table S5), we do see somewhat lower conscientiousness in adolescence, after which the mean score becomes somewhat higher again. In sum, there are multiple avenues to consider in the future when studying personality development, depending on the research question that we wish to answer. Although statistical methods to appropriately consider time in our models are becoming more and more available (e.g., Wagner et al., 2019), the theoretical question of what an appropriate timescale is remains and should be considered in light of what we want to learn as different timescales may offer different insights into (youth) personality development. Therefore, important future work concerns the extension of theories of

development with an explicit reference to the timescale at which it plays out. In addition, more research with a similar data collection design as the present study is needed to replicate the current findings.

### **Big Five personality development and the role of transitions**

In addition to mean-level development across adolescence and young adulthood, the present study aimed to shed more light on the role of transition moments in the development of personality. Despite having a clear theoretical expectation of the role of transition moments as well as some empirical support for this association (Klimstra et al., 2018; Leikas & Salmela-Aro, 2015; Lüdtke et al., 2011; Specht et al., 2011), we found only limited support for the association between role assumption and personality change. Specifically, young people who were employed were more conscientious than their peers who did not assume this role. Moreover, examining mean-level personality development across the transition to tertiary education and working life, we found no evidence of a role of the transition in this development. The finding with regard to conscientiousness is in line with our hypothesis as well as previous research, and provides some support for the social investment principle (Roberts & Wood, 2006; Roberts et al., 2005).

On the whole, however, our research is in line with a growing body of work reporting null findings regarding the role of transitions in personality (e.g., Den Boer et al., 2019; Neyer & Asendorpf, 2001; Van Dijk et al., 2020). It is possible that in contrast to *socialization effects* of the transition to new roles on personality, certain personality traits predispose young people to select into certain situations (e.g., being less agreeable may make people more likely to successfully hold a job). Several studies have found support of such *selection effects* for life transitions such as the first romantic relationship (Van Dijk et al., 2020) and even the transition to working life (Roberts et al., 2003; Specht et al., 2011). Thus, it is possible that selection effects may be useful to explain the associations between role status and personality found in this study.

Another potential explanation for the absence of transition effects on personality is that transitions affect personality in non-uniform ways. In this case, future work on life transitions may need to move beyond looking at whether or not a transition occurred. As has been suggested for the association between major life events and personality, the role of such impactful moments on personality may depend on characteristics of the transition (Haehner et al., 2022; Luhmann et al., 2021) and of the person (Denissen et al., 2019). For example, in

the field of identity it has been recognized that the interpretation of an event may be more important for individual outcomes than the simple occurrence of the event (Skaggs & Barron, 2006; Pasupathi et al., 2007). To further improve our understanding of how life transitions impact personality, we need to examine individuals' interpretation or perceptions of those events and individual differences therein. Moreover, different life events and transitions should also be considered together within the context of the broader life (Bleidorn et al., 2021). As an example, the transition to working life may be experienced quite differently after already moving out of the house and taking care of one's own finances when going to tertiary education, as compared to when one starts working immediately after secondary school. Taken together, a more holistic approach is needed to examine how life events and transitions combine within individuals and to understand their multiple and potentially contrasting effects on personality.

Alternatively, and simultaneously, here too the timescale may be important to consider. Taking a long-term perspective, the impact of life events and transitions may be negligible and result in the inconsistent findings that have been reported in the literature. However, examining the periods immediately before and after these moments, we may see more evidence of effects on personality. For instance, a recent study on motherhood reported temporary effects on neuroticism from early pregnancy to 6 months after birth (Leikas et al., 2022), whereas other studies with a more long-term perspective did not report any lasting effects (e.g., Van Scheppingen et al., 2016; Specht et al., 2011). Similarly, we may need to track youth more closely as they make the transition to tertiary education and to working life, to capture effects of these transitions on their personality.

### **The impact of life transitions on personality development: Self-concept clarity as a moderator**

Finally, we considered that personality change following transition moments may not be uniform across all young people. In particular, we examined whether having a clear view of who they are may make young people less susceptible to external influences (Brechtwald & Prinstein, 2011; Campbell, 1990; Levey et al., 2019) and thus adjust less in their personality following a life transition. To examine the role of self-concept clarity in the mean-level development of personality traits across transition moments, we first investigated whether young people differed in their development of self-concept clarity. In line with Crocetti et al., (2016), we found evidence of a low and a high self-concept clarity group. In addition to that

we also found an inbetween group, with moderate levels of self-concept clarity.

Examining the mean-level development of young people in these three classes across the transition to tertiary education and to working life, we found no evidence of differences in their personality development in the years before and after the transition to tertiary education. That is, young adolescents making these transitions did not have different personality trajectories depending on whether they had low, medium, or high self-concept clarity. For the transition to working life, our models did not converge, possibly because the added complexity of the multigroup model did not weigh up to the limited increase in explanatory power. One possible explanation for the absence of moderation effects is that differences between the groups were rather limited; even the lowest self-concept clarity group reported scores around the midpoint of the scale. Thus, even this “low” group was probably fairly well-adjusted. However, our post-hoc analyses with a continuous score of pre-transition self-concept clarity also did not suggest a role in post-transition personality change. Possibly, and as is mentioned above, a more in-depth focus on characteristics of the transition to tertiary education and working life and on how these transitions fit into the broader life (Bleidorn et al., 2021) may explain individual differences in the impact of these transitions on personality.

Although youth with different self-concept clarity levels did not report different mean-level change before or after the transition to tertiary education or to working life, self-concept clarity was associated with personality before and after the transition (Tables S22 and S23). Our second set of exploratory analyses suggested that youth who reported higher self-concept clarity than their peers also reported being more conscientious, agreeable, and extraverted, and less neurotic around both life transitions. The finding that higher self-concept clarity was related to higher conscientiousness only after the transition to tertiary education provides some tentative evidence for moderation. That is, it seems to suggest that especially after making the transition to tertiary education do high self-concept clarity individuals show more adaptive personality levels. Thus, although self-concept clarity did not seem to predict personality change, it was associated with individual differences in personality around the transition to tertiary education and working life. In particular, youth who had a clearer view of who they are reported more adaptive personality levels than youth with lower levels of self-concept clarity.

### **Strengths and limitations**

The present study had several strengths. The study made use of longitudinal data spanning one-and-a-half decade with only limited attrition. This design allowed us to examine personality across a long time span, with minimal bias entering the sample over time. Furthermore, we performed a rigorous test of not only whether transition moments impact mean-level personality development, but also if they do so the same for everyone.

However, some limitations need also to be acknowledged. Most notably, the sample used in the present study was somewhat homogenous in terms of socioeconomic status and biased due to selective missingness. Specifically, participants with missing data were more likely to be older, boys, and less extraverted. Although the robustness checks we conducted on the subsample with complete data did not indicate meaningful differences in the findings, it is important to keep these limitations to the data in mind because they may affect the generalizability of our findings.

Moreover, there were several limitations to the data structure. First, our data were self-reported, meaning that our results may only have captured the parts of personality traits that were observed by the youth themselves and, conversely, may have captured parts of personality traits that would not be observed by others. Previous work has shown that each perspective on personality, such as the perspective of the parents, teachers, co-workers, peers, or youth themselves, contains unique information (e.g., Self-Other Knowledge Asymmetry model; Vazire, 2010). For example, in several studies examining parent-reports in addition to self-reports, parents reported a decrease in neuroticism in later adolescence, whereas the youth themselves reported no such decrease or even an increase (Luan et al., 2017; Göllner et al., 2017; Van den Akker et al., 2014). In the future, it is important to include multiple, age-appropriate observers when studying the impact of life transitions on personality development. Second, our data were gathered annually, which may have resulted in missing potentially short-term mean-level changes in personality before or after the occurrence of life transitions.

Finally, although we have attempted to capture the transition to working life as accurately as possible, it is likely that this transition reflects a gradual transition period rather than one single moment in time. For instance, some individuals may have held a temporary job that increased in hours, may have then started an internship next to their education, and may have transitioned into what we labeled as “working life” from there. This example also showcases the overlap and potential dependency of both transitions. That is, for some young

people the transition to tertiary education and to working life may occur in the same period. Moreover, we may expect that the impact of the transition to working life is dependent on whether they make this transition immediately after secondary school or after finishing a tertiary education (e.g., Lüdtke et al., 2011). Thus, the dividing line of what is and what is not “a real job” and at what point in their life someone started one may in practice have been less clear than the classification used in this study and may need to be further disentangled to increase our understanding of the impact of these transitions on youth personality.

### **Conclusion**

The present study found evidence for personality maturation across adolescence and young adulthood. Conscientiousness appeared important for the transition to working life, with employees reporting higher levels than their non-working peers. However, the transition to tertiary education and working life did not appear important for further mean-level personality development, nor did individuals with higher or lower levels of self-concept clarity differ in their adaptation to these transitions. Our exploratory analyses did provide some evidence that self-concept clarity is linked to more adaptive personality levels in the years before and after the transition, and may moderate the association between the transition to tertiary education and conscientiousness, but more research is needed to examine these associations further. On the whole, our findings provide only limited support for the social investment principle. Possibly, the transition to tertiary education and working life may be more strongly tied to personality development through selection rather than socialization effects, and needs to be studied further with a focus on the subjective experience of the transition. However, replication of the present findings with a more heterogeneous sample is needed.







# 5

## Examining Secondary School Choice Processes as a Predictor of Adjustment After the School Transition

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Study pre-registered at: <https://osf.io/bm4qk>

## **Abstract**

The secondary school transition is an important moment in adolescents' lives. Taking a prospective approach, the present study examined whether educational identity regarding a secondary school choice and own and parental expectations during the last year of primary school predicted post-transition school and psychological adjustment in Dutch adolescents ( $N = 314$ ,  $M_{\text{age}} = 11.58$ ). Additionally, the study qualitatively examined the reasons adolescents gave for their school choice, and linked these reasons to exploration behavior and post-transition adjustment. Identity processes and expectations predicted adjustment. Adolescents mostly reported multiple reasons for their school choice, with educational, practical, and social aspects of secondary schools appearing most important. The number of reasons mentioned was associated with pre-transition exploration behavior.

*Keywords:* adolescence, secondary school transition, school choice, identity, adolescent and parental expectations

### **Author contributions**

EM and SB conceptualized the study and were responsible for data collection. EM analyzed the data and wrote the first draft of the manuscript. SB provided feedback on the manuscript.

## **Examining Secondary School Choice Processes as a Predictor of Adjustment After the School Transition**

Transitioning from primary to secondary school is an important moment in young people's lives, and in the Western world it is often seen as the starting point of adolescence (e.g., Pratt & George, 2005; Zeedyk et al., 2003). Given this importance, it is not surprising that the transition to secondary school can have a strong and in some cases even detrimental impact on adolescents' school adjustment (Martínez et al., 2011; Wigfield et al., 2006) and mental health (e.g., Hanewald, 2013; Symonds & Galton, 2014). Importantly, this impact may persist throughout secondary school, putting adolescents on persistent pathways of negative or positive adjustment (Eccles et al., 1997; Nelemans et al., 2018). As such, it is important to timely identify adolescents who are at risk of negative adjustment in their new school. One factor that may predict adolescents' adjustment in secondary school is the extent to which they have explored the different school options and have committed to their new school.

Identity processes such as commitment and exploration in the school domain have been linked to many important educational and psychological phenomena, such as educational performance (Pop et al., 2016), having to repeat a grade (De Moor et al., 2019), and internalizing and externalizing pathology (e.g., Crocetti et al., 2012). However, such studies have often examined educational identity once a school or education was already chosen, whereas theory suggests that identity questions become especially salient across transition moments (Bosma & Kunnen, 2001; Branje et al., 2021). The present study examined how the process of choosing a school and forming one's educational identity is related to important educational and psychological outcomes.

The present study had two goals. First, the study quantitatively examined whether educational identity predicts adolescents' secondary school adjustment, as indicated by school functioning, school engagement, and school belonging, and psychological adjustment, as indicated by adolescents' internalizing and externalizing problems. Educational identity was conceptualized as a focused choice process regarding secondary school education in which adolescents explore their qualities, interests, and options in order to formulate a secondary school commitment. In addition, we examined the predictive effects of own and parental expectations regarding secondary education on post-transition adjustment. Second, to better understand why adolescents make the decision for a school, the present study qualitatively explored the reasons they gave for their school choice.

### **Primary-to-secondary school transition adjustment**

The transition from primary to secondary school is often accompanied by many changes, such as different classrooms and a bigger school building, more and different peers, more homework, and a variety of teachers. During the same time, adolescents may also experience several developmental changes, such as pubertal development (e.g., Mul et al., 2001), increased autonomy from parents (Zimmer-Gembeck & Collins, 2006), and a greater orientation towards peers (Fuligni & Eccles, 1993). These changes might elicit changes in adolescent adjustment. In terms of school adjustment, adolescents on average experience a decline in school belonging, school engagement, and ultimately even school performance following the transition to secondary school (Martínez et al., 2011; Wigfield et al., 2006). This may be the case because secondary schools do not match the individual needs of the adolescent (person-environment fit; e.g., Symonds & Galton, 2014) or the developmental stage that they are in (stage-environment fit; Eccles & Midgley, 1989; Eccles et al., 1993). The school transition does not only affect how well adolescents do in school, but also how they feel more generally. After the transition, many adolescents report poorer mental health and lower well-being (Hanewald, 2013; Symonds & Galton, 2014). Although many youth show poorer post-transition adjustment, some youth also develop in more positive ways. Indeed, the transition to secondary school may set adolescents on persistent pathways of negative or positive school and psychological adjustment across secondary school (Eccles et al., 1997; Nelemans et al., 2018).

Individual differences in adolescents' adjustment after the transition from primary to secondary school may be especially prominent in Dutch adolescents compared to adolescents from some other countries. This is the case because in the Dutch educational system, at the end of primary school adolescents receive an advice for an educational level based on their scores on a standardized test and their teacher's evaluation of their abilities. The educational levels can roughly be divided in low (vocational), medium, and high (theoretical) education, and some schools offer multiple levels of education. Dutch adolescents are then free to choose a school within the boundaries of their educational advice. At the same time, this means that adolescents – together with their parents – *have* to choose at the end of primary school to which school they want to go. The choice for one school or another may be made on the basis of several reasons, such as proximity, levels the school offers, and school climate, and may impact adolescents' later educational and psychological functioning.

Based on the notion of person-environment or stage-environment fit (e.g., Eccles et al.,

1993), it is possible that adolescents who are better able to choose a school that fits with their individual and developmental needs, will fare better after the school transition than adolescents who choose schools less fitting with their needs. Some evidence for a relation between fit and adjustment outcomes was found in a study on Australian adolescents (Waters et al., 2010). In this study, youth who experienced a greater connectedness to their secondary school reported better educational and psychological outcomes at a later point. Similarly, adolescents who make a school choice that maximizes the person- and stage-environment fit may also report better post-transition adjustment. This may be true even when choices are restricted; adolescents who are able to explore their motives and preferences and may thus make a volitional choice to attend a certain school might fare better and experience higher school functioning. Additionally, in the Dutch context the intellectual fit is also important, as inaccurate or diverging advice in primary school may put adolescents in an educational climate that is either too easy or too difficult for them. This possibility may also put pressure on adolescents to perform better in the pre-transition year, either to live up to own expectations or those of others (e.g., higher level advice given by teacher than expected). Experiencing lower intellectual fit may in turn also result in lower school adjustment (e.g., for adolescents in a climate that is not challenging enough for them; Kanevsky & Keighley, 2003; Matthews, 2009). However, most studies examining the transition to secondary school have focused only on the period after the transition (for a recent overview, see Jindal-Snape et al., 2019), leaving it unclear how the pre-transition process of exploring different educational options and choosing a school may affect post-transition adjustment.

### **Educational identity and post-transition educational and psychological adjustment**

The exploration of different educational options and commitment to one option can be captured by educational identity. Adolescence is commonly seen as the period in which youth begin to develop a sense of who they are and what they want in life (Erikson, 1950). This sense of identity develops across multiple domains in life through exploration of different alternatives and the making of commitments, and during this period the educational domain is considered one of the most salient for adolescents (Crocetti, 2017; Meeus, 2011). Educational identity – or closely related, academic identity – refers to exploration and commitment processes related to aspects of adolescents' educational experience (e.g., Becht et al., 2016), and includes norms and values about school, educational attitudes, and

possible educational goals (e.g., getting a certain secondary school diploma, being able to go to university; Nurra & Oyserman, 2011; Oyserman, 2013). The educational identity domain is generally considered a “closed” identity domain (Meeus et al., 1999), because restrictions are imposed on identity exploration and choices in this domain. For instance, after an adolescent has transitioned to secondary school, their options for changing schools are rather limited for the next few years. This is in contrast to “open” identity domains such as the friendship domain, for which adolescents are free to explore alternative options, and make and abandon existing commitments (e.g., Albarello et al., 2018). Considering the restrictions that are generally in place in closed domains, it is especially important to ask questions regarding identity at the right moment because of the (lack of) saliency of identity questions.

As may be expected, educational identity is related to educational outcomes. Educational identity has been found to be a marker of school performance, and even underperformance, as adolescents with a less strong identity are more likely to have to repeat a grade (De Moor et al., 2019), and adolescents who have a stronger educational identity have a greater motivation for doing well in school (Oyserman & Destin, 2010; Roeser et al., 2012). In turn, motivation for school has been linked to making a greater effort for school (e.g., Kim et al., 2015; Zhang, 2009). Interestingly, the reverse is also true, with bad performance leading to a decrease in educational identity (Pop et al., 2016), perhaps through lowered motivation. To the best of our knowledge, only one study examined identity and educational outcomes in the context of the school transition context.

The associations between educational identity and psychological outcomes are even more well-researched than those with educational outcomes, and problems in educational identity have been linked to both internalizing and externalizing psychopathology. This is thought to be the case because experiencing identity uncertainty brings along feelings of distress (Erikson, 1968), which may in turn lead to more serious psychological pathology. In particular, commitment to education has been associated with less problems (e.g., Crocetti et al., 2012; Crocetti et al., 2013) while exploration behavior may have a more dual nature, having been linked to both adaptive and maladaptive outcomes in past work (e.g., Crocetti et al., 2008). One important caveat of past research is that educational identity was often examined in relation to school very broadly (e.g., “My school gives me certainty in life”), without a specific school situation in mind. Moreover, it was often assessed at a moment when adolescents were already in secondary school, whereas identity is known to be especially salient around

moments of transition or change (Bosma & Kunnen, 2001; Branje et al., 2021). In line with this, one study that did examine identity change across the transition to tertiary education found that such transitions may be accompanied by changes in identity (Christiaens et al., 2021), with groups who had stronger pre-transition commitments and less reconsideration of those commitments reporting less anxiety symptoms than those who had less strong commitments and more reconsideration. This indicates that identity may indeed be actively considered (and reconsidered) across these transition moments.

Applied to the specific moment of the secondary school transition, educational identity may play a role in the choice for certain curricular profiles or for certain schools. When educational identity is assessed with regards to the choice for a certain school more specifically, it is plausible that such educational identity will be more influential for educational outcomes because the domain is more “open” (i.e., educational identity choices may vastly impact the environment of adolescents for the next years), as opposed to when adolescents are already in secondary school and the domain is thus more “closed” (i.e., great changes can no longer or not easily be facilitated; Meeus et al., 1999). In particular, adolescents who have carefully considered the choice for a secondary school and who have a strong educational identity with regard to the secondary school of their choice, may be expected to experience greater person-environment fit. At the same time, educational identity measured in this way – and at this moment – may be less important for psychological outcomes, because exploration and low commitment are more normative and thus less problematic during the choice process for a secondary school. As a result, these adolescents may show better school and, tentatively, psychological adjustment.

### **Parental and own expectations regarding secondary school and adjustment**

Not only one’s identity, but also the expectations held regarding the upcoming school transition may impact how adolescents experience the transition to secondary school. Expectations may be held regarding own functioning in terms of academic performance (e.g., being able to finish homework on time, getting good grades) but also with regards to social functioning (e.g., being generally liked by classmates, having friends) in the post-transition context. Although school choice has traditionally been seen as a task primarily up to the parents, parents and youth now often make the decision for a secondary school together (Condliffe et al., 2015). As such, it is important to consider the role of expectations of both parents and adolescents in predicting later school and psychological adjustment.

Expecting that one will do well academically and socially in the new school environment may result in a more positive and resilient approach to the school transition than expecting that one will not be able to keep up academically and will make no friends (e.g., Jindal-Snape & Cantali, 2019; Waters et al., 2014), and thus may ultimately lead to an easier transition. Similarly, feeling as though one's parents expect one to do well in secondary school may result in adolescents having less doubts themselves, which may also lead to better educational and psychological adjustment post-transition (Chatterjee & Sinha, 2013; Grossman et al., 2011). To the best of our knowledge, there is no research examining the role of both adolescent and parental pre-transition expectations in post-transition adjustment to secondary school (and many studies following adolescents after the start of secondary school, as pointed out in Jindal-Snape & Cantali, 2019). However, based on earlier findings on expectations after the school transition, adolescents who have less positive expectations and who perceive their parents having less positive expectations were expected to experience poorer school and psychological adjustment in secondary school (e.g., Jindal-Snape & Cantali, 2019; Chatterjee & Sinha, 2013).

### **Reasons for the educational choice**

Identity theory tells us something about if and how adolescents go through the decision process of selecting a school, but it does not tell us what aspects of schools guide the exploration and commitment processes of adolescents before the transition to secondary education. Research on the factors that are related to the choice of a secondary school has often focused on parental choice and, thus, parental reasons (e.g., Hughes et al., 1994; Morgan et al., 1993). For instance, Dutch parents value locality of the school, as well as positive school attitudes towards social education and creative development (Denessen et al., 2001; Denessen et al., 2005). However, adolescents' own ideas and preferences have become increasingly important in the choice for a secondary school (Condliffe et al., 2015), and may differ from those of their parents. As such, it is important to qualitatively examine what aspects of school are important for adolescents themselves when they are searching for a secondary school, which was the second goal of the present study.

Based on the assumption that adolescents are rational agents who make their decision by comparing the costs and benefits of different alternatives, it may be expected that adolescents choose their secondary school for its benefits. Following this theory of rational choice (Jæger, 2007) but also the closely related Expectancy-Value model (Eccles, 1983; Eccles & Wigfield,



2002), adolescents will choose the school that offers them the greatest educational and social benefits (e.g., best education, many of their primary school friends going to that school) and the smallest costs (e.g., short home-school distance). In addition, adolescents' choices regarding a secondary school may also be partially motivated by their interests (Hidi & Renninger, 2006; Krapp, 2002, 2005), such as an interest in bilingual education or combining sports at a high level with regular secondary school. It is therefore possible that adolescents also take into account their interests for potential subjects or extracurricular activities when deciding what secondary school they want to attend.

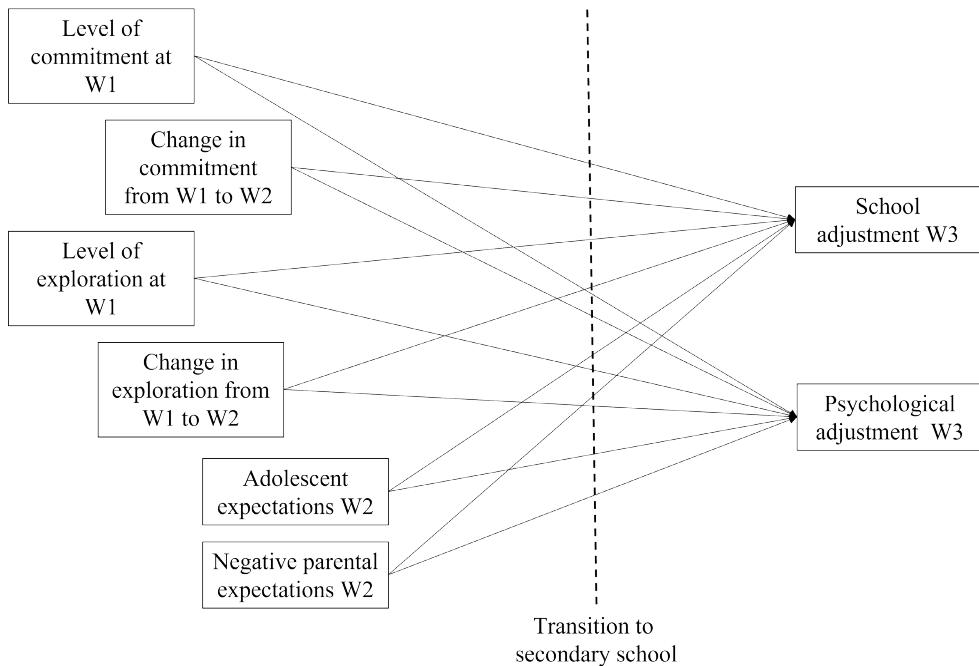
### **The current study**

The transition to secondary school is an important moment in adolescents' lives and may have a long-lasting impact on their school and psychological adjustment. The present study had two goals. First, this study examined pre-transition factors that may predict post-transition adjustment. We examined whether educational identity with regard to secondary education before the transition is related to school and psychological adjustment post-transition. Although past work has examined identity in relation to educational and psychological outcomes (e.g., Crocetti et al., 2012; Crocetti et al., 2013; De Moor et al., 2019), this work often examined identity when adolescents were already situated in a stable school situation (for a notable exception, see Christiaens et al., 2021). Therefore, our hypotheses were built on this previous work but were at the same time largely speculative in nature. Having greater commitment to a school choice was hypothesized to be related to better adjustment. Moreover, relative increases in the year before the transition in commitment were expected to be related to positive adjustment, whereas decreases were expected to be related to lower adjustment. With regard to exploration, the expectations were less straight-forward. Reporting a high level of exploration one year before the transition was thought to be related to better adjustment, as these adolescents may be expected to have considered their school choice more carefully than adolescents who explored less. Moreover, experiencing a decrease in exploration over the year before the transition could be related to better adjustment, because it may reflect adolescents having settled on a choice. In contrast, continued or even increased exploration may point to rumination and indecisiveness. In addition to educational identity, this study also investigated the role of adolescent and parental expectations of post-transition adjustment. It was expected that adolescents with more positive expectations and who experienced their parents having more positive expectations would show better

post-transition adjustment. These research questions and hypotheses, as well as the statistical plan were pre-registered at <https://osf.io/bm4qk>. Figure 1 depicts a conceptual visualization of the proposed paths.

Figure 1

*Conceptual model of the hypothesized relations between educational identity development, expectations, and educational and psychological outcomes*



*Note.* The model presents the conceptually hypothesized relations between the variables of interest, where “W” represents the wave at which the variable was measured. For a statistical representation of the model that was fitted to data, we refer the reader to Figure S1 in the Supplementary Material.

The second goal of the study was to gain a better understanding of the aspects that adolescents consider when exploring their educational identity and the reasons that adolescents base their school choice on. We qualitatively examined the reasons adolescents named for choosing a secondary school in an interview about the school choice, and combined these reasons in overarching categories to gain greater insight into adolescents’ school choices. Within the Dutch context, choice for a secondary school is restricted by the advice adolescents receive at the end of primary school which may also limit the opportunities they have for making an autonomous choice. Therefore, examining the reasons youth name

themselves may give insight into how they find autonomy in the school choice process and engage in concrete exploration processes allowing them to make a volitional choice for a school.

In addition to our pre-registered hypotheses, this study explored the relation between the number of reasons provided by a participant and their score on exploration at Wave 1 and 2, and their adjustment at Wave 3. It was expected that adolescents who named more reasons for their school choice also engaged in more pre-transition exploration, because these reasons can be seen as a more specific measure of exploration than the questionnaire. That is, we assumed that adolescents who explored more would have considered more different aspects of the school. Furthermore, in line with the idea that adolescents who explored the options better would choose a school that offers them a better person-environment fit (Symonds & Galton, 2014), we expected that these adolescents would also report better post-transition adjustment.

## Method

### Procedure and participants

The present study used data from the longitudinal INTRANSITION project ( $N = 314$ ), which is focused on the development of identity and autonomy across the school transition from primary to secondary school. The adolescents were followed across the year before (2019-2020) and the year after (2020-2021) the school transition, with half-yearly measurement waves in the fall and spring. During these 4 waves, they filled in an online questionnaire and at Wave 1, participated in a brief interview about the upcoming school transition. At each wave INTRANSITION also included a friend (could differ across waves, optional) who filled out questionnaires. All participants and one of their parents provided informed consent. Participants received €10,- per measurement occasion for completing the questionnaire and an additional €10,- for completing the interview. The INTRANSITION project was approved by the Ethics Review Board of Utrecht University. The current study used data of target adolescents and their friends who filled out the questionnaire at Wave 1, which resulted in a total sample of  $N = 314$  ( $n = 244$  target adolescents and  $n = 70$  best friends). We used data from Wave 1-3, which were available at the time this study was conducted, as we were interested in adjustment immediately after the transition and pre-transition predictors thereof. Of this sample, 159 was female (51.6%), and adolescents

had a mean age of 11.58 ( $SD = 0.50$ ). Most adolescents identified as only Dutch ( $n = 144$ , 47.4%) or Dutch and another label ( $n = 150$ , 49.3%)<sup>1</sup>. In terms of socioeconomic status, most adolescents considered themselves better off than other Dutch adolescents, as measured with the Cantril ladder (Levin & Currie, 2014, on which 95.5% scored above the midpoint of the ladder). All parts of data collection were conducted in Dutch.

## Measurement instruments

### *Educational identity*

Adolescent educational identity was assessed with a newly constructed questionnaire assessing educational identity processes, titled the Educational Identity Processes Scale (EIPS; Christiaens et al., 2022). The EIPS was developed to be more sensitive to identity processes as they occur in the adolescents' school context before and after school transitions. The items are based on existing identity questionnaires that are less sensitive to context (e.g., 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 measure taps into processes of commitment, exploration, and reconsideration. The current paper used the pre-transition questionnaire which does not include reconsideration, because reconsideration may take place for some adolescents post-transition. More information on the development of the questionnaire, its factor structure, longitudinal measurement invariance, and validity can be found in Christiaens et al. (2022).

A pre-transition and a post-transition version of the EIPS exist, but the present study used the pre-transition version at Wave 1 and Wave 2, which contains 22 items that were rated by the adolescents on a scale from 1 (*completely disagree*) to 5 (*completely agree*). The pre-transition EIPS consists of five subscales, of which the four subscales related to commitment (i.e., commitment making and identification with commitment subscales, consisting of three and five items, respectively) and exploration (i.e., exploration-in-breadth and exploration-in-depth subscales, 5 items each) were used for the present study. Reconsideration is part of the post-transition measure, as it typically takes place after adolescents have made identity choices and explore whether these choices represent a good fit to their needs and

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1 The other participants who filled out the item indicated to identify as either one other group ( $n = 2$ ) or two other groups ( $n = 8$ ). Apart from Dutch, participants identified as Moroccan, Turkish, Surinamese, Antillean, Chinese, or other (e.g., English, Slovenian, Syrian).

expectations. Example items measuring commitment and exploration are: “The school I want to attend really fits me” and “I am comparing different types of schools to find out which school fits me best”, respectively. For a full overview of the items, please see Christiaens et al. (2022). Because there was substantial covariance between the latent factors of commitment making and identification with commitment ( $\beta = 0.78, p < .001$  and  $\beta = 0.95, p < .001$ , at W1 and W2, respectively) and exploration-in-breadth and exploration-in-depth ( $\beta = 0.72, p < .001$  and  $\beta = 0.72, p < .001$ ), respectively, the subscales were combined into one mean score of commitment and one score of exploration per wave. The EIPS had acceptable reliability in the present study, with a Cronbach’s alpha of .84 and .82 for the commitment scale at Wave 1 and 2, and .90 and .89 for the exploration scale, respectively.

#### *Own pre-transition expectations*

Expectations of adolescents regarding their own academic and social functioning post-transition were measured at Wave 2 with 6 items (3 for academic and 3 for social functioning) also used by Cillessen and Mayeux (2007). The items were assessed on a scale from 1 (*completely untrue*) to 7 (*completely true*). Examples of the two types of functioning are: “In my new school, I think I will be able to finish my homework on time” (academic) and “In my new school, I think I will have friends” (social). An Exploratory Factor Analysis (EFA) suggested that either a one-factor or two-factor model would fit the data well, following results from a parallel analysis and visual inspection of the scree plot. Because the two factors in the two-factor model were highly correlated ( $r = .71$ ) and the one-factor model fits well with our outcome variable also combining academic and social aspects of school functioning, we selected this as the most appropriate model. A Confirmatory Factor Analysis (CFA) confirmed this model fit the data well (CFI = 1.000, RMSEA < .001). Thus, all items were averaged into one score of expectations. The overall scale had acceptable reliability, with an alpha of .90.

#### *Negative parental academic expectations*

Negative parental academic expectations were assessed at Wave 2 with a newly developed measure as the extent to which adolescents felt their parents doubted their academic capabilities (i.e., reflected doubt). The scale was based on items from existing questionnaires on parental academic expectations and reflected doubt (see e.g., Pinquart & Ebeling, 2020). The youth-report measure consisted of 5 items, which were answered on a 5-point Likert

scale (1 = *completely untrue* to 5 = *completely true*). An example item is: “My parents doubt whether I can attain the level of schooling of the school I want to attend” (all items are reported in Table S1 in the Supplementary Material). An EFA indicated that the five items all loaded on a single latent factor, following parallel analysis and a visual inspection of the scree plot. The model was shown to have good fit to the data after allowing for a covariance between the residuals of item 1 and 2 (CFA model fit: CFI = 1.000, RMSEA < .001). Therefore, scores on the 5 items were averaged into one score of reflected doubt. A higher score indicated more negative expectations. The scale showed acceptable internal consistency ( $\alpha = .76$ ).

### *School adjustment*

Adolescents reported about their school adjustment at Wave 2 and 3. Two items that were based on suggestions by the CITO [Central Institute for Test Development] were used to assess *school functioning*: “In the past week, how was your school performance?” and “In the past week, how did doing your homework go?” The items were assessed on a scale from 1 (*very poor/poorly*) to 5 (*very well*). Reliability of the scale was acceptable, with an alpha of .75 and .76 at Wave 2 and 3, respectively. *School engagement* was measured with 3 items from the Engagement Versus Disaffection with Learning Scale (Skinner et al., 2008) that reflected behavioral engagement. The items were “I try hard to do well in school”, “In class, I work as hard as I can”, and “When I’m in class, I listen very carefully”. The items were responded to on a 5-point Likert scale (1 = *completely untrue* to 5 = *completely true*). Reliability was again acceptable, with an alpha of .70 and .73 at Wave 2 and 3, respectively. *School belonging* was measured with six of the social connectedness items reported in Jose et al. (2012) focused on school connectedness. These items tapped into the relation with teachers (e.g., “The teachers at school respect me”; 3 items) and an overall sense of communion with school (e.g., “I am proud of belonging to my school”; 3 items), which were assessed on a scale from 1 (*completely disagree*) to 5 (*completely agree*). Inspecting the results of a parallel analysis and scree plots, an EFA suggested that a one-factor model fit the data best, and had acceptable fit to the data at Wave 2 and 3 after allowing items 1 and 6 and items 3 and 5 to covary (CFA model fit: CFI = 1.000 and RMSEA < .001 and CFI = .980 and RMSEA = .082, respectively). Therefore, a single mean score was created of all six items. The factor structure, item intercepts, loadings, and residual variances were invariant across the two timepoints (Table S2), thus suggesting that the measure could be meaningfully used to

examine effects over time. The reliability of the scale was good in the present study ( $\alpha = .85$  and  $.83$  at Wave 2 and 3, respectively).

### *Psychological adjustment*

Psychological adjustment was reported by the adolescents at Wave 2 and 3. *Internalizing problems* were assessed with the Revised Child Anxiety and Depression Scale (RCADS; Chorpita et al., 2000). The measure consists of 47 items that tap into depression and several specific types of anxiety (e.g., social phobia, generalized anxiety, panic disorder) and were answered on a scale from 1 (*never*) to 4 (*always*). An example item measuring generalized anxiety is “I worry something bad will happen to me”. In the past, the RCADS has been shown to have good reliability and validity (Chorpita et al., 2005). The internalizing problems items showed good internal consistency, with an alpha of  $.95$  and  $.96$  at Wave 2 and 3, respectively. *Externalizing problems* were assessed with 36 items from the Youth Self Report (Achenbach, 1991; Verhulst et al., 1997). The items were part of the subscales of aggressive behavior and delinquent behavior, and the response scale ranged from 1 (*never*) to 3 (*often*). An example item is “I fight a lot”. Reliability of the scale was acceptable in this study ( $\alpha = .86$  and  $.82$  at Wave 2 and 3, respectively).

### *School choice reasons*

During the interviews of Wave 1, target participants ( $n = 244$ , interviews of  $n = 241$ ) verbally responded to several questions about the upcoming school transition. Specifically, participants were asked “Could you please tell me about the school that you want to go to next year? Did you already make the choice for a school to go to?”. Depending on whether or not they had already made the choice for a specific school, they were then asked “To what school do you want to go? Can you tell me how you came to this choice and what you have done to make this choice?” or “Can you tell me what you have done so far to make the choice for a school and why you aren’t sure yet?”, respectively. Interviewers could repeat the question for the purpose of clarification, but could provide no new information or examples to prompt answers from the participants.

The resulting answers were first transcribed and then coded to capture what reasons participants named for their (potential) school choice. We developed a new coding system consisting of three parts: 1) whether or not a reason was named, 2) whether the reason was something absent or present at the new school, and 3) whether the reason was seen as a

cost or a benefit. Reasons that were too vague were not coded, such as wanting to go to a school because it seemed “nice”. Reasons were grouped into 12 categories, and per interview zero, one, or more categories could be coded (see Table S5 for an overview of the possible reasons).

To set up the coding system, the first author (FA) first created initial categories of reasons based on research on parental reasons for the secondary school choice (e.g., geographical closeness to home, extracurricular opportunities; from Denessen et al., 2001; Denessen et al., 2005; Hughes et al., 1994; Hunter, 1991; Morgan et al., 1993). Second, based on a random selection of 20 interview transcripts, FA edited this system together with a graduate student (GS) to form an initial coding system. Third, FA and GS explained the coding system to an undergraduate student and practiced using the same 20 interviews. At this stage, changes could still be made to the coding system. When the coders were sufficiently trained in the use of the coding system, the other transcripts were coded by FA and the undergraduate student. The duo independently coded 30 interviews per week. Disagreements were discussed during weekly meetings, after which a final code would be chosen following consensus. Reliability ( $\kappa$ ) across all interviews for the pre-consensus codes was .80 across the two coders (82.1% intercoder agreement), which suggested the interviews were coded reliably (Syed & Nelson, 2015). Furthermore, to test for drift during the coding process, FA and the undergraduate student recoded the training interviews after finishing the coding of all transcripts. Reliability was calculated between the originally assigned codes and the codes assigned at the very end of the coding process, and was also good ( $\kappa = .81$ , 82.9% agreement), indicating that coder drift was limited. Interview transcription and coding commenced in Dutch, after which the coding system was translated to English for sharing with an international audience. A full overview of the coding procedure is provided on the OSF page: <https://osf.io/478yx/>.

### **Statistical plan**

To examine whether pre-transition educational identity, own expectations, and negative parental expectations predicted post-transition school and psychological adjustment, a Structural Equation Model (see Figure S1) was fitted using the *lavaan* R package (Rosseel, 2012). Specifically, we fitted one model that included an intercept (level) and a slope (change) factor of educational commitment and educational exploration measured at Wave 1 and Wave 2. We tested the effects of the intercept and slope factors in addition to own



expectations and negative parental expectations on post-transition adjustment. School adjustment and psychological adjustment were modeled as two latent constructs, for which the specific measures were manifest indicators (i.e., school functioning, school engagement, and school belonging for school adjustment and internalizing and externalizing problems for psychological adjustment). Gender (Wave 1) was included as a control variable for psychological adjustment, as there are known gender differences in internalizing and externalizing problems (Zahn-Waxler et al., 2008). Covariances were included between all predictors and also between the latent school adjustment and psychological adjustment variables. Because normality tests pointed to multivariate non-normality in our predictors (Royston's test:  $H = 80.32, p < .001$ ), we used a robust maximum likelihood estimator for our main analyses<sup>2</sup>. Furthermore, because our data for a part consisted of duos of friends, we accounted for this partial dependency in the data by controlling for clustering of the data.

Model fit was evaluated with the Root Mean Squared Error of Approximation (RMSEA; Steiger, 1989) and the Comparative Fit Index (CFI; Bentler, 1990). Specifically, an RMSEA of  $\leq .08$  and a CFI of  $\geq .90$  were considered to indicate acceptable model fit (Hooper et al., 2008). An alpha of .05 was used to test the significance of effects.

In addition to these quantitative tests, we qualitatively examined the reasons provided by participants for their (tentative) choice for a school. We did this by providing the distribution of reasons provided in the transcribed interviews. Finally, to explore the link between the quantitative and qualitative methods, we estimated the correlations between the number of reasons provided by participants and their exploration score on Wave 1 and Wave 2 and included the number of reasons as predictor in our Structural Equation Model (see Figure 1 for a conceptual overview).

2 Our final analyses diverge in several ways from the initial pre-registered plan. First, we initially planned to estimate separate models for commitment and exploration, to reduce model complexity. Second, we first planned to constrain the factor loadings of the slope factor to -1 and 1 respectively, in line with a sum and difference score interpretation (see e.g., Nelson et al., 2006). Because an intercept and slope interpretation may be more familiar to readers, we have adjusted this. Third, because our data reflected adolescents and in some cases a self-selected friend, we controlled for clustering in the data. Finally, our initial plan stated that we would control for adjustment outcomes at Wave 2 so that we could predict relative change in our outcomes from Wave 2 to Wave 3. However, because the fit of this model to the data was unacceptable, we instead present this model in the Supplementary Material, Table S4, and in the main manuscript present the model without these control variables. Interestingly, after including the Wave 2 datapoints of the outcome variables as controls in our model, most effects fell away, suggesting that for a part these effects already play out via earlier adjustment.

## Results

### Quantitative analysis of post-transition adjustment

#### *Descriptive statistics and correlations of the study variables*

We first examined the descriptive statistics of and correlations between the study variables (Table 1). Correlations between the main study variables were mostly significant and in the expected direction. That is, higher levels of commitment and exploration at Wave 1 and 2 were correlated with more positive school adjustment outcomes, except for the correlation of exploration at Wave 1 and 2 with school functioning at Wave 3 and the correlation of commitment at Wave 2 with school functioning and school engagement at Wave 3. Commitment and exploration were also related to higher own and lower negative parental expectations, but not to internalizing and externalizing problems. More positive own and less negative parental expectations were correlated with better school adjustment and psychological adjustment. The school adjustment and psychological adjustment outcomes were all positively intercorrelated, except for externalizing problems with own expectations of post-transition social and academic functioning.

#### *Identity and expectations as predictors of post-transition adjustment*

To examine whether commitment, exploration, own expectations, and negative parental expectations were predictors of post-transition adjustment, we fitted a model including an intercept and slope factor for commitment and exploration (see Table 2 and 3 for an overview of the intercept and slope factors, and the regression coefficients, respectively). This model fit the data well (RMSEA = .064, CFI = .946). The model indicated that there was a positive slope for commitment and a negative slope for exploration, indicating that across the year before the school transition, adolescents tended to increase in their commitment to a school choice and to decrease in their exploration behavior. Moreover, for both commitment and exploration the intercept and slope factors were negatively associated, meaning that youth who committed and explored more at the start of the year experienced less change across the remainder of the year (see Table S3 for an overview of all covariance estimates). In addition, there was also an association between the factors of commitment and exploration. In particular, youth who explored more also committed more at the start of the year. Moreover, those who experienced more change in their commitment also tended to change more in their exploration behavior.

Table 1  
 Descriptives of and correlations between the main study variables (N = 314)

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Commitment W1											
2. Exploration W1	.26*										
3. Commitment W2	.46*	.16*									
4. Exploration W2	.15*	.57*	.24*								
5. Own expectations W2	.26*	.32*	.55*	.30*							
6. Negative parental expectations W2	-.19*	-.12	-.32*	-.02	-.34*						
7. School functioning W3	.15*	.13	.08	.14	.23*	-.26*					
8. School engagement W3	.18*	.25*	.08	.24*	.18*	-.22*	.60*				
9. School belonging W3	.22*	.16*	.19*	.20*	.22*	-.37*	.48*	.56*			
10. Internalizing problems W3	.03	-.04	-.01	-.04	-.19*	.16*	-.31*	-.18*	-.30*		
11. Externalizing problems W3	.01	-.07	.05	-.05	-.06	.15*	-.34*	-.37*	-.27*	.38*	
Mean	3.79	3.46	4.26	3.29	5.83	1.47	3.84	3.93	4.01	1.47	1.16
SD	0.71	0.76	0.60	0.80	0.83	0.58	0.71	0.62	0.64	0.38	0.15

Note. \*  $p < .05$ .

Table 2  
*Mean and variance estimates of the latent commitment and exploration factors and covariances between the factors (N = 314)*

	Mean	<i>p</i>	Variance	<i>p</i>
Commitment intercept	<b>3.82</b>	<b>&lt; .001</b>	<b>0.47</b>	<b>&lt; .001</b>
Commitment slope	<b>0.45</b>	<b>&lt; .001</b>	<b>0.47</b>	<b>&lt; .001</b>
Exploration intercept	<b>3.45</b>	<b>&lt; .001</b>	<b>0.60</b>	<b>&lt; .001</b>
Exploration slope	<b>-0.18</b>	<b>.001</b>	<b>0.55</b>	<b>&lt; .001</b>

Note. Bolded is significant at  $\alpha < .05$ .

Table 3  
*Regression coefficients of commitment, exploration and expectations on school and psychological adjustment (N = 314)*

	<i>b</i>	SE	$\beta$	<i>p</i>
<b>Predictors of school adjustment</b>				
Commitment intercept	-0.01	.10	-0.02	.909
Commitment slope	-0.12	.09	-0.17	.178
Exploration intercept	<b>0.14</b>	<b>.06</b>	<b>0.23</b>	<b>.022</b>
Exploration slope	<b>0.12</b>	<b>.05</b>	<b>0.19</b>	<b>.018</b>
Own expectations W2	0.08	.07	0.15	.231
Negative parental expectations W2	<b>-0.28</b>	<b>.08</b>	<b>-0.35</b>	<b>&lt; .001</b>
<b>Predictors of psychological adjustment*</b>				
Commitment intercept	<b>0.11</b>	<b>.05</b>	<b>0.26</b>	<b>.030</b>
Commitment slope	0.10	.05	0.23	.053
Exploration intercept	-0.03	.04	-0.08	.366
Exploration slope	-0.01	.04	-0.03	.756
Own expectations W2	-0.09	.05	-0.25	.059
Negative parental expectations W2	<b>0.13</b>	<b>.05</b>	<b>0.25</b>	<b>.007</b>
Gender (female)	<b>0.19</b>	<b>.08</b>	<b>0.32</b>	<b>.015</b>

Note. \* As psychological adjustment was loaded on by the manifest internalizing and externalizing problems variables, a higher score on the latent variable reflects lower psychological adjustment. Bolded is significant at  $\alpha < .05$ .

With regard to predictive effects on post-transition adjustment, our analyses indicated several effects on *school adjustment*. More exploration, but not commitment, at the start of the year before the transition predicted better post-transition school adjustment. Moreover, youth who experienced a decrease in exploration across the year were more likely to report higher post-transition school adjustment. Negative parental expectations were also associated with school adjustment, such that adolescents who perceived less negative

expectations of their parents before the school transition were better adjusted in their secondary school. Regarding *psychological adjustment*, commitment but not exploration appeared predictive of how well youth did post-transition. In particular, adolescents who were more committed to a school choice at the start of the year before the transition reported lower post-transition adjustment. Moreover, having less positive expectations themselves and perceiving that one's parents have less positive expectations was associated with lower psychological adjustment in secondary school. Lastly, being female was also predictive of lower psychological adjustment.

### **Qualitative analysis of school choice**

To better understand the school aspects that are important to adolescents when making their choice for a secondary school, we coded participants' responses regarding their school choice and the steps they had taken to make that choice. In total, of the 241 target adolescents who participated in the interview, 46 did not name any reason for their school choice. In some cases, this was due to them not yet having started to consider the school transition, but in other cases adolescents had already made a choice or were quite certain of a choice but did not provide any reasons for that choice. For instance, they said "It just seems like a school that fits me."

The remaining 195 interviews contained one or more reasons for the school choice. In total, 384 codes were assigned, with most adolescents providing one ( $n = 73$ ) or two reasons ( $n = 75$ ), and a smaller group providing three ( $n = 31$ ), four ( $n = 12$ ), and five ( $n = 4$ ) reasons. As can be seen in Table 4, the most often cited reason regarded interest-related (extra)curricular activities or the focus of the curriculum of schools ( $n = 75$ ), followed closely by friends or family already being at a school ( $n = 70$ ). Also often named reasons were the attractiveness of the school ( $n = 59$ ), the distance from home ( $n = 48$ ), and the educational climate ( $n = 46$ ). The least often mentioned reasons were non interest-related extracurricular activities ( $n = 4$ ) and having the expectancy to make new friends at a particular school ( $n = 3$ ). A full description of the distribution of codes across the sample including absence/presence and cost/benefit differentiation is provided in Table S6.

From these findings, we can see that many adolescents cited reasons related to the educational part of school. That is, many adolescents named reasons related to the school curriculum or the particular subjects that were taught at a school (e.g., a technical curriculum focus, bilingual education, specific language course), or reasons related to the school climate

(school factors that focus on the more abstract “how things are done”, e.g., focus on individual learning, an anti-bullying climate, or a focus on independent working). Interestingly, these reasons were often cited as reasons to go to a school ( $n = 64$  and  $n = 36$ , respectively), but were sometimes also cited as reasons not to go there ( $n = 11$  and  $n = 10$ ), either because a school lacked a desirable subject or focus or because the school had an undesirable subject or focus.

Table 4

*Frequency of reasons given to (not) attend a particular school by the participants (N = 241)*

	Number of participants (%)
<b>Pleasure and esthetical reasons</b>	
Non-interest-related extracurricular activities	4 (1.7%)
Attractiveness of the school building, location, and/or classrooms	59 (24.5%)
<b>Interest reasons</b>	
Interest-related (extra)curricular activities or focus of the curriculum	75 (31.1%)
School has a good reputation	22 (9.1%)
Quality of education	6 (2.5%)
<b>School climate reasons</b>	
Denomination of school	14 (5.8%)
Educational climate/pedagogical views	46 (19.1%)
<b>Social reasons</b>	
Friends or family attend school	70 (29.0%)
Expectancy of new friends	3 (1.2%)
Parents say it is a good school for adolescent	13 (5.4%)
<b>Practical reasons</b>	
School is within easy reach	48 (19.9%)
Big school of class size	24 (10.0%)

*Note.* The bolded categories were used for categorization only; they were not used in the coding process. Note that the total  $N$  of reasons is higher than the number of participants, because participants could name multiple reasons in their interview.

Adolescents also valued the practical aspects of a school, such as the attractiveness of the building (e.g., modernity and esthetic appeal, location, layout) and the distance from home. For instance, with regard to attractiveness, several participants mentioned having separate buildings or separate cafeterias for the junior and senior years as a reason to choose that school. The fact that the distance to school was often mentioned is not surprising, as many Dutch adolescents cycle to school. In line with this, a school being far away was often listed as a reason not to go there ( $n = 15$ ) and a school being nearby as a reason to go there ( $n = 30$ ). However, there were also two participants who mentioned a larger distance as a reason to choose a particular school.

Finally, it appeared that the social aspect of school was also weighed heavily in adolescents' choice for a secondary school. Interviews in which friends or family already being at or going to a school was mentioned, mostly listed current classmates and older siblings, but some also listed a family member working at a school. Although most participants who mentioned family or friends already attending a school did so as a reason to go to the school ( $n = 67$ ), some also named a sibling attending as a reason *not* to go there ( $n = 2$ ).

### **Explorative analyses: Linking quantitative and qualitative data**

In addition to our main analyses, we explored the associations between the school choice interview and the questionnaire data. We first examined whether the number of different reasons mentioned in the interview correlated with adolescents' self-reported exploration behavior at Wave 1 and Wave 2. Unexpectedly, the number of reasons mentioned was not significantly correlated with exploration at Wave 1 ( $r = .04$ ,  $p = .519$ ), but was moderately positively associated with exploration at Wave 2 ( $r = .21$ ,  $p = .004$ ). This indicates that on average, adolescents who reported more reasons substantiating their school choice also self-reported more exploration behavior later in the school year.

Then, we entered the variable capturing the number of different reasons mentioned as a predictor in the model described above. In this model (RMSEA = .069, CFI = .922), the number of different reasons named in the interview was not predictive of better later psychological or school adjustment (see Table S7).

## Discussion

The transition to secondary school is an important moment in adolescents' lives, and may be accompanied by changes in their school adjustment (Martínez et al., 2011; Wigfield et al., 2006) and mental health (Hanewald, 2013; Symonds & Galton, 2014). Importantly, these positive or negative changes may persist throughout secondary school (Eccles et al., 1997; Nelemans et al., 2018). As such, it is important to timely identify adolescents who are at risk of negative adjustment in their new school. The present study examined educational identity processes related to the school choice, own expectations, and parental expectations as potential predictors of post-transition adjustment. In addition, it explored the reasons that adolescents named for their school choice, and linked the number of different reasons adolescents gave to identity exploration and post-transition adjustment.

### Predictors of post-transition adjustment

#### *Educational identity*

Based on previous work on academic (e.g., De Moor et al., 2019; Roeser et al., 2012) and psychological outcomes (Crocetti et al., 2012; Crocetti et al., 2013), educational identity was expected to predict school and psychological adjustment. Our analyses indeed indicated some links of pre-transition educational identity processes with post-transition adjustment, although not always in the expected direction. First, and in line with our expectations, the findings showed that engaging in more exploration at the start of the last year of primary school was related to better school adjustment. This seems to suggest that during a time where exploration is normative, doing so is beneficial for one's adjustment in the new school. It also provides some evidence for the notion that exploration of the different school options may help adolescents find the school that provides them good person-environment fit (Symonds & Galton, 2014). That is, adolescents who explored their options well may have been better able to figure out which subjects they were good in, which they enjoyed, and which schools offered a curriculum in line with these own qualities. Less formally too, adolescents who explored may have had a better idea of what schools offered them the best fit in terms of practical and social aspects. Second, also in line with our hypotheses, decreases in exploration across the year predicted better school adjustment. Thus, it appears that youth who explored the school options well before settling on a choice were better adjusted than those who kept exploring. Third, and contrary to our hypotheses, youth who reported a



stronger commitment at the start of the final year of primary school reported poorer psychological adjustment. This was surprising, as we had expected that having stronger commitments would be related to better outcomes, as has also been evidenced in previous work (e.g., Crocetti et al., 2012; Crocetti et al., 2013). However, it should be noted that there was no zero-order correlation between commitment and later internalizing or externalizing problems. Thus, it is possible that after controlling for the variance explained by exploration, this association reflects a sort of foreclosed identity process.

### *Own and parental expectations*

With regard to own and parental expectations of adolescent social and academic functioning in secondary school, our results indicated that adolescents who perceived less negative parental expectations experienced better school adjustment after the school transition. Own expectations were also related to better psychological adjustment, and less negative parental expectations to better school and psychological adjustment, but not after controlling for adjustment before the transition. These findings are in line with our hypotheses and previous related work (e.g., Jindal-Snape & Cantali, 2019; Chatterjee & Sinha, 2013). The fact that most of these effects fell away when controlling for pre-transition adjustment suggests that when adolescents are better adjusted, both they and their parents have more positive expectations of them being so in the future, which in turn is related to future adjustment. For example, an adolescent with high grades and high popularity will have expectations of secondary school that are in line with this. The finding that pre-transition functioning also emerged as strong predictive factor further suggests that adjustment is quite stable across the transition; adolescents who are poorly adjusted in primary school tend to remain so in secondary school.

### **Reasons for the school choice**

Our study further aimed to shed light on the reasons that adolescents have for choosing a particular school, using a newly-developed coding system. Reasons named by adolescents may represent concrete exploration behaviors and provide insight into how adolescents find autonomy within the school choice process. Many of the adolescents in our study were able to name one or more reasons for their school choice, indicating that they had already thought about the school choice and about reasons that may play a role in their choice. This also suggests that even within a context in which opportunities for autonomy are limited (i.e., by

educational advice), most adolescents were able to find ways to autonomize their school choice. The reasons named by adolescents were highly diverse and often adolescents named multiple reasons as the foundation for their school choice, suggesting that they take into account different aspects of schools in making their school choice. They most often named reasons related to the educational aspects of schools, such as subjects or focus of the curriculum as well as educational climate. That adolescents highly valued the educational aspects of schools is in line with work on interests and motivation (Hidi & Renninger, 2006; Krapp, 2002, 2005), and suggests that in choosing a school adolescents pay close attention to what they can learn and in what climate. This may help them maximize their person-environment fit (Symonds & Galton, 2014) in terms of the intellectual component, but may at large be only a small component of adolescents' fit in their new school. For future research, it would therefore be interesting to see whether making a choice based on this reason is indeed related to better school adjustment but not to psychological and social adjustment. Importantly, in the present study adolescents often combined educational reasons with other reasons, such as practical (i.e., attractiveness of the building and distance to home) and social (i.e., whether or not friends or family attended the school) reasons, and therefore likely covered more components of person-environment fit.

Comparing this work with previous research in parents (e.g., Denessen et al., 2001; Denessen et al., 2005), there were many similarities as well as some differences. Both parents and adolescents valued school climate, the attractiveness of the school building, and the distance of school to home. However, whereas parents also valued order and discipline and the denomination of the school, adolescents emphasized more the social aspects of schools in their school choice. Clearly then, in addition to the more "formal" factors of schools, adolescents also took into account the "informal" factors that may play a role in their future daily lives.

Interestingly, about a fifth of our sample did not name any reasons for their school choice. As mentioned in the Results, these adolescents may not yet have thought about the school choice or may have made a choice without considering why. Thus, this group may reflect a mixture of two different stages in the educational identity process: identity diffusion and identity (fore)closure (Marcia, 1966). In future work it is important to differentiate these groups of adolescents and compare their post-transition adjustment.

### **Linking the quantitative and qualitative: Tentative evidence for congruence and complementation**

Finally, this study explored the associations of our quantitative questionnaire measures of educational identity and school and psychological adjustment with the quantitative coding of reasons in the interviews, to see if the number of different reasons named for the school choice was indeed relevant for exploration behavior and post-transition adjustment. With regard to exploration, the number of reasons named in the interview was positively related to adolescents' exploration at the end of the last year of primary school, but not at the start. This is noteworthy, because the reasons that are named in the interview already reflect some kind of exploration, else adolescents would not know about these aspects of schools and be considering them as pros or cons of different schools. Instead, this correlation suggests that thinking about aspects of schools that are important to you may be a first step in the exploration process, and is associated with later more in-depth exploration of different schools and their fit with oneself. The number of reasons adolescents name for their school choice was not predictive of post-transition psychological and school adjustment.

### **Strengths and limitations**

The present study had multiple strengths, most notably in its design. It used data from before and after the school transition, allowing us to take a prospective approach to the transition. The study further combined a quantitative and qualitative method, which were used not only in complementation but also in combination. Finally, to the best of our knowledge the present study was the first to focus on adolescents as active agents in the school choice, which offered unique insights into their needs and wishes regarding secondary schools. However, there are also some limitations that need to be addressed. First, we had to make several adjustments to the original analytical plan to be able to estimate a well-fitting model, suggesting that our original ideas about the nature of the associations did not capture the reality of the data well. Because we tested several models of which some had unexpected findings, it is important that future research replicates these findings given the possibility of inflated false positives in the present study. In particular, this work should examine the directionality of the reported relations and the possibility of third variables explaining these relations. For example, adolescents who are more extraverted and less neurotic may report both more identity exploration (Hatano et al., 2017; Klimstra et al., 2012), and may additionally report better expectations (Smith et al., 2021) and better social and poorer educational

adjustment (Kumar, 2020). Furthermore, in the future, it may also be interesting to explore alternative modeling strategies. For instance, in the present study we used a reflective model to capture the relation between latent variables and their indicators. Nevertheless, it could be argued that rather than these invisible latent variables explaining the manifest scores, it is more likely that shared variance among the manifest scores is what makes the latent variables (i.e., formative model; e.g., Lange et al., 2020). However, because such modeling requires the formative latent factors to be predictive of something else for the model to be identified, we could not apply this modeling strategy in the present work. Furthermore, although the present study addressed a between-person question regarding adjustment in secondary school, future research should also explore how adolescents prepare for and experience the transition to secondary school at a within-person level (e.g., Molenaar, 2004). Such analyses may for example offer more insight into how adolescents differentially go through the identity process of choosing a school, and how they continue to develop afterwards.

Second, data collection for the INTRANSITION project took place, in part, during the COVID-19 pandemic. As a result of restrictions, participants may have been less free to engage in exploration behaviors such as visiting an “open house” day at schools. It is possible that this may have affected the scores on educational exploration reported in this study. In addition to impacting mean level scores and reducing variation, the COVID-19 pandemic may have also made salient other aspects of the school transition and of specific secondary schools than may have otherwise become salient. For instance, the general increase in home-school travel distance from primary to secondary school and the specific distance from home of different schools may have been a more important factor for youth during the pandemic. However, at the time of the study, most people were still expecting the pandemic would be over after the summer, and therefore might not have affected the choice of school so much. Still, it is important that future studies examine the school transition and factors relating to school choice when COVID-19-specific concerns are no longer an issue. Last, the participants in our sample are not completely representative of the Dutch population. Although nearly half of the adolescents identified with a second ethnic group, the majority identified most strongly as Dutch. Moreover, in terms of socioeconomical status, most adolescents considered themselves better off than most of the Dutch population.

## **Conclusion**

The aim of the present study was to examine educational identity processes, own expectations, and parental expectations in the last year of primary school as predictors of adolescents' post-transition adjustment. Furthermore, the study qualitatively examined the reasons that adolescents gave for their secondary school choice, and explored associations with educational identity and post-transition adjustment. Our findings indicate that identity processes and expectations of post-transition adjustment may help differentiate adolescents who go on to be well-adjusted from those who experience more problems in secondary school. Furthermore, educational, practical, and social aspects of schools appeared most important for adolescents when choosing a secondary school, and the number of different reasons that adolescents gave for their school choice was associated with exploration behavior in the last year of primary school. As such, this study provides first insights into adolescents' experiences and needs across the transition to secondary school, but more work is greatly needed.



# 6

## With a Little Help From my Friends? Perceived Friendship Quality and Narrative Identity in Adolescence

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Study pre-registered at: <https://osf.io/fvbjs>

## Abstract

Stressful events are associated with various outcomes, but there is variability in these associations suggesting that the interpretation of these events is important. This interpretation is reflected in the narratives adolescents tell of events, which are largely constructed in social interactions. We examined the associations of perceived friendship quality with self-event connections and redemption in turning point narratives, in a sample of Dutch adolescents. Findings from regression analyses in a cross-sectional subsample ( $N = 1,087$ ,  $M_{\text{age}} = 14.8$ ) and a three-wave cross-lagged panel model in a longitudinal subsample ( $N = 186$ ,  $M_{\text{age at Wave 1}} = 14.7$ ) showed that perceived friendship quality was associated with the presence of redemption sequences and self-event connections within time points, but not longitudinally.

*Keywords:* perceived friendship quality, turning point narratives, self-event connections, redemption, adolescence

### Author contributions

EM, JG, TK, and SB conceptualized the study. TK and LD were responsible for data collection. EM analyzed the data and wrote the first draft of the manuscript. All authors provided feedback on the manuscript.



## **With a Little Help From my Friends? Perceived Friendship Quality and Narrative Identity in Adolescence**

Finding a sense of personal identity is considered a key developmental task in adolescence (Erikson, 1950, 1968). From early adolescence onwards, young people are expected to start creating a meaningful and coherent account of who they are, how they came to be that person, and who they might wish to become in the future (McAdams, 1985). This process concerns making sense of one's own role, not only in daily experiences and interactions but also in major events (McLean & Jennings, 2012; Pasupathi & Weeks, 2010). Moreover, adolescents need to create a sense of personal continuity across time and situations, and maintain that continuity by making sense of their experiences and integrating them into their life story (e.g., McAdams, 1993, 2001a; Pasupathi & Mansour, 2006).

Making sense of the events one experiences is an important aspect of identity development (Graber & Brooks-Gunn, 1996). Research has often evidenced large variability in the link between events and adjustment (e.g., De Moor et al., 2019; Grant et al., 2006). For instance, whereas stressful events have been found to predict mental health problems for some adolescents (Laceulle et al., 2014), they are associated with post-event growth in life satisfaction in others (Meyerson et al., 2011), and for again others there may be no link with adjustment at all. This suggests that the meaning that adolescents ascribe to events is more important for understanding post-event adjustment than the experience of the event itself (e.g., Skaggs & Barron, 2006). How people deal with significant events in their lives is reflected in their autobiographical narratives of these events. These narratives have been shown for a large part to be constructed in social interactions (Fivush et al., 2011). Therefore, it is possible that differences in relationship quality with important others may explain differences in the way adolescents are able to construct narratives to deal with and interpret events in light of their identity.

In the present study, we examined whether perceived friendship quality was related to the narratives adolescents construct about an event that they consider a turning point in their lives. In these narratives, we focused specifically on the integration of the event into the life narrative, and the ways in which the event was interpreted. We investigated longitudinally whether perceived friendship quality predicted these narrative identity processes, and vice versa, whether the quality of the narratives predicted higher perceived friendship quality at a later timepoint.

### **Narrative identity: Self-event connections and redemption sequences**

Life stories start to become internalized in adolescence (Habermas & Paha, 2001; McAdams, 1985; McAdams & McLean, 2013; McLean et al., 2010), and as such we may expect that the aspects of these narratives that represent more developed identity processes become more pronounced across this life stage. In the present study, we focused on the role of two aspects of narratives that have been found to be important for understanding identity formation and well-being (Adler et al., 2016; McLean et al., 2019): self-event connections and redemption sequences, during the period of middle adolescence.

In order to create a coherent account of who they are as a person, adolescents need to identify temporal consistencies in their life narrative, as well as explain inconsistencies. Within the context of a singular event, this process is termed the making of self-event connections (Pasupathi et al., 2007). Self-event connections are explicit connections that individuals make between events and their self-concept. By making self-event connections, individuals specify what an event says about them as a person. For instance, adolescents may use events to explain a consistency in their person (e.g., “I always put off studying until the last moment and that’s why I failed the test”), or to explain any inconsistencies (e.g., “I always thought I was conscientious, but failing this test caused me to see that I wasn’t as good at preparing for an exam as I thought I was. That made me become more conscientious about my schoolwork”). Within the life narrative, the making of self-event connections allows adolescents to add new aspects to the story or to change existing ones. As such, self-event connections may serve as the mechanism through which individuals form their identity, as well as keep their narrative identity “up-to-date”. The making of self-event connections is considered vital for the development and maintenance of identity, and has empirically been linked to higher psychological well-being (Bauer & McAdams, 2004) and a more committed identity (McLean & Pratt, 2006; Van Doeselaar et al., 2020).

Every event may signify a point of consistency or inconsistency. Therefore, each event has the potential for both change and stability connections. However, it is only when adolescents see events as important for who they are, that they will incorporate them into their life narrative and that identity change or stabilization will occur (Dunbar & Grotevant, 2004; McLean et al., 2010). In general, adolescents have been found to be more likely to make connections that explain inconsistencies (i.e., change) than to make connections that explain consistencies (i.e., stability; McLean, 2008). This is even more the case for turning point narratives, as these narratives describe a point in adolescents’ lives at which they experienced

a change in themselves or in their understanding of themselves (e.g., Pasupathi et al., 2007). While biased towards events that explain inconsistencies, turning point narratives provide key insight into the events that adolescents perceive as having contributed to who they presently are. As such, turning point narratives may be especially informative for examining self-event connections.

In addition to deciding on whether or not an event is important for their narrative identity, adolescents ascribe general meaning to events. While events often are objectively positive or negative in valence, more important is the subjective positivity versus negativity that individuals ascribe to the aftermath of these events. That is, an event may be considered negative at the time (e.g., having to repeat a grade) but may in the long run come to represent a positive change in adolescents' lives (e.g., meeting their best friend). This process is termed redemption (McAdams et al., 1997). While some events may have more or less objectively positive valence, whether these events are integrated in the life story as positive or negative moments in their lives depends largely on how adolescents interpret them. Whether the event becomes regarded as a positive or negative event may depend on adolescents' desire and ability to actively link together scenes in their life story, to regain a sense of progress and optimism.

The presence of redemption sequences in narratives has been linked to self-esteem in adolescent boys (McLean & Breen, 2009). Moreover, individuals who use redemption in their life narrative generally report higher well-being (McAdams et al., 2001), possibly because they are more optimistic about life in general and consequently about events in their own lives. Making redemption sequences might also cause individuals to become happier, as they see something positive in a previously negatively regarded event.

### **Individual differences in narrative identity**

Whether or not adolescents engage in these narrative identity processes is dependent on both individual and contextual circumstances, and in general some adolescents are more likely to engage in narrative identity processes than others (McAdams, 2001b; McLean et al., 2010). In part, the characteristics of adolescents' narrative identities have been found to depend on age (e.g., Habermas & Paha, 2001; Köber et al., 2015; Reese et al., 2014), culture (Leichtman et al., 2003; McAdams, 2004), and gender (McLean, 2008).

As narratives are for a large part constructed in a social context, the social context may also be involved in making some adolescents more likely to deduce meaning – and deduce certain

kinds of meaning – from their experiences than others. In line with this, previous research has shown that experiencing good relationships with peers is an important factor in the development of adolescents' personal identities (De Moor et al., 2019; Meeus et al., 2002). The social context may be involved in predicting these individual differences in two different ways: by processes that help adolescents develop their narrative identity within the social context and by the way the social context contributes to narrative identity development in other areas of adolescents' lives.

In early childhood, processes within social relationships already start to play an important role in narrative development, as parents scaffold the development of their children's early storytelling skills that form the foundation for the development of their narrative identity (Fivush et al., 2006). They do this by providing structure and support, and by asking for elaboration on particular aspects of children's narrating (e.g., "how did that event make you feel?"; Fivush et al., 2006). Responsiveness to the stories youth tell – and the way they tell those stories – remains of importance in adolescence. However, during this period peers start to play a more prominent role in providing companionship and support (Scholte et al., 2001) and become the most common conversation partner for adolescents (Raffaelli & Duckett, 1989). Indeed, research that asked adolescents to narrate about a critical personal event to their mother and a friend showed that scaffolding behavior by both types of conversation partners stimulates adolescents to derive meaning from their experiences, and that particularly friends might provide a safe arena to try out newly constructed narratives (McLean & Jennings, 2012). Moreover, adolescents who had conversations with friends who were more responsive were more likely to interpret and derive meaning from everyday experiences (Pasupathi & Hoyt, 2009). Friends could thus play an important role in adolescent narrative identity development.

Not only the listening behavior of the friend but also the topics that are discussed may contribute to the development of narrative identity. Self-disclosure and intimacy are prominent in the conversations of adolescents and their friends (e.g., Berndt, 2002; Vijayakumar & Pfeifer, 2020), and this is particularly true for high-quality friendships. Self-disclosure and intimacy are considered to play an important role in adolescent self-exploration and self-understanding (Gottman & Mettetal, 1986). As such, high quality friendships are thought to be related to better outcomes because they provide a climate in which adolescents can discuss important events and in which they feel supported in thinking more deeply about the meaning of these experiences. This may, in turn, result in the making

of links between the self and events, and could facilitate positive reinterpretation of negative events.

Moreover, high-quality friendships may also help adolescents to develop their identity outside of the immediate social context. High-quality friendships are characterized by a mutual feeling of love, by caring for and comforting each other, and by providing a safe basis for exploration in various domains of life (e.g., Ainsworth, 1989; Bowlby, 1960; Furman & Buhrmester, 2009). They facilitate exploration by providing adolescents with the social resources to cope with setbacks and provide a safe place from where to move forward. Thus, perceived friendship quality may contribute to the development of adolescents' narrative identity in a direct and a more indirect manner.

### **Narrative identity as a predictor of friendship quality**

Individual differences in the making of self-event connections and redemption sequences may not only be explained by perceived friendship quality, but may also contribute to the development of friendships. Following Erikson's model of key developmental tasks (1950), a sense of trust promotes identity formation, and developing a clear sense of identity is pivotal for having meaningful relationships with others (i.e., achieving intimacy). Individuals with a more developed identity are thought to be better able to convey their identity to their conversation partner, thus allowing them more time and headspace to manage actual goals of the interaction such as providing or seeking support (Swann, 2000; Swann et al., 2000). In addition to differences on the side of the adolescent, being aware of who one is, contributes to the ease with which adolescents can be read by others (i.e., judgeability; Colvin, 1993; Human & Biesanz, 2013). This may in turn contribute to the quality of friendships by increasing familiarity and social support in the relationship. In line with this, previous research on identity found that adolescents with a clearer self-concept, who had a clearer and more consistent view of who they are, reported feeling more supported in the relationships with their friends one year later (Becht et al., 2017). As such, adolescents with a more developed identity, especially the combination of making self-event connections and redemption sequences may be important for perceived friendship quality. Narratives in which adolescents make connections between an event and their self *and* in which they see that an initially negative event has a positive influence on their life, may be the most impactful for their self-understanding. That is, finding meaning in experiences may be especially important when these experiences are regarded as positive for one's life narrative, thus signifying

greater growth in identity. This greater sense of self may, in turn, affect adolescents' friendships. However, empirical work has yet to examine whether narrative identity, and specifically the interaction between several kinds of narrative identity processes, is predictive of changes in adolescents' perceptions of their friendship quality.

### **The current study**

While previous research has shown the importance of linking events to the self and being able to redeem negative events for identity development and for general well-being (McAdams et al., 2001; Pasupathi et al., 2007), few studies have examined what factors in adolescents' environments may explain individual differences in the extent to which adolescents engage in narrative identity processes. Identity formation is for a large part thought to occur in interaction with others (Pasupathi & Weeks, 2010) and scaffolding by friends was found to be related to a more developed narrative identity in a conversational storytelling context (McLean & Jennings, 2012). As such, the present study examined the links of perceived friendship quality with self-event connections and redemption sequences.

In the first part of the study, we examined the links between perceived friendship quality, self-event connections, and redemption sequences cross-sectionally, where it was expected that perceived friendship quality would be positively related to the narrative identity processes of making self-event connections and redemption sequences. Moreover, as narrative identity in general becomes more developed across adolescence, we expected a positive link between making self-event connections and redemption sequences in a narrative. In the second part of the study, we examined these associations as they developed across three annual time points. Bidirectional links were hypothesized, with higher perceived friendship quality predicting narrative processes (i.e., both the making of connections between an event and the self and the making of redemption sequences), and these narrative processes in turn predicting higher friendship quality. In addition, we examined whether the interaction of making self-event connections and redemption was predictive of perceived friendship quality. It was expected that especially when adolescents made redemption sequences concerning events that were linked to the self, would the making of self-event connection be predictive of higher friendship quality. Our research questions and hypotheses, methods, and analysis plan were pre-registered at <https://osf.io/fvbjs>. Deviations from our original plan are described in Table S1 in the Supplementary Material.

## Method

### Participants and procedure

To examine the bidirectional links of self-event connections and redemption sequences with perceived friendship quality, we used data from the first three annual waves of the ongoing Project-Me study (total  $N = 1,941$ ). For the cross-sectional analyses, we included adolescents who both wrote a turning point narrative and had friendship quality data at Wave 1 ( $n = 1,087$ ). The cross-sectional sample had a mean age of 14.8 years ( $SD = 0.74$ ), and approximately half of the participants were female (55.7%). Of the 1,087 adolescents who participated in our cross-sectional sample, 147 participated in the longitudinal part of Project-Me and on at least one more timepoint wrote a turning point narrative in addition to providing data on friendship quality. In addition, 41 adolescents who did not provide both a narrative and friendship quality data at Wave 1, but did participate at Wave 2 and Wave 3 were included in the longitudinal sample ( $n = 186$ , 9.6% of the total cross-sectional sample). Of this sample, mean age of the adolescents at Wave 1 was 14.7 years ( $SD = 0.69$ ; Wave 2:  $M = 15.9$ ,  $SD = 0.76$ , Wave 3:  $M = 16.8$ ,  $SD = 0.66$ ) and 62.4% was female. The participants came from all three academic tracks in the Dutch secondary school system which, based on the educational level, we have termed low, middle, and high (see Table 1). Information about the ethnic background of our participants was not available in Wave 1, but was for the succeeding waves. For our longitudinal sample, the distribution indicates that most adolescents identified as Dutch (95.2%) with only a small subgroup using a different, self-chosen ethnic label (4.8%; see Table 1). Of these, Moroccan and African were the most common and the only ones chosen by more than 1% of the sample (both 1.1%).

We approached various high schools in the south of The Netherlands and seven of these decided to collaborate. In the cross-sectional part of the study, adolescents had to provide active assent with their participation (or consent when they were 16 years-old or older). Parents provided passive consent, meaning that they were handed a letter and were given two weeks to return the letter in case they did not want their child to participate in the study. Out of the 2,130 adolescents who were approached at the seven participating schools, we obtained consent for 91.2% of the adolescents and their parents. Subsequently, adolescents independently filled out questionnaires and wrote their turning-point narratives on computers in classrooms during one class hour (45 or 50 min). Graduate students were present to guide the process and provide instructions. Adolescents did not receive incentives for their participation at Wave 1.

Table 1  
Descriptive statistics of the sample

	Cross-sectional ( $n = 1,087$ )			Longitudinal ( $n = 186$ )		
	Wave 1	Wave 1	Wave 1	Wave 2	Wave 2	Wave 3
	$M (SD)/N (%)$	Range	$M (SD)/N (%)$	$M (SD)/N (%)$	Range	$M (SD)/N (%)$
Age	14.82 (0.74)	12.74–17.44	14.73 (0.69)	15.89 (0.76)	13.93–17.85	16.78 (0.66)
Gender (female)	605 (55.7%)		116 (62.4%)			15.13–18.67
Educational level at Wave 1						
Low	189 (17.4%)		13 (7.0%)			
Middle	400 (36.8%)		47 (25.3%)			
High	498 (45.8%)		126 (67.7%)			
Ethnic background						
Dutch			177 (95.2%)			
Other			9 (4.8%)			
Self-event connections (yes)	509 (46.8%)		102 (56.7%)	95 (69.9%)		78 (60.9%)
Redemption (yes)	205 (18.9%)		48 (26.7%)	26 (19.1%)		33 (25.8%)
Friendship quality	3.03 (1.04)	1–5	3.08 (0.97)	2.94 (0.95)	1–5	3.12 (0.97)
						1–5



One year later, adolescents and their caregivers were informed about the longitudinal part and were requested to provide assent and consent for adolescents' participation, respectively. Again, adolescents who were 16 years or older provided consent rather than assent. Adolescents who had not responded at Wave 2 were again contacted a year later at Wave 3. This time caregivers were asked to provide passive consent when adolescents were 16 or older and active consent when adolescents were younger than 16 years old. Adolescents completed the questionnaires (including turning-point narratives) in their own time. They received 5 euros for participation at Wave 2 and 10 euros at Wave 3. The cross-sectional and longitudinal parts of the study were both approved by the local institutional review board (IRB; protocol number EC-2015.49).

## Measures

### *Perceived friendship quality*

We measured perceived friendship quality with 12 items from the Network of Relationship Inventory – Behavioral System Version (NRI-BSV; Furman & Buhrmester, 2009; Van Aken & Hessels, 2012) measuring adolescents' perceptions of received and provided friendship support at all three waves. Adolescents were asked to report on the quality of the relationship with their best friend. For our measure of friendship quality, we selected all positive relationship quality scales (i.e., "provides safe haven", "provides secure base", "seeks safe haven", and "seeks secure base") with the exception of the "companionship" subscale, as it pertains to time spent together rather than the quality of this time. A complete overview of the items of the scales that we used is provided in Table S5 in the Supplementary Material. The items were rated on a 5-point Likert scale, ranging from 1 (*little or none*) to 5 (*almost always*). Past work has found acceptable validity and reliability of the entire scale (e.g., Edens et al., 1999), as well as adequate factor loadings of the subscales on the support factor (Furman & Buhrmester, 2009). Internal consistency as estimated with coefficient alpha ranged from .94 and .95 across the three waves of the present study.

### *Self-event connections*

We measured self-event connections by asking adolescents to write a turning point narrative at all three waves (for the English prompt, see McLean et al., 2010, as adapted from McAdams, 2008). Participants were asked to write about an event in their life which they viewed as a turning point in their self-understanding. They were asked to write what had happened,

when it had happened and who was involved, and what they were thinking and feeling at the time of the event. In addition, they were asked to describe why the event was significant and what it may say about them and their personality.

The resulting narratives were coded to capture whether adolescents made one (or more) of four different types of connections between the event and the self, based on a coding system developed by Pasupathi et al. (2007; and adapted by Lilgendahl & McLean, 2020). Following this system, we coded for the presence of a self-event connection when adolescents made explicit statements concerning the link between the self and the event. They could do this by means of illustration/explanation (“The event is explained by or illustrates some trait or quality that I possess”), dismissal (“I give a self-description to make sure that you, the audience, don’t develop a particular opinion about me”), causation (“The event made me a certain type of person, provided me with a certain skill, or induced a certain goal”), or revelation (“The event revealed that I’m a person who is ...”). Any of these links were coded as the presence of a self-event connection. For a self-event connection to be coded as present, the connection had to be explicit, in the sense that the exact spot could be marked in the text. Only connections between events and the current self were coded; connections with an aspect of the self that had changed again since the event were not coded (e.g., “This event made me more conscientious about school for some time, but I have now gone back to being more laid back about it”). This was done because an event that has only links with a past self is not connected to the narrative about the current self and no longer provides a sense of coherence and continuity. The narratives were coded by a group of graduate and undergraduate coders. Before coding commenced, coders were trained in two steps. First, a group of researchers including the graduate coders discussed the existing coding system with a subsample of narratives (10% of all narratives at Wave 1), and adapted the coding system to the present sample where necessary. Using the adapted system, codes were determined for the subsample of narratives. Second, undergraduate coders were trained using the already coded narratives. After completing training, all narratives were coded by three (Wave 1) or two (Wave 2 and 3) coders. This means that each narrative was coded by two or more independent coders, but that subsamples of narratives were coded by different groups of coders. In case of disagreement, the coders discussed their codes until consensus was reached. All coders coded approximately the same amount of narratives. Reliability ( $\kappa$ ) of the initial coding (i.e., before discussion to reach consensus) of all narratives across the coders was .72 in the cross-sectional sample (86% intercoder agreement) and .78 in the longitudinal

sample (89% agreement). For the present study, we examined per narrative if one or more self-event connections were made, which was then dichotomized into a score of 0 (no connection) or 1 (one or more connections).

### *Redemption*

Themes of redemption in turning point narratives were coded independently from self-event connections based on the coding system developed by McAdams (1999). In this coding system, redemption was coded when a narrative showed clear and explicit signs of an objectively negative-affect state or an affect state that was experienced as negative by the participant, which later turned into a decidedly positive-affect state. In Project-Me, presence of a redemption sequence was coded using a scale from 0 to 2. A score of 0 was given when there was no final positive-affect state in the narrative, when there was no initial negative state, or when the valence of states was ambiguous. Narratives received a 1 when they ended with a positive-affect state and started with a negative state, without the positive end state being connected to a reinterpretation of the negative event. In the case that these positive-affect states followed a negative-affect state and the positive states were based on a reinterpretation of the initially negative event, stories received a 2. In the present study, we defined redemption similarly as in previous research, as a narrative with an initial negative-affect state and a positive end state (e.g., McLean & Breen, 2009). Thus, in line with past work (e.g., Alea, 2018; McAdams et al., 2001; McCoy & Dunlop, 2017), we dichotomized the initial scores into 0 (*no redemption; 0 in our original coding*) and 1 (*redemption; a 1 or 2 in our original coding*). Redemption was coded by the principal investigator of the project together with a small group of graduate students. Like for self-event connections, training of the coders was conducted in two steps, after which all narratives were coded on redemption sequences independently by three coders. Reliability ( $\kappa$ ) of the initial redemption coding across all three coders was calculated for all coded narratives, and was .63 for the cross-sectional data (84% intercoder agreement) and .66 for the longitudinal data (85% agreement). Cases of disagreement were discussed until consensus was reached. Table 2 provides sample narratives that are composed of several narratives from participants and their coding on self-event connections and redemption.

Table 2  
*Samples of turning point narratives and their coding on self-event connections and redemption*

Turning point narrative	Coding scheme		
	Self-event connections (0 or 1)	Redemption (0 or 1)	Redemption alternative (0 or 1)
“I often keep to myself and keep my contact with other classmates to a minimum. I was walking home from school one day, I was sure I saw a man cycling towards me. As I got closer, I realized that the man disappeared. I thought it was strange. Since then I often feel that someone is around, even though I mostly go everywhere alone.”	0	0	0
“My parents were divorced and years later my father got a new girlfriend in another city and we had to move there. I was excited about it at first, but when it got closer to the move, it got harder and harder to leave. When I finally moved, I went through a hard time and I still find it equally difficult. I got a pet cat later on, and felt less lonely and better.”	0	1	0
“My grandmother passed away from cancer. I heard it when I came home from school. I felt sad because my grandmother and I were really close. It changed me in the sense that I know that everyone will die at some point and that I also should expect this a little. Since then I know that I want to be an oncologist.”	1	1	1
“I was told that I had to go to a class of a lower level, because my grades were bad. I was very annoyed by this. It made me realize that school has a big influence on what I can do with my life in the future. I became more serious at school and noticed that my grades had improved.”	1	1	1

*Note.* The table and its contents were adapted from a recent paper on the same dataset by See et al. (2021). The examples presented here are composed of narratives by two or three adolescents about a similar event. Changes were also made to ensure anonymity. In the present study, redemption was defined as a narrative in which there is an initial negative affect state and a positive affect end state. In the alternative coding of redemption, redemption was only coded as present when the change from negative to positive affect was accompanied by an explicit reinterpretation by the adolescent.

## Data analytical plan

### *Attrition analyses*

To examine attrition in our samples, we first conducted Little’s (1988) missing completely at random (MCAR) test in IBM SPSS version 25.0. We found that missingness on perceived friendship quality and the narrative identity characteristics across the waves was not at

random for the complete Project-Me sample,  $\chi^2(141)=175.05, p = .027$ . For the cross-sectional sample in the present study, for which we only included participants who wrote a turning point narrative and had data on perceived friendship quality at Wave 1, missingness was found to be random,  $\chi^2(55) = 62.92, p = .216$ . In comparison to adolescents who were not selected for this study, participants in our cross-sectional sample were relatively older,  $t(1754.40) = -6.76, p < .001$  (medium effect size, Cohen's  $d = .31$ ), more often girls,  $\chi^2(1) = 8.64, p = .003$  (small effect, Cramer's  $V < .01$ ), and more often of a higher educational level,  $\chi^2(4) = 33.55, p < .001$  (small effect, Cramer's  $V < .01$ ). Only 20.3% of the non-selected adolescents provided friendship quality data and 47.3% wrote a narrative, suggesting that non-selection was mainly due to the absence of friendship quality data. This might have been the case because the questionnaire for friendship quality, the NRI, was at the end of the questionnaire, making that not all adolescents may have had time to fill out this questionnaire. For the adolescents who did provide relationship quality data, perceived friendship quality was higher for adolescents who were selected for our cross-sectional sample than for the non-selected adolescents,  $t(277.26) = -4.94, p < .001$  (medium effect, Cohen's  $d = .37$ ).

Of all participants in the cross-sectional sample, a limited number signed up for the longitudinal study. Of the full sample of Project-Me (i.e.,  $N = 1,941$ ), 10.8% wrote a narrative and had data on friendship quality in the second wave, and 10.1% in the third wave. As was the case for the cross-sectional sample, missingness on perceived friendship quality, self-event connections, and redemption across the three waves was found to be missing at random in the longitudinal sample,  $\chi^2(83) = 85.49, p = .404$ . Compared to participants with only one wave of data on narratives and perceived friendship quality (i.e., our cross-sectional sample), participants with at least two waves of data (i.e., longitudinal sample) were more likely to be female,  $\chi^2(1) = 4.03, p = .045$  (small effect size, Cramer's  $V < .01$ ), and of higher educational level,  $\chi^2(4) = 43.51, p < .001$  (small effect, Cramer's  $V = .01$ ). Moreover, participants with more than one wave of data were more likely to make a self-event connection,  $\chi^2(1) = 7.81, p = .005$  (small effect, Cramer's  $V = .01$ ) at Wave 1, but there was no significant association with the presence of a redemption sequence,  $\chi^2(1) = 1.48, p = .224$ .

### *Main analyses*

We examined the links of perceived friendship quality with self-event connections and redemption sequences in two steps. In the first step, the cross-sectional links were investigated. To do this, we used Wave 1 data. A cross-sectional path model was first

estimated, using perceived friendship quality as predictor and the categorical narrative identity constructs as the outcomes (see Figure 1). Age, gender, and education level were entered as control variables, as they have been found to be related to narrative identity characteristics and friendship quality (e.g., McLean, 2008).

In the second step, we examined how perceived friendship quality was related to the two narrative identity constructs over time in the longitudinal subsample. To do this, we estimated a path model with bidirectional associations of self-event connections and redemption with friendship quality (see Figure 2; constructs and pathways in black). We further examined whether the model was time-invariant by setting the paths Wave 1-Wave 2 equal to those of Wave 2-Wave 3. To reach convergence, covariances between the narrative identity characteristics were allowed to differ across waves. We then extended the model to include the interaction of self-event connections and redemption as a predictor (see Figure 2; grey constructs and pathways).

All models were estimated in Mplus version 8.2 using a Bayesian estimator (Muthén, & Muthén, 1998-2012). As is the case for models using maximum likelihood estimation, Mplus uses full information from all observations for the Bayesian estimation of models. No model comparison indices are available yet in Mplus for Bayesian models with categorical variables. Therefore, in Step 2 we made use of the Posterior Predictive P-value (PPP) to compare model fit of the time-invariant model to the time-varying model, and of the interaction model compared to the final model (i.e., the time-varying or time-invariant model, depending on fit). The PPP is not a formal test of model comparison, but rather an indicator of good model fit, and its use can be compared to the  $\chi^2$  *p*-value. Similar to the  $\chi^2$  *p*-value, a PPP value of lower than .05 is indicative of poor model fit (Asparouhov et al., 2015). In cases of nested models with acceptable PPPs, it has been suggested that the most parsimonious model should be considered (Lubke & Muthén, 2007). Effects were tested for significance using a 95% credibility interval. Similar to a confidence interval, the interval indicates that there is a 95% probability that the true effect size falls into the interval. When the interval encompasses zero, effects were considered non-significant.

### *Robustness check*

To test the robustness of our findings, we performed two sets of additional analyses. First, we reran our cross-sectional model but with the direction of the regressions reversed. That is, with self-event connections and redemption sequences as predictors of perceived friendship

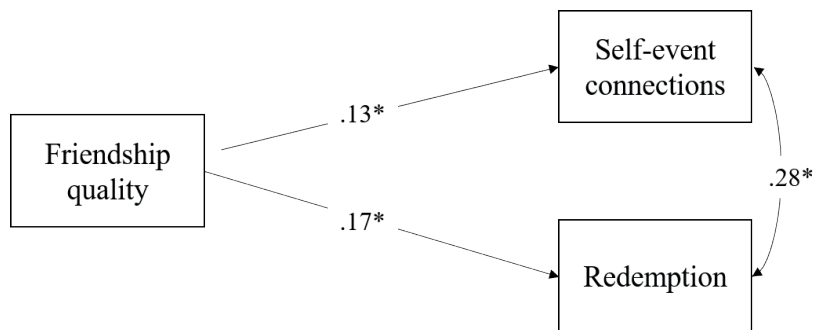
quality. Second, we reran our cross-sectional and longitudinal analyses with an alternative definition of redemption. This coding uses stricter criteria for redemption. Specifically, it only includes narratives with negative-affect state beginnings and positive-affect state endings that also have an actual reinterpretation of the event taking place. This is slightly different from the definition we used, which is not dependent on the interpretation of the adolescent. To do this, we dichotomized the redemption scores into 0 (*no redemption; 0 or 1 in our original coding*) and 1 (*redemption; a 2 in our original coding*). The coding of redemption following this scheme is also presented in Table 2. Apart from the alternative coding of redemption, all other aspects of these analyses were similar to the main analyses. A summary of the results of the robustness analyses is reported at the end of the Results section; the results are reported more fully on pp. 3-6 of the Supplementary Material.

## Results

Descriptive statistics for the cross-sectional and longitudinal sample are reported in Table 1. Correlations between self-event connections, redemption, and perceived friendship quality at Wave 1, Wave 2, and Wave 3 are provided in Table 3. Correlations were estimated for the cross-sectional dataset (above the diagonal) and the longitudinal dataset (below the diagonal). At Wave 1, all correlations were positive as expected and significant. At later waves, the correlations were less strong, though overall consistent in direction.

Figure 1

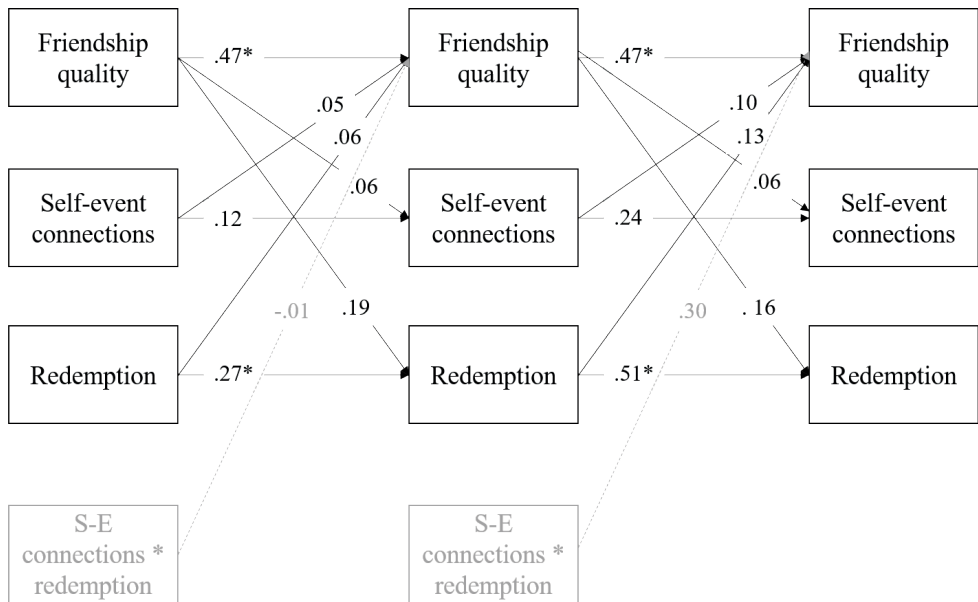
Path model detailing the cross-sectional model with standardized regression estimates



Note. \*  $p < .05$ .

Figure 2

Path model detailing the longitudinal model with standardized regression estimates



Note. Only coefficients for longitudinal pathways are shown in the figure. All effects in the figure were estimated using the time-invariant longitudinal model, with the exception of the interaction effects. These were estimated in the interaction model. \*  $p < .05$ .

### Linkages between perceived friendship quality and narrative identity

We first estimated the *cross-sectional* links between perceived friendship quality, self-event connections, and redemption (see Table 4). Perceived friendship quality was found to be related to a greater likelihood of making redemption sequences and of making self-event connections. Thus, adolescents who reported higher friendship quality were more likely to make a redemption sequence and a self-event connection in their turning point narrative at the same timepoint. In addition, having a higher educational level was related to making a self-event connection. Finally, adolescents who made a self-event connection were also more likely to make a redemption sequence. This suggests that adolescents who showed evidence of engaging in one kind of narrative identity processing, were also more likely to engage in other kinds.



Table 3  
Correlations between the study variables in the sample

	1.	2.	3.	4.	5.	6.	7.	8.
1. Self-event connections wave 1				.26*			.11*	
2. Self-event connections wave 2	.14							
3. Self-event connections wave 3	.13	.09						
4. Redemption wave 1	.33*	-.03	.15				.18*	
5. Redemption wave 2	.02	.12	-.15	.08				
6. Redemption wave 3	.15	.09	.29*	.15	.21			
7. Friendship quality wave 1	.11	.12	.06	.04	.25*	.13		
8. Friendship quality wave 2	.07	-.04	-.13	-.03	.27*	.04	.60*	
9. Friendship quality wave 3	.03	.06	.06	-.04	.27	.15	.47*	.69*

Note. Correlations above the diagonal are based on the cross-sectional sample ( $n = 1,087$ ). Correlations under the diagonal were derived from the longitudinal sample ( $n = 186$ ).

\*  $p < .05$ .

Table 4  
*Estimates from the cross-sectional model*

	<i>b</i>	<i>Beta</i>	95% C.I.
<b>Regression pathways</b>			
<i>Predictors of self-event connections</i>			
Age	0.06	0.04	[-0.03; 0.11]
Gender	0.07	0.04	[-0.06; 0.12]
Educational level	0.20*	0.19*	[0.11; 0.26]
Friendship quality	0.13*	0.13*	[0.06; 0.23]
<i>Predictors of redemption</i>			
Age	0.05	0.03	[-0.04; 0.10]
Gender	0.19	0.09	[-0.01; 0.18]
Educational level	0.06	0.06	[-0.01; 0.14]
Friendship quality	0.17*	0.17*	[0.08; 0.27]
<b>Covariances</b>			
Self-event connections ↔ redemption	0.28*	0.28*	[0.18; 0.38]

Note. 95% C.I. = 95% credibility interval based on the standardized estimate.

\*  $p < .05$ .

Next, we estimated the *longitudinal* model with bidirectional links between perceived friendship quality, self-event connections, and redemption (see Table 5). As both the time-invariant model and the time-varying model showed acceptable fit (PPP = .420 for the time-invariant and PPP = .460 for the time-varying model), findings from the time-invariant model were interpreted (see Figure 2). The autoregressive coefficients were significant for perceived friendship quality and redemption. This suggests that adolescents who reported higher friendship quality and made redemption sequences at one wave tended to report higher friendship quality and tended to make redemption sequences at the next wave, respectively. For self-event connections, whether or not adolescents made connections at one wave was not predictive of making self-event connections one year later. Furthermore, perceived friendship quality did not significantly predict self-event connections or redemption sequences, nor was the presence of these narrative characteristics predictive of perceived friendship quality at the next wave. Although not significant, effect sizes were quite similar to those found in the cross-sectional model, especially for the link between friendship quality and redemption. Gender was also predictive of friendship quality, with girls reporting higher quality in friendships than boys did.

We then added an interaction term to the model of the two types of narrative identity

processes. This interaction term was added at Wave 1 as a predictor of perceived friendship quality at Wave 2, and at Wave 2 as a predictor of Wave 3. This resulted in poorer model fit (PPP = .220). Moreover, the interaction did not significantly predict friendship quality at Wave 2 or Wave 3. Following the suggestion of one of the reviewers, we also tested an interaction model with moderation of gender on the cross-lagged paths of perceived friendship quality with self-event connections and redemption, and vice versa. Like the paths in the time-invariant longitudinal model, the four added interactions were set equal from Wave 1 to Wave 2 and from Wave 2 to Wave 3. This model showed poor fit to the data (PPP < .001) and was therefore not further interpreted.

Taken together, our cross-sectional model indicated that quality of adolescents' friendships is concurrently related to the presence of a redemption sequence and a self-event connection in their turning point narrative. Moreover, the presence of a redemption sequence is also related to creating a self-event connection. Longitudinally, we did not find support for a covariance between the presence of self-connections and redemption sequences. Additionally, there was no significant effect of perceived friendship quality on narrative identity characteristics or vice versa, nor of the interaction term between the narrative identity characteristics on friendship quality.

Table 5  
*Estimates from the longitudinal model*

	<i>b</i>	Beta	95% C.I.	<i>b</i>	Beta	95% C.I.
	<b>Wave 1 → Wave 2</b>			<b>Wave 2 → Wave 3</b>		
<b>Regression pathways</b>						
<i>Predictors of friendship quality</i>						
Age	0.06	0.04	[-0.06; 0.14]	0.06	0.04	[-0.06; 0.13]
Gender	0.49*	0.24*	[0.12; 0.36]	0.49*	0.24*	[0.12; 0.35]
Educational level	<-0.01	<-0.01	[-0.10; 0.09]	<-0.01	<-0.01	[-0.10; 0.09]
Friendship quality	0.48*	0.47*	[0.35; 0.57]	0.48*	0.47*	[0.33; 0.61]
Self-event connections	0.09	0.05	[-0.05; 0.14]	0.09	0.10	[-0.10; 0.28]
Redemption	0.11	0.06	[-0.03; 0.14]	0.11	0.13	[-0.06; 0.31]
Self-event connections × Redemption	<-0.01	<-0.01	[-0.36; 0.32]	0.61	0.30	[-0.37; 0.92]
<i>Predictors of self-event connections</i>						
Age	-0.13	-0.09	[-0.18; <-0.01]	-0.13	-0.08	[-0.17; <-0.01]
Gender	0.17	0.08	[-0.12; 0.29]	0.17	0.07	[-0.12; 0.28]
Educational level	0.09	0.06	[-0.11; 0.23]	0.09	0.06	[-0.11; 0.23]
Friendship quality	0.07	0.06	[-0.16; 0.27]	0.07	0.06	[-0.16; 0.27]
Self-event connections	0.25	0.12	[-0.08; 0.30]	0.25	0.24	[-0.17; 0.55]

	Wave 1 → Wave 2		Wave 2 → Wave 3	
	<i>b</i>	Beta	<i>b</i>	Beta
<i>Predictors of redemption</i>				
Age	-0.05	-0.03	-0.05	-0.03
			[-0.13; 0.06]	[-0.11; 0.05]
Gender	0.33	0.14	0.33	0.12
			[-0.05; 0.33]	[-0.04; 0.28]
Educational level	0.05	0.03	0.05	0.03
			[-0.13; 0.19]	[-0.11; 0.16]
Friendship quality	0.22	0.19	0.22	0.16
			[-0.03; 0.40]	[-0.03; 0.36]
Redemption	0.61*	0.27*	0.61*	0.51*
			[0.08; 0.42]	[0.17; 0.71]
<b>Correlated error terms at Wave 2 and Wave 3</b>				
Friendship quality ↔ self-event connections	-0.09	-0.13	0.16	0.23
			[-0.38; 0.12]	[-0.07; 0.50]
Friendship quality ↔ redemption	0.13	0.19	-0.01	-0.01
			[-0.08; 0.43]	[-0.39; 0.33]
Self-event connections ↔ redemption	0.14	0.14	0.41	0.41
			[-0.25; 0.49]	[-0.01; 0.75]

Note. All estimates were derived from the time-invariant model, with the exception of the interaction term. 95% C.I. = 95% credibility interval based on the standardized estimate.

\*  $p < .05$ .

## Discussion

The present study examined the association between perceived friendship quality in the friendship with the best friend and characteristics of adolescents' narrative identities. Friendships of higher quality, that likely provide a safe basis and scaffolding, were expected to predict a more developed narrative identity, as indicated by a greater likelihood of creating a self-connection and a redemption sequence in a turning point narrative (Fivush et al., 2006). In turn, we hypothesized that a more developed identity would contribute to higher friendship quality through better managing of social interaction goals and accomplishment of developmental tasks (Swann, 2000; Erikson, 1950). In addition, we postulated that especially redemption sequences for an event that was also linked to the self would be associated with higher friendship quality. Our findings provided support for cross-sectional linkages between perceived friendship quality, self-event connections, and redemption sequences. However, no significant longitudinal linkages were found.

### **Association between perceived friendship quality and narrative identity**

Cross-sectionally, we found that perceived friendship quality was related to the presence of redemption sequences and self-event connections. That is, adolescents who perceived their friendships as being of higher quality were better able to positively reinterpret negative events and link events to their self-concept. This was true even after controlling for age, gender, educational level, and the presence of the other narrative identity characteristic. These findings indicate that two important developmental processes in adolescence, the creation of a well-developed narrative identity and the formation of friendships of high quality, are linked (Bauer & McAdams, 2004; Erikson, 1950; McAdams et al., 2001).

Although we could not test for a statistical difference between the estimates, across our analyses the link between perceived friendship quality and self-event connections appeared less robust than the link between friendship quality and redemption, as inferred from the smaller standardized coefficient estimate. This may reflect the difference in conceptualization of redemption sequences and self-event connections. Specifically, whereas having a positive outlook on one's experiences may almost always be a good thing – and may even reflect a broader positive interpretation style – linking experiences to the self may not always be (Klimstra & Denissen, 2017; McLean & Mansfield, 2011). Thus, the link with self-event connections may be more diffuse, and as a result, less strongly associated with friendship

quality. For instance, traumatic events such as sexual assault may result in connections of stability (i.e., “This happened to me because I’m a bad person”) or change (i.e., “I became much more weary of others because of this event”) that deteriorate adolescents’ friendships rather than contribute to them. More normative negative events such as an argument in a friendship or breaking up a friendship may also result in connections to the self that are not adaptive. Indeed, Banks and Salmon (2012) found that making negative self-event connections, particularly in narratives concerning a low point in individuals’ lives, was related to lower well-being, as measured by several dimensions of personal and social functioning such as self-acceptance and positive associations with others. As such, it could be that a closer look at the content and valence of self-event connections is needed to understand when making such connections is related to adaptive (highly qualitative), and when to maladaptive friendships.

Longitudinally, however, we found no significant links between perceived friendship quality and either self-event connections or redemption. That is, higher friendship quality did not predict the presence of these narrative characteristics, or vice versa. As such, our findings provided only tentative evidence for either scaffolding theory (Fivush et al., 2006) or Erikson’s theory on developmental tasks (1950), as the cross-sectional findings cannot tell us about directionality in the link between perceived friendship quality and narrative identity characteristics. Alternatively, the consistent cross-sectional links suggest that a third variable may predict changes in both redemption and perceived friendship quality. For instance, people with certain personality traits such as low neuroticism or positive affectivity may be both more likely to make self-event connections and redemption sequences, and experience their friendships as being of higher quality. Of course, it should be noted that while we found no support for theory proposing a predictive effect of relationship quality on narrative identity, in our study we only examined perceived quality of the friendship with the best friend. Other social contacts such as parents, siblings, or other friends may also help adolescents construct their narratives. In past work examining mothers and friends these relationships have been found to be meaningful for narrative development (McLean & Jennings, 2012). Thus, more research using a variety of close relationships is needed to test scaffolding theory (Fivush et al., 2006) and Erikson’s theory (1950) more thoroughly.

It should be noted that due to a much smaller sample than for the cross-sectional analyses, power for the longitudinal analyses was relatively low. In particular, while we had enough power to detect small effects ( $f^2 > .01$ ) in the cross-sectional sample, we could only detect

small to medium effects ( $f^2 > .07$ ) in the longitudinal sample. As such, it is possible that the reported cross-sectional findings did not disappear, but rather were rendered insignificant due to a lack of sufficient power. Indeed, when examining the size of the estimated effects of the longitudinal model, we see that the estimates for the predictive effect of perceived friendship quality on narrative identity (i.e., effect sizes between 0.06 and 0.19; Table 5) are quite similar to the estimates of the cross-sectional model (i.e., between 0.13 and 0.17; Table 4). Moreover, previous research using larger samples has often reported similar effect sizes for psychological constructs in longitudinal models (Adachi & Willoughby, 2015), suggesting that some of our longitudinal findings may indeed reflect existing effects that did not reach significance due to limited power. This may be especially true for the association between perceived friendship quality and redemption, which was more sizable than the association between perceived friendship quality and self-event connections in the cross-sectional model. Again, these findings were largely corroborated by the robustness analyses, which also evidenced effects in the longitudinal model that were similarly sized as the cross-sectional effects, but were non-significant (see Supplementary Material, pp. 4-5, Table S3 and S4).

Based on the similar effect sizes in the cross-sectional and longitudinal models, our findings seem to tentatively suggest that perceived friendship quality may be important for the development of narrative identity, as operationalized as the creation of redemption sequences and self-event connections, which would be in line with previous findings on scaffolding behavior in conversations with friends (McLean & Jennings, 2012; Pasupathi & Hoyt, 2009) and scaffolding theory (Fivush et al., 2006). Moreover, such links would provide a potential mechanism for previous findings of a predictive effect of friendship quality on identity (e.g., De Moor et al., 2019; Meeus et al., 2002). That is, it could be that more highly qualitative friendships help adolescents positively reinterpret negative events and making meaning of their experiences, thus contributing indirectly to adaptive identity development. However, more research using a larger sample is needed to examine whether these effects are indeed significant when power is higher, before such inferences can be made.

Yet, it should be noted that even if they had been significant, the size of these effects was rather small, suggesting that any association between perceived friendship quality and narrative identity is quite limited. As we examined the effect on narrative identity in one particular narrative, however, this may not be surprising. That is, if we were to examine the presence of self-event connections and redemption in many different narratives, it is likely that how adolescents construct their narratives is less influenced by situational factors (e.g.,



the particular story, the setting in which they have to write it down) and more by their stage of narrative identity development. Indeed, previous work has shown that at a measurement occasion, there is less variation between individuals than between the narratives written by the same individual (McLean et al., 2016). Still, more longitudinal work using a larger sample of adolescents and narratives would be needed to test this possibility. Another potential explanation for the modest effect sizes is that perceived friendship quality as a construct might be too broad to capture the scaffolding behavior that has been theorized to be the driving mechanism behind the influence of high quality friendships on narrative identity (Fivush et al., 2006). Relationships that are perceived as being of high quality can contain both promotive (e.g., scaffolding) and hampering (e.g., co-rumination) behaviors, which may not all be related to a more developed identity (Rose, 2002). Therefore, examining more specific interaction behaviors may evidence stronger associations with the presence of self-event connections and redemption sequences, as has been the case in conversational research contexts (McLean & Jennings, 2012; Pasupathi & Hoyt, 2009).

Finally, although not the main focus of our study, our analyses resulted in a noteworthy finding with regard to stability. Our longitudinal analyses evidenced moderate and small to moderate stability for perceived friendship quality and redemption, respectively, but low stability for self-event connections (i.e., effect sizes of 0.12 and 0.24). The low stability estimate could not be explained by a drift in the coding of self-event connections, as a subsample of 30 narratives from Wave 1 were recoded after the completion of the coding for Wave 3, which resulted in a reliability estimate of ( $\kappa$ ) .92 with the initial codes. However, it is possible that making self-event connections is more situation-dependent than redemption, which may be reflective of having a more positive outlook on life in general. In contrast, whether or not an adolescent makes a self-event connection may not only be dependent on an underlying disposition, but also on the event they write about in their turning point narrative. Given that the characteristics of narrative identity were assessed in a singular event, it may therefore not be surprising that the presence of self-event connections was somewhat unstable.

### **Limitations**

The current study examined the association between perceived friendship quality and two characteristics of narrative identity, using narrative data from over a thousand adolescents who provided in-depth narratives on a turning point moment in their lives. In the present

study, we combined this narrative data with questionnaire data on social relationships, resulting in a multi-method design, which limits shared-method bias (Podsakoff et al., 2012) and thus provides more robust findings.

However, some limitations of the present study need also be mentioned. First, while the aim of the study was to examine inter-individual differences in narrative identity, it would also be interesting to examine how identity and perceived friendship quality are associated with each other within-person. That is, while we can now conclude that adolescents who have higher quality friendships are more likely to make self-event connections and redemption sequences, a within-person approach would provide insight in the process through which adolescents develop their identity. That is, it could indicate whether friendship processes are actually a mechanism through which adolescents develop their own identity, thus helping us better understand the process of narrative identity construction. Future studies with larger samples should therefore aim to disentangle between-person from within-person variance, for instance by using an intensive individual-focused mixed-method approach.

Second, given gender differences in friendship quality (e.g., De Goede et al., 2009) and following the suggestion from one of the reviewers, we examined moderation effects of gender on the cross-lagged associations of friendship quality and narrative identity in the longitudinal model. This model showed poorer fit than the model without gender moderation, perhaps in part due to its relative complexity and the relatively small sample in which it was examined. As such, findings from this model were not interpreted. However, future work with larger samples should study gender differences in the association between friendship quality and narrative identity in greater detail. Such studies may also consider using a more inclusive definition of gender, for instance by including a non-binary option or by capturing gender as a continuous rather than a categorical variable. It is likely that a nuanced conception of gender will more accurately reflect actual differences in the population.

Third, and related to the previous points is the issue of power in the longitudinal analyses. Specifically, less than 10% of the participants of the total cross-sectional sample also consented to participate in the longitudinal study, thus providing information on narrative identity and the quality of their friendships at Wave 2 and/or 3. The much smaller size of the longitudinal sample was likely because of the fact that active parental informed consent was required for the 2<sup>nd</sup> and 3<sup>rd</sup> wave. The IRB approved a procedure in which adolescents had to bring a letter home to their parents, after which their parents had to mail back the signed consent letter. This procedure likely did not facilitate participation. Moreover, missing data in

either of the measures also contributed to the reduced sample size. In particular, as the NRI was near the end of the questionnaire, some adolescents did not get to fill out the questions on friendship quality (38.9% at Wave 1). Adolescents who participated in more than one wave had more developed identities, as evidenced by a greater likelihood of making a self-event connection. This suggests that in addition to a smaller sample, the longitudinal sample may also reflect a subgroup of individuals who are generally better-adjusted (Erikson, 1950, 1968; Bauer & McAdams, 2004). This may have resulted in an underestimation of the association between perceived friendship quality and narrative identity characteristics. In future studies, it is therefore important to not only use larger samples, but also samples that cover a wider range of adolescents.

Fourth, in the present study we examined the association of friendship quality and narrative identity. This link was substantiated by evidence that a high-quality friendship may form a context in which adolescents are listened to and are stimulated to explore and understand their experiences (e.g., McLean & Jennings, 2012; Pasupathi & Hoyt, 2009), as well as a safe basis from which adolescents can explore and develop their identity beyond the immediate friendship context (Ainsworth, 1989; Bowlby, 1960; Furman & Buhrmester, 2009). Yet, adolescents may differ in the types of friendships they have and they may even have different friendships of different types. Importantly, not every high-quality friendship necessarily entails adolescents discussing self-relevant topics. For instance, some friendships may also be based on shared interests or activities. Although such friendships may not affect identity in a direct manner (i.e., through discussion of important experiences), we would expect that such friendships still provide a safe basis for identity exploration more indirectly (e.g., having a good friend may give adolescents the confidence to explore more extensively what they are looking for in a romantic relationship). It is important that future research examines whether the association of friendship quality with narrative identity is indeed partially mediated by the topics that adolescents discuss with their friends, as was presumed in the present study.

Finally, reliability of the coding of redemption sequences ( $\kappa = .63$  for the cross-sectional sample and  $.66$  for the longitudinal sample) was relatively low, even though it was still acceptable (see recommendations by Syed & Nelson, 2015). In contrast, several recent studies that used the same coding system (e.g., Alea, 2018; Bauer et al., 2019; McCoy & Dunlop, 2017) all reported higher reliability. With the exception that these studies often focused on adult samples, there were no clear differences in study design that may explain

the discrepancy in reliability between this and previous work. Reliability may attenuate effect size (Kanyonga et al., 2007) and as such it could be that the (absence of) findings of the study are in part confounded by the relatively low reliability of the coding of redemption.

### **Conclusion**

The present study examined cross-sectional and longitudinal links between the perceived quality of adolescents' best friendships and autobiographical narratives. Taken together, our findings showed that adolescents who experience higher friendship quality in the relationship with their best friend were indeed more likely to make self-event connections and redemption sequences in their turning point narratives. However, the linkages between perceived friendship quality and narrative identity characteristics were not significant in the longitudinal analyses, despite showing similar sized estimates to the cross-sectional analyses. Based on the present cross-sectional and longitudinal findings, we believe it might be worthwhile to examine whether the degree of friendship quality adolescents experience does predict adaptive relative changes in narrative identity features, and vice versa, in a future larger sample.





# 7

## The Relation Between Self-Event Connections and Personality Functioning in Youth with Severe Psychopathology

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Study pre-registered at: <https://osf.io/75639>

## Abstract

*Objective.* One way in which individuals construct their narrative identity is by making self-event connections, which are often linked to better functioning. Being unable to make connections is related to identity discontinuity and psychopathology. Work in the general population corroborates this association, but also highlights the importance of focusing on specific aspects of these connections and on vulnerable populations. *Method.* We examined the association of self-event connections with personality functioning in youth with severe psychopathology (cross-sectional  $N = 228$ ,  $M_{\text{age}} = 19.5$ , longitudinal  $N = 84$ ), and the role of event and connection valence in the subsample of youth who made a connection ( $n = 188$  and  $n = 68$ ). Negative affectivity was controlled for in all models. *Results.* We found no evidence that self-event connections, nor connection valence and its interaction with event valence, are related to functioning. Positive event valence was associated with better functioning. Higher negative affectivity was strongly linked to lower functioning and explained the relation between event valence and functioning. No longitudinal associations emerged. *Conclusions.* These findings show that for youth with severe psychopathology making self-event connections may not be associated with better functioning. Moreover, negative affectivity may be a distal predictor of both event valence and functioning.

*Keywords:* narrative identity, self-event connections, negative affectivity, personality functioning, event and connection valence

### Author contributions

EM, JG, NK, OL, and SB conceptualized the study. NK and OL were responsible for data collection. EM analyzed the data and wrote the first draft of the manuscript. All authors provided feedback on the manuscript.



## **The Relation Between Self-Event Connections and Personality Functioning in Youth with Severe Psychopathology**

From early adolescence onward, answering the question of who they are and who they want to be in the future becomes a key developmental task for youth (Erikson, 1968). At the same time, they start to think about how their past, present, and future selves are linked together into a continuous narrative of their identity (McAdams, 1993). This narrative identity may be threatened following events that people themselves consider moments of change, transition, or extreme stress, which results in feelings of self-discontinuity (Erikson, 1968). In some cases, these feelings may remain chronically unresolved and ultimately come to play a key role in the development, maintenance, and resolution of (personality) psychopathology (American Psychiatric Association, 2013; Klimstra & Denissen, 2017; Westen & Heim, 2003; Wilkinson-Ryan & Westen, 2000).

Reasoning about the relation of change or transition with the self, and explicitly linking experienced events to the self, is thought to help alleviate stress and restore one's sense of self-continuity (Habermas & Köber, 2015). This reasoning might be hampered in youth who experience severe (personality) psychopathology. Despite theory ascribing a pivotal positive relation of reasoning about the relation between an event and aspects of the self to youth functioning, empirical evidence for this link is not as straightforward. In particular, the function of self-event connections may depend on the valence of the event, valence of the connection made between the event and the self (i.e., meaning derived), and the transaction between them. In the present study, we examined how making self-event connections is related to functioning in a sample of youth with severe psychopathology, using their narratives on a turning point event.

### **Self-event connections and personality functioning**

Narrative identity reflects individuals' attempts to create a cohesive and integrated story of the lived life and their values, motivations, and actions (McAdams, 2013a). Although skills for narrative formation already start to develop early in life (e.g., Fivush et al., 2006), the narrative identity only starts to become internalized in adolescence (Habermas & Paha, 2001; McAdams, 1985; McAdams & McLean, 2013; McLean et al., 2010). Autobiographical reasoning is the process through which individuals actively reflect on their past, present, and future, and link these aspects together into their narrative (Habermas & Bluck, 2000;

McAdams, 1993). Within the context of a single event, this process is captured in the making of explicit connections between the event and aspects of the self (Pasupathi et al., 2007), thereby integrating the event into the life story.

Individuals use self-event connections as an important mechanism to develop and maintain their identity, and to give them a sense of self-continuity – that is, the feeling that one is the same person over time (Pasupathi et al., 2007). Individuals who are unable to make such connections, especially in the presence of many stressful and traumatic events that individuals with pathological problems often experience (e.g., MacIntosh et al., 2015; Sandberg et al., 1998), tend to experience feelings of discontinuity (Habermas & Köber, 2015). In time, such issues of self-discontinuity across time and space can result in the narrative identity becoming warped or stunted in development, which may come to play an important role in (personality) psychopathology (e.g., American Psychiatric Association, 2013). This may be especially apparent from adolescence onwards, when the task of forming an identity becomes more important for youth functioning (Erikson, 1968).

Self-functioning, or the ability of individuals to manage their identity and their personal goals (i.e., identity and self-direction), and interpersonal functioning, or their ability to experience intimacy and empathy in their relationships with others (i.e., Bach & Hutsebaut, 2018; Hutsebaut et al., 2016), have been used in concordance with maladaptive personality traits as a diagnosis-independent alternative to assessing personality pathology impairment (American Psychiatric Association, 2013). In the present study, we will examine functioning as a single construct of personality functioning. Self-event connections may play a role not just in the development and maintenance of psychopathology, but also in the treatment thereof. Reasoning about how certain events influenced the self, whilst still feeling as though one is the same person as before the event, may be the key to acceptance of and ultimately recovery from pathology and to reducing impairment (e.g., Adler, 2012; Adler et al., 2008). Moreover, the presence (or absence) of self-event connections provides important insights in the self and world view of individuals, (the etiology of) their problems, and their resources (Duncan & Miller, 2000).

However, despite there being a clear rationale for why the process of making self-event connections may be particularly important in the context of psychopathology, empirical work – particularly in youth, for whom the construction of a stable and cohesive identity is the key developmental task – is lagging behind. Work in normative populations has shown that autobiographical reasoning is related to more positive functioning (for a recent overview, see

Adler et al., 2016 and McLean et al., 2020). Adolescents and young adults who thought about the personal meaning of an event for their life experienced a more developed and clearer sense of self (McLean & Pratt, 2006; Van Doeselaar et al., 2020). Furthermore, women in midlife who showed positive emotional resolution of or closure from an event reported more positive personality development and higher life satisfaction at a later age (Pals, 2006). In relation to pathology, research among young adults from the general population has found links of self-event connections with distress (Merrill et al., 2016) and psychological problems (Holm & Kirkegaard Thomsen, 2018). Finally, adult outpatients with bipolar disorder on average reported less self-event connections in their narratives of past events than individuals in a healthy control group (Pederson et al., 2018). While research in clinical groups is limited, the above suggests that self-event connections may be related to personality functioning in this population.

### **Self-event connections and personality functioning: Valence**

Although making self-event connections is generally related to more positive functioning, there is also some evidence from the general population that this may not always be the case (e.g., McLean & Manfield, 2011). Specifically, this association is found to be highly dependent on various factors, such as personality characteristics, context, and age. For instance, for adolescent boys making a self-event connection when it is not yet developmentally appropriate may be stressful or point to the experience of events that bring about negative affect and which necessitate complex autobiographical reasoning (McLean et al., 2010). Thus, in this situation, making self-event connections is related to poorer rather than better functioning. Related to this, the association of self-event connections with personality functioning in youth with severe psychopathology may depend on the *valence of the event*. That is, whether an event is considered positive or negative impacts whether connecting it to the self is adaptive or maladaptive for individuals' functioning (e.g., Lilgendahl & McAdams, 2011). For instance, making a connection with the self for winning a soccer match may be differently related to functioning than making a connection for being bullied in childhood.

Although there is, to the best of our knowledge, no research yet examining event valence in a clinical population, research in the general population has shown that especially for negative events, autobiographical reasoning is related to better functioning in late adolescence and beyond (e.g., McLean & Fournier, 2008). Of course, experiencing a negative

event does not necessarily mean that it will feature in the turning point narrative, as this may depend on other factors that determine whether or not individuals are likely to focus on negative events in their lives (e.g., neuroticism; Robinson, 2007; Robinson et al., 2007). However, negative events are generally accompanied by negative affect, and deducing meaning from events by linking them to aspects of the self may be one way of resolving that negative affect. For instance, linking one's childhood bullying to social development in later life may be an important step to acceptance of the event and the self, and recovery. As such, the need to explicitly derive meaning from such events may be greater than for positively-valenced events.

On the other hand, and as may be especially true in a clinical population, making connections between an experienced negative event and the self may not always be a good thing. Generally, the idea is that psychological problems following the experience of a negative event may be due to the lack of integration with the life story which results in a violation of the sense of self (i.e., self-discontinuity; Dagleish, 2004). However, research on symptoms of post-traumatic stress disorder has shown that the event centrality of extremely negative events, or the extent to which an event has become a central component of the identity, is actually related to lower functioning (Berntsen & Rubin, 2007). This may be the case because the event or multiple events become a reference point in the life narrative, around which other memories are organized and from which expectations for the future are generated. This may result in a life narrative that is centered around negativity, or which is otherwise less cohesive or even stuck in development. Therefore, selecting a negative event for the turning point narrative and connecting it to one's identity through means of self-event connections may actually be related to poorer, rather than better, personality functioning. Coming back to the example of bullying, it is possible that linking one's personal worth to the event contributes to low self-esteem and therewith the development and maintenance of pathology. Taken together, these opposing effects of making self-event connections for negative events demonstrate that the effect may not be straightforward.

Not only valence of the event, but also *valence of the connection* might determine whether making self-event connections is related to better or poorer personality functioning (Banks & Salmon, 2012). Indeed, a focus on identity content (e.g., the meaning derived from an event) rather than processes (e.g., making self-event connections or not) has been suggested to be important for understanding how self-event connections relate to functioning (Klimstra & Denissen, 2017). Although there is as of yet no work testing this in a clinical population,

results from normative samples have provided some preliminary evidence for this notion. For example, in young adulthood making positive self-event connections has been linked to fewer pathological symptoms (Holm & Kirkegaard Thomsen, 2018), and making negative connections has been linked to experiencing more psychological and identity distress (Merrill et al., 2016). As a result, we might expect that making connections that are negatively valenced will be linked to poorer personality functioning.

Valence of the event and valence of the connection may also interact in predicting personality functioning. That is, whether or not linking a negative (versus positive) event to the self is beneficial or detrimental for functioning may be dependent on the connection made for that event. Previous work in a normative sample has found that individuals who make positive self-event connections for negative events are likely to report better functioning than those with negative self-event connections (Merrill et al., 2016). For example, one may draw a positive lesson (e.g., “I realized how much my family really means to me and strive to argue less with them”) from a negative event (e.g., death of a family member), which may be linked to better personality functioning. However, it is also possible that individuals draw a negative lesson (e.g., “I suddenly realized that I had not contributed at all and that ultimately my presence or absence was trivial”) from a positive event (e.g., winning a soccer match with the team). We may expect that making a negative connection to the self for an event that was regarded as negative is especially detrimental for personality functioning, as it may actually increase the negative affect brought along by the event. Thus, it is important to look at not just valence of the event and the connection separately, but also in relation to one another.

### **The current study**

Narrative identity, and the making of self-event connections in particular, may play an important role in personality functioning, due to its function of integrating impactful events into the life narrative and creating a sense of self-continuity. This function may be especially important in youth with severe psychopathology, who have often experienced many negative events, and for whom the link of an important event to the self may be key in the development, maintenance, or resolution of their pathology. For instance, the particular meaning assigned to an experienced event may underlie the development of a negative or even fragmented self-view, may keep that self-view in place, and may need to be addressed and resolved in order for the pathology to be treated effectively (e.g., Park & Ai, 2006). Conversely, seeing oneself as being the same person across time and assigning a meaning that is not negative to

the self, may be an important step towards recovery. As such, addressing the links youth make between important events and their identity may be a vital part of the treatment of their pathology. Thus, our main research question was whether making self-event connections would be related to personality functioning in a sample of youth with severe pathology. Based on results from the general population, we expected that youth who made a self-event connection would report higher personality functioning than youth who did not make self-event connections (see Figure 1a).

Figure 1a  
*Regression model of personality functioning on self-event connections*

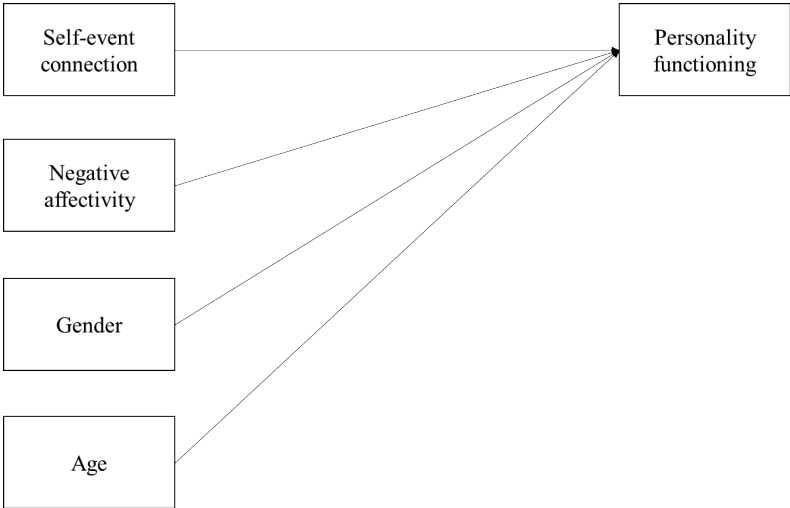
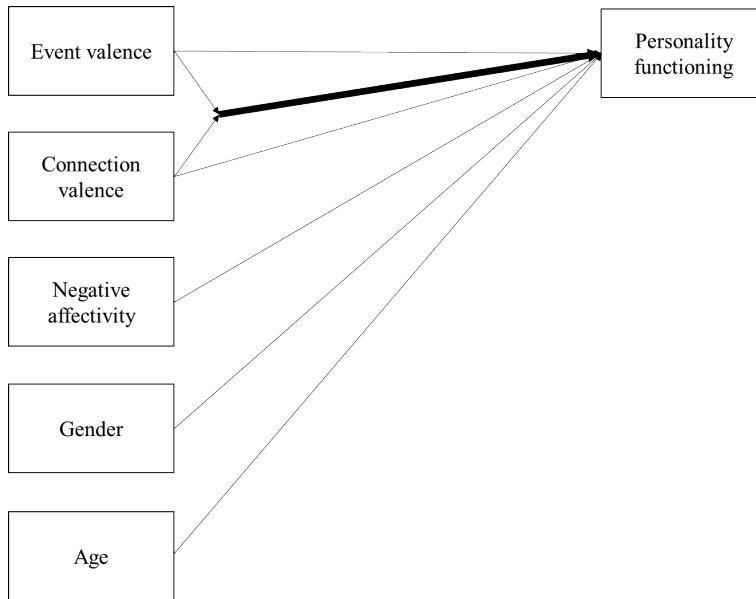


Figure 1b  
*Regression model of personality functioning on valence of events, valence of self-event connections, and their interaction*



*Note.* Model 1a was tested for the full sample. Model 1b was tested only for the subsample of youth who made a self-event connection in their turning point narrative. The bold arrow represents a moderation effect. Negative affectivity, gender, and age were included as control variables in both models

Additionally, we included negative affectivity as a predictor in this model, because it may confound the relation under investigation. Indeed, negative affectivity, characterized by emotional instability and high levels of negative emotions (Krueger et al., 2012), is known to be a strong predictor of mental and physical health (e.g., Kotov et al., 2010; Krueger & Markon, 2006; Lahey, 2009), and functions as a general factor underlying psychological problems more broadly (Brandes et al., 2019; Tackett et al., 2013). Thus, negative affectivity may be a general predictor of personality functioning. Moreover, higher negative affectivity has also been linked to maladaptive identity processes, such as having weaker commitments (Klimstra et al., 2012) and engaging in more rumination regarding one's identity (Hatano et al., 2017).

In addition to the general link between self-event connections and personality functioning, we examined for those youth who made a self-event connection whether valence of the

event and valence of the connection were associated with personality functioning (see Figure 1b). For event valence, we had opposing expectations. On the one hand, it was expected that making connections for a negative event is more important (i.e., to alleviate negative affect brought on by the event) and thus linked to better functioning. On the other hand, and based on the idea of event centrality, we hypothesized that discussing a turning point narrative about a negative event would be related to poorer personality functioning. With regard to connection valence, we expected that positive (vs. negative) connections were related to better functioning. We also examined the interaction between event and connection valence, where we expected positive connections to be more strongly related to better personality functioning when these connections are made for a negative event. Here, we also included negative affectivity as a potential confounder. The research questions, hypotheses, and analyses of the present study were pre-registered at <https://osf.io/75639>.

Finally, supplementing these pre-registered hypotheses and on the suggestion of the editor, we used recently made available follow-up data to examine the associations described above longitudinally. In particular, we tested whether self-event connections, negative affectivity, and event and connection valence at T1 might also predict personality functioning at a later moment, which will be referred to as T2. Our hypotheses here were the same as for the cross-sectional data.

## Method

### Participants and procedure

Data were collected as part of the ongoing “Adolescenten en hun persoonlijkheidsontwikkeling: een longitudinale onderzoek” [Adolescents and their personality development: a longitudinal study] (APOLO) project (protocol number: FETC17-092). In this study, a sample of outpatient youth in two specialized mental health care institutions in the Netherlands are currently being followed longitudinally starting from the moment of intake at the institution. Participants were youth who were referred by their general practitioner to a specialized mental health care institute (as opposed to general mental health care) for severe, often co-morbid, psychopathological problems. Participants were referred for a range of problems, such as personality pathology, attachment problems, and mood disorders. The sample did not include youth of low IQ (<85), adolescents who experienced severe psychotic problems, acute suicidality or eating disorders. Self-report questionnaires on personality traits,



functioning, and narrative identity were routinely integrated in the standard intake process, and information gathered in the study was also used by practitioners to inform diagnostic assessment or treatment. A semi-structured interview was conducted and recorded to examine the narrative identity more in depth. Assessment will be repeated every six months after intake for 6 times.

At the time of conducting the longitudinal analyses (July 2021), the cross-sectional sample of APOLO consisted of 630 adolescents who had participated in the first wave of data collection (i.e., during the intake process at the institutions, which will be referred to as T1). In addition, for a subsample of these youth, follow-up data had been collected on at least one more time point ( $n = 207$ ), which will be referred to as T2. For the present study, we included participants who completed the identity interview, and who had data on negative affectivity and personality functioning at T1. This resulted in a smaller sample of 228 participants at T1 ( $M^{\text{age}} = 19.48$ ,  $SD = 2.02$ ), 73.2% of which was female. Of the individuals for whom a diagnosis was recorded in the system ( $n = 162$ ), the majority was diagnosed with a personality (41.4%) or mood disorder (24.7%). Out of the 228 participants, data on personality functioning at T2 was available for 84 individuals, which made up the longitudinal sample of the study. Most of these follow-up assessments took place 6 months after intake (i.e., at Wave 2;  $n = 55$ ) or 1 year after intake (i.e., at Wave 3;  $n = 17$ ). A full description of the sample, including the age, gender, and diagnosis distribution is provided in Table 1. The data are not publicly available due to privacy and ethical restrictions. The data that support the findings of this study are available on request from the first author.

Table 1  
*Descriptive statistics of the study variables (n = 228)*

	Mean (SD)/ N (%)	Range
Age	19.48 (2.02)	14.00–23.00
Gender (female)	167 (73.2%)	
Diagnosis*		
Personality disorder	67 (41.4%)	
Mood disorder	40 (24.7%)	
Anxiety disorder	15 (9.3%)	
Post-traumatic stress disorder	13 (8.0%)	
ADHD	12 (7.4%)	
Obsessive-compulsive disorder	6 (3.7%)	
Autism	5 (3.1%)	
Other	4 (2.5%)	
Negative affectivity	1.77 (0.63)	0.25–3.00
Self-event connections (yes)	188 (82.5%)	
Event valence		
Negative	150 (66.4%)	
Neutral	44 (19.5%)	
Positive	32 (14.2%)	
Connection valence		
Negative	67 (35.6%)	
Neutral	82 (43.6%)	
Positive	39 (20.7%)	
Event types**		
Social	119 (50.4%)	
Health	40 (16.9%)	
Achievement	28 (11.9%)	
Self-development	19 (8.1%)	
Transition	14 (5.9%)	
Other	16 (6.8%)	
Personality functioning at T1	1.56 (0.49)	0.33–3.00
Personality functioning at T2	1.43 (0.58)	0.00–2.75

*Note.* Higher scores on the personality functioning measure (LPFS-BF) indicate lower functioning.

\* Of the 162 individuals for whom a diagnosis was recorded.

\*\* Of the 236 narratives for which this was coded.

## Measurement instruments

### *Turning point narratives*

Self-event connections were coded in turning point narratives at T1. Participants were asked to report a moment in their lives which they considered a turning point in their view of themselves or of the world, which was explained to them with a newly-designed info-graphic. Using this figure, participants were given information on what a turning point is (i.e., “If you look back on your life, you can often identify one moment that was a “turning point”, something happened that made you look differently at yourself or at the world”; “It is one moment that has made a big impression on you”), and what is not (i.e., “But not a longer period, such as a vacation. It *can* of course be one particularly pleasant or unpleasant moment on vacation”). They were then asked to write down a turning point in their life story. Later, they were invited during a semi-structured interview to tell more about this moment, how it made them think and feel, and what they wanted at that moment. They were also asked why it was important and what it says about who they are or who they want to be. Most of the narratives were about social events (e.g., romantic breakup, being abandoned or betrayed by a friend, parental divorce; 51.5% and 43.3% at T1 and T2), health (e.g., psychological health and illness, physical health; 16.0% and 23.3%), or achievement or failure (e.g., dropping out of school, getting a diploma; 11.7% and 13.3%). A complete distribution of the types of events is presented in Table 1.

The resulting narratives were transcribed and coded for the presence (1; e.g., becoming more mistrustful of others after a partner cheats on them, an event happening because they are always very reckless) or absence (0; e.g., feeling sad after a grandparent dies) of an explicit connection between the self and the event, following the coding system developed by Pasupathi et al. (2007) and adapted by Lilgendahl and McLean (2020). This particular adaptation has been implemented in previous studies in Dutch youth before (e.g., See et al., 2021; Van Doeselaar et al., 2020), but not yet in youth with severe psychopathology. In addition to this general coding, narratives in which self-event connections were made were also coded for event and connection valence. For both types of valence, we coded whether the valence was positive (1; e.g., getting a good grade, becoming more self-assured), negative (2; being bullied, not daring to ask anyone for help), or neutral/ambiguous (3; going from primary to secondary school, realizing not everyone can be trusted). For our analyses, valence was recoded to negative = -1, neutral/ambiguous = 0, and positive = 1.

In the APOLO project, each narrative was coded by two independent coders. Reliability of the

main coders was acceptable for self-event connections (Cohen's  $\kappa = .65$ , 90% intercoder agreement) and for event and connection valence ( $\kappa = .77$ , 88% agreement and  $\kappa = .64$ , 74% agreement, respectively). Disagreements in the absence/presence of a self-event connection and valence were discussed by the coders until consensus was reached.

### *Negative affectivity*

Negative affectivity was measured at T1 with 12 items from the PID-5-100 (Koster et al., 2020; Maples et al., 2015), which is a shortened form of the Personality Inventory for DSM-5 (PID-5; Krueger et al., 2012). The domain negative affectivity is a combined score of the three facets emotional lability, anxiousness, and separation insecurity (see scoring instructions Krueger et al., 2012). The total PID-5-100 questionnaire consists of 100 items, that were answered on a scale from 0 (*not at all true or often untrue*) to 3 (*completely true or often true*). Higher scores on the items indicate higher negative affectivity. An example item of negative affectivity is: "I never know where my emotions will go from moment to moment". Previous work has found acceptable validity and reliability of the PID-5-100 (Al-Dajani et al., 2015). In the present study, reliability of the negative affectivity domain was good, with a Cronbach's alpha of .85.

### *Personality functioning*

We used the Level of Personality Functioning Scale – Brief Form (LPFS-BF; Hutsebaut et al., 2016) to examine personality functioning at T1 and T2. The questionnaire consists of 12 questions, which were answered on a scale ranging from 1 (*not at all true or often untrue*) to 4 (*completely true or often true*). As the items are framed as issues or hurdles individuals may experience, higher scores indicate lower personality functioning. The 12 items clustered into four subscales, which in turn clustered into two higher domains: self-functioning (identity and self-direction subscales) and interpersonal functioning (empathy and intimacy subscales). The self-functioning scales contain questions about individuals' ability to manage the self and their goals in daily life. The items pertain to how individuals regulate their emotions, how well they understand themselves, and their ability to set realistic goals and pursue them. Example items of the self-functioning scale are "I often do not understand my own thoughts and feelings" and "I often make unrealistic demands on myself". The items on interpersonal functioning pertain to individuals' ability to experience empathy and intimacy in their social relationships (example items: "I often have difficulty understanding the thoughts and feelings

of others” and “I often do not succeed in cooperating with others in a mutually satisfactory way”).

The LPFS-BF was shown to have acceptable reliability in previous research for the total scale, as well as for the higher domains (Bach & Hutsebaut, 2018; Hutsebaut et al., 2016). In the present study, the two domains were combined into one score of personality functioning. However, despite a strong correlation between the domains ( $r = .31$  and  $r = .38$  at T1 and T2, respectively), a confirmatory factor analysis showed that a single factor model did not fit the data well (CFI = .583, RMSEA = .126 and CFI = .539, RMSEA = .187 for T1 and T2). In comparison, a two-factor solution fit the data better (CFI = .845, RMSEA = .078 and CFI = .795, RMSEA = .126), although still not acceptably (Hooper et al., 2008). Given the rather questionable fit of the model, in addition to the analyses on the combined construct we also present the cross-sectional analyses with the two domains as separate outcomes in Table S2 and S3 of the Supplementary Material. The reliability of the combined construct was acceptable, with a Cronbach’s alpha of .74 and .82 for the total scale of personality functioning at T1 and T2, respectively.

## Statistical plan

### *Main analyses*

All main analyses were performed using the “lavaan” R package (Rosseel, 2012). We first performed our pre-registered, cross-sectional analyses. To examine to what extent the making of self-event connections was associated with personality functioning, and whether the link of self-event connections with functioning was different for different combinations of event and connection valence, we performed two multiple regression analyses. First, we tested a main effect model, where we examined whether or not making a self-event connection explained variance in personality functioning (Figure 1a), controlled for negative affectivity, gender, and age. Secondly, in the subsample of individuals who made a self-event connection, we tested a model with event valence and connection valence as independent variables. In the second step of this model, we added the interaction of event valence and connection valence, to see whether the effect of connection valence was dependent on the positive or negative nature of the event (Figure 1b). Negative affectivity, gender, and age were also added as control variables<sup>1</sup>. An alpha of .05 was used to test the significance of

1 On the request of the editor, we also tested the model with dummy variables for event and connection valence. The findings of this analysis largely mirrored those of the main analyses. However, there was now also a significant effect of the positive event valence dummy, indicating that narrating a positive event was associated with higher functioning. The results from this additional model are described in more detail in the Supplementary Material, Table S1.

effects. Benchmarks set by Funder and Ozer (2019) for longitudinal psychological research were used to evaluate the size of effects, with standardized effects of .05 considered very small, .10 considered small, .20 medium, and .30 large.

Next, we examined the same associations longitudinally, with the only difference being that the outcome variable, personality functioning, was measured at T2 instead of T1. Personality functioning at T1 was included as a control variable.

### *Preparatory analyses*

As described above, the final sample of this study was smaller than the total number of participants in the APOLO study, as we selected only individuals with data on all of our main variables at T1. The turning point interview in particular was a challenging aspect of the data collection, especially for younger participants, and proved to be a bottleneck in selection. This was potentially because in contrast to the questionnaire which could be filled out on a computer at home, the interview was completed at the institution. Compared to APOLO participants not selected for our study, those included in the present study were on average older ( $t(406.07) = -0.97, p = .033, M_{\text{included}} = 19.48, M_{\text{excluded}} = 19.29$ ), and reported higher negative affectivity ( $t(386.11) = -2.16, p = .031, M_{\text{included}} = 1.77, M_{\text{excluded}} = 1.63$ ) and lower functioning ( $t(371.78) = -2.84, p = .005, M_{\text{included}} = 1.56, M_{\text{excluded}} = 1.41$ ). The sample of included and excluded participants did not differ in the distribution of their diagnoses ( $\chi^2(12) = 14.68, p = .259$ ) or gender ( $\chi^2(1) = 0.26, p = .612$ ).

Before starting our main analyses, we conducted two power analyses for the statistical analyses to ensure that we had enough power to detect effects of self-event connections on personality functioning. We did this by estimating how large a sample would be required to detect an effect of an estimated size, given power and alpha. Power analyses were performed in the G\*power program, version 3.1. Power was set to at least .80 and alpha to .05 (two-tailed).

For all our models (i.e., the basic model with absence vs. presence of a self-event connection and the model with valence) we estimated the required sample size. Based on previous work (e.g., Banks & Salmon, 2012; McLean et al., 2010; McLean et al., 2020; Merrill et al., 2016), we expected to find a small to medium effect ( $f^2 \geq 0.10$ , rounded up from 0.095). To find an effect of at least .10 in each model, it was estimated that we would need a sample of at least 81 individuals. All analysis code is available on the project OSF page: <https://osf.io/n4v2k/>.

## Results

### Descriptive statistics

Descriptive statistics of the study variables are provided in Table 1. On both negative affectivity and personality functioning, participants scored on average around the midpoint of the scale, meaning that they tended to neither agree nor disagree strongly with the items. Many of the participants made a self-event connection (82.5%), of which neutrally valenced connections were most often made (43.6%). Neutrally valenced connections were not significantly more common than negative connections (35.6%;  $\chi^2(1) = 1.51, p = .219$ ) but were more common than positive connections (20.7%;  $\chi^2(1) = 15.28, p < .001$ ). Negative connections were also significantly more common than positive connections ( $\chi^2(1) = 7.40, p = .007$ ). With regards to event valence, the vast majority of youth reported negative events (66.4%), which was significantly more often than neutral events (19.5%;  $\chi^2(1) = 51.44, p < .001$ ) and positive events (14.2%;  $\chi^2(1) = 64.06, p < .001$ ). Neutral and positive events did not differ significantly in the frequency with which they were reported ( $\chi^2(1) = 1.03, p = .310$ ).

Correlations between the variables are reported in Table 2. Youth who reported higher negative affectivity reported poorer personality functioning at T1 ( $r = .58, p < .001$ ), and T2 ( $r = .27, p = .014$ ). Self-event connections were not related to personality functioning at T1 ( $r = .07, p = .280$ ) and T2 ( $r = .16, p = .147$ ), nor to negative affectivity ( $r = .04, p = .581$ ), indicating that whether or not youth made self-event connections was not related to their level of functioning and level of negative affectivity. With regards to valence, there was a consistent pattern of small-to-medium negative correlations for event and connection valence with personality functioning at T1 and T2 and with negative affectivity. This indicates that the positivity (versus negativity) of the event that youth reported on and of the connection that they made to the self was both related to higher personality functioning (for T1:  $r = -.30, p < .001$  and  $r = -.25, p = .001$  respectively, for T2:  $r = -.34, p = .001$  and  $r = -.25, p = .037$ ) and lower negative affectivity ( $r = -.21, p = .002$  and  $r = -.25, p < .001$ ). Finally, there was also a strong positive correlation between event and connection valence ( $r = .52, p < .001$ ) and between personality functioning at T1 and T2 ( $r = .58, p < .001$ ). This shows that the valence of the event tended to correspond with the valence of the connection, and that youth who reported high functioning at one point were also more likely to do so at a later point.

## Main analyses

### Cross-sectional analyses

To examine whether personality functioning at T1 was explained by self-event connections, we performed a regression analysis, controlling for negative affectivity, gender, and age (see Table 3). Findings showed that self-event connections were not related to youth functioning. However, youth who scored higher on negative affectivity on average reported lower functioning.

Table 2  
Correlations between the study variables ( $n = 228$  at T1,  $n = 84$  at T2)

	1.	2.	3.	4.	5.
1. Personality functioning T1					
2. Negative affectivity	.56*				
3. Self-event connections	.07	.04			
4. Event valence	-.30*	-.21*	-.01		
5. Connection valence	-.25*	-.25*	–	.52*	
6. Personality functioning T2	.58*	.27*	.16	-.34*	-.25*

Note. No correlation is reported between self-event connections and connection valence, as connection valence could only be coded for narratives that contained a connection.

Higher scores on the personality functioning measure (LPFS-BF) indicate lower functioning.

\* =  $\alpha < .05$

Table 3  
Unstandardized and standardized coefficients of the regression of personality functioning on self-event connections in the full dataset ( $n = 228$ )

Independent variables	<i>b</i>	<i>SE</i>	$\beta$	<i>p</i>	[LLCI, ULCI]
Gender	-0.04	.06	-0.04 <sup>†</sup>	.531	[-0.16, 0.08]
Age	0.01	.01	0.03 <sup>†</sup>	.559	[-0.02, 0.03]
Negative affectivity	0.44	.04	0.57***	< .001	[0.35, 0.53]
Self-event connections	0.07	.07	0.05 <sup>†</sup>	.326	[0.03, 0.39]

Note.  $R^2$  for personality functioning = 31.6%.

LLCI and ULCI = 95% lower limit and upper limit confidence interval.

Higher scores on the personality functioning measure (LPFS-BF) indicate lower functioning.

\*\*\* = large, \*\* = medium, \* = small, and <sup>†</sup> = very small based on benchmarks by Funder and Ozer (2019).

Next, to test whether event and connection valence may explain how self-event connections are related to personality functioning in the subsample of participants who made a self-event connection, we conducted a regression analysis of functioning on valence and negative affectivity (Table 4). Neither event nor connection valence was related to youth's level of



personality functioning, which indicates that the positivity (versus negativity) of the event and the connection made in the narrative did not explain differences in personality functioning after taking into account negative affectivity, gender, and age. As in the analysis in the complete dataset, higher negative affectivity was related to lower functioning. In a second step, we included the interaction of event and connection valence as a predictor in the model. Like the main effects, the interaction term did not relate to personality functioning. This indicates that the association of connection valence with functioning was independent of the valence of the event.

Table 4

*Unstandardized and standardized coefficients of the regression of personality functioning on event valence and connection valence in the subset of individuals with a self-event connection (n = 188)*

Independent variables	<i>b</i>	<i>SE</i>	$\beta$	<i>p</i>	[LLCI, ULCI]
<b>Step 1</b>					
Gender	-0.03	.07	-0.03 <sup>†</sup>	.621	[-0.17, 0.10]
Age	0.01	.01	0.02 <sup>†</sup>	.714	[-0.02, 0.03]
Negative affectivity	0.45	.05	0.57***	< .001	[0.36, 0.55]
Event valence	-0.08	.05	-0.12*	.069	[-0.17, 0.01]
Connection valence	-0.03	.05	-0.04 <sup>†</sup>	.546	[-0.12, 0.06]
<b>Step 2</b>					
Event valence × connection valence	-0.02	.06	-0.02 <sup>†</sup>	.746	[-0.14, 0.10]

*Note.* Reported estimates were derived from the step 1 model, without the interaction term between event and connection valence. Only the interaction term estimate was derived from the full, step 2 model.

$R^2$  for personality functioning for the full model = 38.3%.

LLCI and ULCI = 95% lower limit and upper limit confidence interval.

Higher scores on the personality functioning measure (LPFS-BF) indicate lower functioning.

\*\*\* = large, \*\* = medium, \* = small, and <sup>†</sup> = very small based on benchmarks by Funder and Ozer (2019).

### *Longitudinal analyses*

After testing the cross-sectional associations, we performed similar analyses with personality functioning at T2 as outcome variable, controlling for functioning at T1. First, we examined whether self-event connections could predict functioning at T2 (Table 5). In line with the cross-sectional models, we found no predictive effect of self-event connections on personality functioning, indicating that whether or not youth made a self-event connection was not associated with their later functioning. However, in contrast to our previous findings, negative affectivity also did not predict personality functioning. There was a strong association of

personality functioning at T1 with functioning at T2, indicating that youth functioning was highly stable across this time interval. Similarly, in the subset of individuals who made a self-event connection, only previous functioning was associated with personality functioning at T2<sup>2</sup> (Table 6). Neither event or connection valence, nor their interaction were predictors of later functioning.

Table 5  
*Unstandardized and standardized coefficients of the regression of personality functioning at T2 on self-event connections at T1 in the full dataset (n = 84)*

Independent variables	<i>b</i>	<i>SE</i>	$\beta$	<i>p</i>	[LLCI, ULCI]
Gender	0.01	.13	0.01 <sup>†</sup>	.928	[-0.23, 0.26]
Age	<-0.01	.03	<-0.01 <sup>†</sup>	.964	[-0.05, 0.05]
Personality functioning T1	0.69	.13	0.58***	< .001	[0.44, 0.93]
Negative affectivity	-0.01	.12	-0.01 <sup>†</sup>	.932	[-0.24, 0.22]
Self-event connections	0.06	.14	0.04 <sup>†</sup>	.639	[-0.20, 0.33]

Note.  $R^2$  for personality functioning = 33.9%.

LLCI and ULCI = 95% lower limit and upper limit confidence interval.

Higher scores on the personality functioning measure (LPFS-BF) indicate lower functioning.

\*\*\* = large, \*\* = medium, \* = small, and <sup>†</sup> = very small based on benchmarks by Funder and Ozer (2019).

### Robustness analyses

In addition to the analyses aiming to test our hypotheses, we also conducted several additional analyses to test the robustness of our findings. First, to check whether our decision to treat self-functioning and interpersonal functioning as one outcome (i.e., personality functioning) influenced our findings, we reran the cross-sectional models presented in Figure 1a and Figure 1b with the two subscales as separate outcomes. Findings from these models did not differ much from those of our main analyses, with the exception that here event valence was associated with self-functioning, showing that individuals who wrote about positive events reported higher functioning. See Table S2 and S3 of the Supplementary Material for a full description of the findings of these models.

Second, in our main analyses we included negative affectivity as a predictor because it may confound the association between self-event connections and personality functioning. The

2 Interestingly, there was a substantial, significant correlation between negative affectivity and personality functioning at T2, as was the case for functioning at T1 (Table 2). This suggests that the predictive effect of negative affectivity may be explained entirely by other variables in the regression model such as youth's functioning at an earlier point.

findings from our cross-sectional analyses and the bivariate correlations corroborated the strong associations of negative affectivity with the other predictors and with our outcome. Because of these strong associations, we reran our cross-sectional models without negative affectivity (see Table S4 and S5), to test whether negative affectivity may have explained away potential modest effects of self-event connections and event and connection valence. The findings from these models largely mirrored those of our main analyses. However, in the subsample of individuals who made a self-event connection, discussing positive events was now related to better personality functioning.

Finally, there was a significant correlation of event valence with personality functioning (Table 2) and event valence emerged in several post-hoc analyses as associated with functioning (Table S1 and S3), most notably when we did not control for negative affectivity (Table S5). Therefore, we considered that event valence may play a mediating role between negative affectivity and personality functioning (see Table S6). The findings from a mediation analysis corroborated the strong association of negative affectivity with event valence and personality functioning, and the association of event valence with personality functioning, but did not provide support for a mediating role of event valence.

Table 6

*Unstandardized and standardized coefficients of the regression of personality functioning at T2 on event valence and connection valence at T1 in the subset of individuals with a self-event connection (n = 68)*

Independent variables	<i>b</i>	<i>SE</i>	$\beta$	<i>p</i>	[LLCI, ULCI]
<b>Step 1</b>					
Gender	0.10	.13	0.08*	.455	[-0.16, 0.36]
Age	0.01	.03	0.05 <sup>†</sup>	.585	[-0.04, 0.07]
Personality functioning T1	0.57	.13	0.50***	< .001	[0.33, 0.82]
Negative affectivity	0.15	.13	0.14*	.256	[-0.11, 0.40]
Event valence	-0.10	.09	-0.12*	.266	[-0.27, 0.07]
Connection valence	-0.06	.09	-0.08*	.498	[-0.23, 0.11]
<b>Step 2</b>					
Event valence x connection valence	-0.17	.13	-0.15*	.176	[-0.42, 0.07]

*Note.* Reported estimates were derived from the step 1 model, without the interaction term between event and connection valence. Only the interaction term estimate was derived from the full, step 2 model.

$R^2$  for personality functioning for the full model = 44.8%.

LLCI and ULCI = 95% lower limit and upper limit confidence interval.

Higher scores on the personality functioning measure (LPFS-BF) indicate lower functioning.

\*\*\* = large, \*\* = medium, \* = small, and <sup>†</sup> = very small based on benchmarks by Funder and Ozer (2019).

## Discussion

In the present study we examined whether the ability of youth to connect events they have experienced to aspects of who they are (i.e., self-event connections) is related to their personality functioning at the same and a later time point. In addition, as this association may depend on how these connections are made, we investigated the role of valence of the event and valence of the connection for youth's personality functioning. We examined these relations in youth with severe psychopathology, who have often experienced many negative events and for whom the connection of these events to the self may play a key role in the development and treatment of their pathology. Our cross-sectional findings showed that making self-event connections was not related to personality functioning at the same time point. Individuals who narrated about a positive event did report higher functioning, but not after controlling for their levels of negative affectivity. Neither connection valence nor the interaction between event and connection valence was related to functioning. Negative affectivity was strongly and negatively related to functioning in both analyses. Longitudinally, personality functioning was highly stable across the measurement interval. None of the narrative variables nor negative affectivity predicted later personality functioning, although negative affectivity was substantially correlated with later functioning.

### **Self-event connections and personality functioning**

Whether youth made connections between an event and aspects of the self was not related to personality functioning. Notably, this is in contrast to our expectations, which were based on the notion that self-event connections help individuals create consistency and continuity in their life story (Pasupathi et al., 2007), and thus are related to more positive outcomes. Moreover, individuals from healthy populations who were unable to make such connections tended to experience feelings of discontinuity (Habermas & Köber, 2015), and individuals with a greater ability for autobiographical reasoning reported better adjustment (for an overview, see Adler et al., 2016 and McLean et al., 2020) and a more developed and clearer sense of self (McLean & Pratt, 2006; Van Doeselaar et al., 2020).

The fact that we found a very small, non-significant association, rather than a positive association of self-event connections with personality functioning, may be directly related to characteristics of the sample under study. In fact, the characteristics of our sample may point to aspects that are suggested as red flags for “when not to reason” (context; McLean &

Mansfield, 2010). First, it may be related to the types of *events* discussed. Our sample is likely to have experienced many stressful and traumatic life events (MacIntosh et al., 2015; Sandberg et al., 1998), and they also disproportionately discussed a negative event in their turning point narrative, while neutral and positive events were much less common (see Table 1). Therefore, the association of self-event connections with personality functioning seems to be largely based on connections made to negative events. We also found negative event valence to be associated with lower personality functioning. Thus, if making a self-event connection is indeed less adaptive for a negative event because the event becomes a reference point for the individual (Berntsen & Rubin, 2007), this would explain why the overall effect may have averaged out to non-significant in our study.

Unfortunately, we cannot directly test the assertion that our participants were more likely to discuss negative events than healthy individuals, because past studies on event valence did not report the distribution of events (e.g., McLean & Fournier, 2008). Moreover, it is important to note that the degree of negativity of events may differ, where youth with severe psychopathology may have experienced more extremely negative and even traumatic events than youth in healthy populations. Perhaps most relevant for the purpose of comparison, in their study on autobiographical reasoning and well-being in midlife, Lilgendahl and McAdams (2011) reported an average event valence of 2.72 on a scale from 1 (*very negative*) to 5 (*very positive*). This suggests that in this healthy population sample, events were on average closer to neutral than to being negative. In the present study we found a significant negative correlation between event valence and negative affectivity, indicating that individuals with higher levels of negative affectivity more often discussed negative events. As negative affectivity has been consistently linked to pathology (e.g., Kotov et al., 2010; Kruger & Markon, 2006; Lahey, 2009; Tackett et al., 2013), this suggests that youth with pathology, as in our sample, may indeed more often discuss negative events than youth from the general population. Moreover, not just the negativity versus positivity of the events, but also other aspects such as the content or type of events may affect the role of self-event connections in personality functioning. For instance, narrating negative events that occurred outside of one's control versus those that occurred at least partially through one's own fault might be differently related to personality functioning (Mansfield et al., 2010). Similarly, the stigma attached to an event may make it more or less adaptive to narrate about (Delker et al., 2020). We may hypothesize that in addition to a difference in the percentage of negative events, a difference may exist in the type of events discussed by youth from the general population

versus by those with psychopathology. However, more research with a larger sample is needed to make a direct comparison of the types of events discussed in normative populations compared to those in youth with severe psychopathology.

A second potential explanation for the non-significant association might lie in other aspects of the self-event *connections*, such as the content and complexity. First, it is important to look at what a connection is about. For many individuals with pathology, ambiguity may exist about what constitute parts of the self and what parts of the disorder (Dings, 2020). As a result, parts of the pathology may knowingly or unknowingly become part of one's identity (Cruwys & Gunaseelan, 2015; Marcia, 2006), which is thought to strengthen the symptoms and make treatment and ultimately recovery more difficult because individuals see the pathology as less changeable (Klimstra & Denissen, 2017). Second, not every self-event connection is equally complex, and it is possible that more complex connections are differently associated with personality functioning than less complex connections. Although it has been suggested that making self-event connections may be more difficult and thus more rare for individuals with severe pathology (e.g., bipolar disorder; Pederson et al., 2017), we found that most youth were able to link the event to the self (82.5%). This is in line with research in a general population which shows that by late adolescence, most youth have developed the ability for autobiographical reasoning (e.g., Habermas & Paha, 2001; McLean et al., 2010). However, the meaning derived from the event can be more or less deep and complex. For instance, stability self-event connections are considered less complex than change connections because they do not facilitate development or change in identity (Pasupathi et al., 2007). Moreover, pathology may affect meaning making processes (McKay et al., in press). Thus it is possible that youth with severe pathology – regardless of being able to make self-event connections – make less complex connections or less complex or coherent narratives in general. Therefore, content and complexity may explain individual differences in youth personality functioning, regardless of whether the valence of the event or the connection is negative or positive.

Finally and relatedly, it is important to consider that self-event connections may be less associated with functioning for youth with severe psychopathology. Asking questions (e.g., “What did you think and feel during this moment?”, “What does this moment say about who you are or who you want to be?”) helps participants scaffold their narratives. This is the case in all narrative studies that use prompts and follow-up questions, but may be especially important when studying youth with severe pathology. Youth with severe pathology such as

borderline personality disorder experience poorer intuition and mentalizing in daily life than may be expected based on their “maximum capacity”, due to the presence of interpersonal stressors in their lives (Fonagy et al., 2015). Thus, for youth with severe psychopathology, there may be a gap between the self-event connections they are able to make following a narrative prompt and questions and the connections they make in daily life. As a result, these former connections may be less related to actual functioning.

In sum, whether due to more frequent discussion of negative events or due to specific characteristics of the self-event connection or of our population, our findings on the association of self-event connections with personality functioning show that making a self-event connection may not always be related to better functioning. More research examining both clinical and healthy population samples and more research examining the qualitative aspects of self-event connections is needed to better understand the difference in findings with previous research.

### **Event and connection valence, negative affectivity, and personality functioning**

Similarly in contrast to our hypotheses, we found a very small to small, non-significant association of event and connection valence with personality functioning in our regression analyses when controlling for negative affectivity. There was also a very small to small non-significant relation of the interaction between event and connection valence with functioning. However, it should be noted that both event and connection valence were negatively correlated with negative affectivity and personality functioning with a medium to large effect size, indicating that youth who discussed negative events and made negative connections reported higher levels of negative affectivity and lower functioning. Negative affectivity was also strongly correlated to lower personality functioning. Moreover, and in line with previous research suggesting it to be a sort of general vulnerability factor (Brandes et al, 2019; Tackett et al., 2013), negative affectivity emerged as an explaining variable in the cross-sectional regression analyses and was substantially correlated with functioning at a later time point, both with effect sizes that were large to very large. In our post-hoc cross-sectional regression analyses without negative affectivity, we found that more positive event valence was significantly associated with higher levels of personality functioning (Table S5 of the Supplementary Material), with a medium effect size. This finding indicates that event valence and negative affectivity show overlap in their share of explained variance in personality functioning, and that the overall negative link between self-event connections

and functioning may indeed be explained by the overrepresentation of negative events in the turning point narratives.

For future work, it would be interesting to further examine the underlying mechanisms that explain why youth with higher levels of negative affectivity experience greater impairment. With regards to event valence, we may expect that youth with higher levels of negative affectivity are more likely to discuss negative events in their turning point narrative, because they also experience more negative (person-dependent) events (e.g., Jeronimus et al., 2014; Laceulle et al., 2015). In addition, and perhaps even more important than objectively experienced stressful events, individuals high on negative affectivity are more likely to experience events as stressful (Widiger et al., 2002; Uziel, 2006). Finally, being high on negative affectivity makes individuals more likely to ruminate (e.g., Robinson, 2007; Robinson et al., 2007), which may result in a greater focus on negative events (Michl et al., 2013; Moberly & Watkins, 2008; Ogle et al., 2017). These factors may all contribute to a greater likelihood for individuals with high levels of negative affectivity to discuss negative events in their turning point narratives and to do so in less adaptive ways. Furthermore, they suggest that the effects of a more distant personality trait like negative affectivity might be explained by more applied, here-and-now narrative processes. A post-hoc test of the association between negative affectivity and personality functioning as mediated by event valence did not suggest significant mediation (Table S6 in the Supplementary Material). Therefore, these findings suggest that rather than a mediation model, a spurious association may underlie negative affectivity, event valence, and personality functioning, where the former explains both the predictor (i.e., event valence) and outcome (i.e., personality functioning) in our main analyses. However, it should be noted that this mediation model was based on cross-sectional data, and that longitudinal data with at least three time points would be needed to appropriately test for mediation.

### **Limitations**

To our knowledge, the present study was the first to examine self-event connections and the link to adjustment in a sample of youth with severe psychological problems, yielding important new insights into the importance of narrative identity. In addition, the study went beyond investigating the overall link but also focused on event and connection valence as potential explaining factors. Finally, our sample consisted of youth with diverse pathology, making that our results do not only apply to individuals with a specific type of pathology.



However, some limitations also need to be addressed. Firstly, and related to this latter point, the fact that we included a wide array of psychopathologies may also have influenced our findings. The illness experiences of youth with the different pathologies (e.g., personality disorders, mood disorders, ADHD) are quite different and may have played a role in the non-significance of our findings regarding self-event connections. In the future, research should target more homogeneous clinical populations to better understand the association between self-event connections and personality functioning in specific clinical populations. Secondly, although longitudinal data was already available for some youth in the APOLO project, this subsample was rather small ( $n = 84$ ). Caution should be taken with the interpretation of the cross-sectional effects because they cannot show directionality of effects, and with the interpretation of the longitudinal effects because of the small sample size. Although our power analyses suggested that we had enough participants to detect small-to-medium effects, it is possible that smaller longitudinal effects were not picked up on. Indeed, the regression coefficients found for self-event connections, event valence, and connection valence were small across all models, suggesting that a larger sample would have been needed to detect potential effects for these narrative aspects. Therefore, future longitudinal research should explicitly examine directionality using a larger sample, as it could be that the directionality is reversed or even that the studied associations are bidirectional, with narrative identity predicting individual differences in functioning and functioning of youth predicting individual differences in narrative identity. Such research should further investigate change over time, to examine whether (lack of) change in the narratives of youth may play a maintaining or healing role in their functioning. For instance, past clinical work has examined the effects of increasing feelings of agency and connectedness to others to improve well-being (e.g., Adler, 2012; Adler et al., 2008). It is possible that increasing or decreasing meaning derived from events, or changing the particular meaning derived, may also result in improved functioning.

Third, given the unexpected non-significance of the association between self-event connections and personality functioning, it would have been useful to be able to make a direct comparison to a healthy population. For instance, it would be interesting to compare the event and connection valence distribution to see whether the overrepresentation of negative events may indeed provide an explanation for the non-significant association between self-event connections and personality functioning that was found. It is important for future research to directly compare results in a clinical and healthy population, to improve

our understanding of where the differences come from.

Finally, the association between personality functioning and negative affectivity may have been overestimated due to shared-method variance (Podsakoff et al., 2012). Although shared-method bias is unlikely to completely account for the association as a link with overall well-being has consistently been found across studies (e.g., Kotov et al., 2010; Krueger & Markon, 2006; Lahey, 2009), it is important that future work includes other measures such as other-report questionnaires or observations to reduce bias.

### **Conclusion**

The present study examined whether self-event connections could explain and predict individual differences in personality functioning in a sample of youth with severe psychopathology. In addition, event and connection valence were investigated to gain more insight into the general association between self-event connections and functioning. Contrary to previous work, our findings showed that making self-event connections was not significantly related to personality functioning at the same time point or the next. This may be due to the large number of negative events in the turning point narratives, which may be less adaptive to link to the self and may have thus leveled out the positive association of self-event connections with functioning. However, future studies should also examine other aspects of self-event connections, such as connection content and complexity. As expected, negative affectivity emerged as a strong explaining and, tentatively, predicting variable of functioning. Connection valence was not associated with personality functioning, nor was the interaction of event and connection valence. Event valence had a medium association with personality functioning after excluding negative affectivity as a predictor, suggesting that negative affectivity may have affected both the predictor and outcome in this association.





# 8

## Who am I? Studying Identity Processes, Narrative Aspects, and Narrative Content in Unison

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Study pre-registered at: <https://osf.io/n7zay>

## Abstract

*Introduction.* Identity is a complex construct capturing multiple processes and aspects of adolescents' sense of self. However, research has often neglected identity content, leaving unclear what its role is in the association of identity with well-being and of different identity processes with each other. *Methods.* Study 1 ( $N = 180$ ,  $M_{\text{age}} = 14.7$ ) examined the association of self-event connections in turning point narratives with general and domain-specific well-being, and the role of valence and content domain therein. Study 2 ( $N = 160$ ,  $M_{\text{age}} = 13.1$ ) linked self-event connections in a school transition narrative with similar well-being outcomes, and with educational identity processes. *Results.* No significant correlations of self-event connections with general and domain-specific well-being emerged in Study 1, even after distinguishing connections of differing content valence and domain. However, self-event connections in narratives about relational events were more strongly related to higher life satisfaction than in narratives about other types of events. There were also no correlations between identity and well-being in Study 2, nor between self-event connections and educational identity processes. *Conclusion.* Taken together, our findings suggest accounting for content may indeed be important, but a more fine-grained approach is needed to capture its role in identity.

*Keywords:* narrative identity aspects, identity processes, identity content, adolescence

### Author contributions

EM, TK, and SB conceptualized the study. All authors were responsible for data collection. EM analyzed the data and wrote the first draft of the manuscript. All authors provided feedback on the manuscript.

## Who am I? Studying Identity Processes, Narrative Aspects, and Narrative Content in Unison

Like many adolescents, Cady H. frequently engages with the question of who she is. Cady was homeschooled for the entirety of her primary and the first part of her secondary education. When her parents decided to move back to their home country, their daughter was placed in a local secondary school where she faced the difficult task of figuring out who she was in a context where other students had already made friends and formed cliques. Cady first became friends with several outcasts and then, when given the chance, started to spend time with the popular students. After a falling out with both cliques of peers and the realization that neither group fitted well with who she wanted to be, she pursued her interest in math and fell in with a crowd of peers with a similar interest<sup>1</sup>.

To answer the question of who Cady is – of what her identity is – we could potentially focus on different aspects or elements that are emphasized by different research traditions. Should we look at her commitment to doing what she finds interesting, taking into account that she first explored different cliques and their values and beliefs before rejecting them? Should we ask Cady to tell us her life story and how she thinks it contributed to her becoming the person she is today? In this story, we could then consider her ability to create a cohesive and integrated self-description explaining how her exploration of different cliques and the falling out with her peers led her to hold true to her own interests. We could also look at whether aspects of her lived experience are actively linked to who Cady has become as a person, for instance her choice to choose her own interests over trying to fit in. Or should we examine the content of her identity?

As can be seen in the example of Cady H., content in practice is interwoven with the processes and narrative aspects that are thought to capture identity. That is, what it means for someone to have explored, might depend on what options they considered. To know whether someone's self-view is integrated, we need to know about their lived experience and how the separate components of the experience are interweaved with the self in the narrative. Yet, identity research is often solely focused on either identity processes or narrative aspects, neglecting what these processes and aspects are about. In the present paper, we examined the potential meaning of valence and content domains when considering identity processes and narrative aspects.

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1 The example was adapted from the plotline of the 2004 movie *Mean Girls*.

**Linkages of identity processes and narrative aspects with adolescent well-being**

Ever since Erikson (1968) conceptualized identity as an important psychological and developmental construct, much research has been conducted on identity as a correlate, predictor, and outcome of well-being during adolescence (see Branje et al., 2021 for a recent overview). *Identity processes* such as commitment and exploration have been linked to various measures of well-being. Exploration of different identity options and commitment to one option capture the process of searching for and eventually forming an identity (Marcia, 1966). These processes can be further differentiated between ones that occur when adolescents are still searching for an identity (i.e., formation cycle; exploration in breadth and commitment making) and when they have found an identity but need to evaluate its fit (i.e., maintenance cycle; exploration in depth and identification with commitment; Crocetti et al., 2008; Luyckx et al., 2006). Adolescents with weaker commitments and more reconsideration of those commitments on average report more externalizing (e.g., Becht et al., 2016; De Moor et al., 2020; Levey et al., 2019) and internalizing problems (e.g., Kaniūšonytė et al., 2019; Van Doeselaar et al., 2018), whereas adolescents with a more strong and stable identity report higher self-esteem (Luyckx et al., 2013). Within individuals, increases in identity uncertainty have also been associated with a later increase in depressive symptoms and delinquency (Becht et al., 2019; Mercer et al., 2017).

Well-being has also been linked to *narrative aspects*. Identity can be understood as an internalized life story, which captures the narrative of how one has become the person they are and the role of different experiences in their lives therein (McAdams, 2001a, 2013). Different aspects of these narratives can be examined (e.g., Adler et al., 2016 and McLean et al., 2020 for recent reviews), but most research has focused on autobiographical reasoning, or adolescents' attempts to link together their past, present, and future into one cohesive and continuous narrative (Habermas & Bluck, 2000; McAdams, 2001a). One way in which adolescents can achieve this within the context of a single narrative is by making self-event connections in their narratives. These are explicit connections that tie an event to an aspect of the self (Pasupathi et al., 2007). Self-event connections have been associated with better well-being (e.g., McLean et al., 2010; Van Doeselaar et al., 2020). Thus, there are consistent positive associations of having a clear and stable sense of identity with well-being.



### **Bridging the gap: Identity processes and narrative aspects**

In contrast to their robust associations with life outcomes, identity processes and narrative aspects are only weakly and inconsistently related to each other. Narratives are thought to reflect one way through which exploration takes place and through which commitments are expressed and integrated with each other (McLean & Pasupathi, 2012). However, despite clear theoretical reasons for why and how the two could be related, empirical evidence for these associations is rather weak. For instance, identity statuses and meaning making (reflecting autobiographical processing in narratives) were only weakly correlated, with youth with low meaning making having a somewhat greater likelihood of being in a diffusion and foreclosure status (McLean & Pratt, 2006). Similarly, commitment and exploration processes were weakly associated with autobiographical reasoning and agency (Van Doeselaar et al., 2020), which reflect themes of autonomy and locus of control (Adler, 2012).

If identity processes and narrative aspects indeed reflect elements of the same underlying construct of identity, these weak associations may be puzzling, suggesting that the developmental state of some aspects of one's identity are quite independent from the state of other parts. This independence might be because past studies often did not account for the content of the identity processes and narrative aspects under study, although identity aspects in different life domains can develop quite independently (Goossens, 2001). For example, adolescents may start to think about who they are in the educational domain, but not in the political domain.

Research has provided some preliminary insights on how identity processes and narrative aspects may differ for different identity content domains. For instance, adolescents are more likely to engage in autobiographical reasoning in their narratives when they are talking about religion, occupation, and sex roles, in contrast to family and politics amongst other things (McLean et al., 2016). Moreover, identity processes such as meaning making are more prevalent in adolescents' and young adults' narratives when they discuss multiple life domains (e.g., achievement in school and moral values; McLean et al., 2016), potentially because these narratives tend to be more complex and thus need more integration to create a coherent whole. It is possible that if we consider the domains relevant to identity content when examining associations between identity processes and narrative aspects, we may find a more unified picture. Specifically, identity processes and narrative aspects may be more strongly associated with each other when they apply to the same life domain (e.g.,

relationships, education) instead of two different life domains.

Furthermore, accounting for identity content can also facilitate the understanding of linkages of identity with well-being. For example, strong commitments and well-developed self-event connections are generally thought and found to be connected to better well-being, because they both reflect a clearer sense of self and a greater ability to make sense of experiences. However, associations between identity processes and well-being are far from perfect (e.g.,  $\beta < .40$ , although more often  $< .20$ ; McLean et al., 2020). In part, this may be because a clearer sense of self is not beneficial in every situation and for everyone. For instance, making self-event connections may not be beneficial in all developmental periods (e.g., early adolescence; McLean et al., 2010; McLean & Mansfield, 2011) and for all adolescents (e.g., for youth with severe psychopathology; De Moor et al., 2021). How adaptive it is to have strong commitments and make self-event connections may also depend on what adolescents commit to or the connections that they make and about which events. Making self-event connections may be particularly important for negative events as it may lessen the negative affect associated with the event (McLean & Fournier, 2008). At the same time, integrating highly negative or even traumatic events into one's life story may be related to lower well-being (Berntsen & Rubin, 2007), because the event may gain a central role in and may even disrupt the narrative.

Across different life domains, adolescents may create an identity around many things, such as self-evaluations, social categories, personal aspects, and their relationships with others (Johnson et al., 2022). There may be differences in the positivity versus negativity of the content adolescents choose to identify with, which may be associated with their well-being (e.g., Holm & Kirkegaard Thomsen, 2018; Merrill et al., 2016). Some individuals may for example strongly identify with social roles opposing societal expectations (Hihara et al., 2018) or with their psychopathology (Cruwys & Gunaseelan, 2016), which may be related to poorer outcomes than a less strong identification with these contents or compared to adolescents who identify with more "healthy" content in these domains (Klimstra & Denissen, 2017). We may expect certain commitments (e.g., "being a motivated student") or certain connections (e.g., "this event showed me that I can do things when I put my mind to it") to be more beneficial than other commitments or connections (e.g., "being a loner", "this event made me distrustful"). Possibly, identity content might thus moderate the associations of identity processes and narrative aspects with adjustment, and may provide insight into the adaptiveness of identity. In particular, considering the positivity versus negativity (i.e.,

valence) as well as the domain of identity as a crude measure of content may be an important step in gaining a more fine-grained understanding of associations of identity with well-being.

### **The current study**

Identity processes and narrative aspects have both been consistently associated with well-being outcomes (e.g., Branje et al., 2021). However, associations between identity processes such as commitment and exploration and narrative aspects such as autobiographical reasoning are weak and inconsistent, possibly because previous studies often did not take into account the content of identity. A focus on content may improve the understanding of associations between identity processes and narrative aspects and give further insight into when having a strong identity may be related to higher or lower well-being. We conducted two studies to investigate the importance of including identity valence and content.

First, in a sample of adolescents who were 15 years-old on average, we studied data from a narrative on a turning point in the adolescents' lives. We examined whether the association of narrative aspects with life satisfaction one year later was dependent on the valence and content domain of the self and the turning point event in the narrative. Here, we expected that making self-event connections would be linked to higher life satisfaction for positive self or event valence and linked to lower life satisfaction for negative valence. We also examined the association of self-event connections with domain-specific life outcomes for different self and event content domains, separately. We expected that associations would be stronger when the domain of the content of the self and of the event in the narrative matched the domain of the life outcome than when there was a mismatch. Adolescents spend most of their time in school and with peers, and the question of their identity is also most salient in these domains (Heaven et al., 2008). Therefore, to examine the match or mismatch of the narrative and well-being we additionally examined identity in relation to a measure of well-being in the education and relational domain. We expected stronger associations of self-event connections with well-being when the life domain of the self and/or event in the narrative matched the life domain of well-being (e.g., educational-educational) than when they did not match (e.g., spiritual-educational).

Second, in a sample of adolescents who made the transition from primary to secondary school ( $M_{\text{age}} = 13$  years), we similarly examined the association between narrative aspects and well-being, and the role of content domain and valence therein. In particular, we again examined the relation of self-event connections with a general well-being outcome and

measures of educational and relational well-being. Given that the self-event connections were made in a narrative about the transition to secondary school, we expected a stronger association with the educational well-being measure than with the general and relational measure. Additionally, in this sample we investigated the correspondence between identity processes as measured with a questionnaire and narrative aspects coded in a short interview. Given that both the questionnaire and the interview were focused on the educational domain, we expected greater agreement than was found in previous studies, as evidenced by at least medium effect sizes. Specifically, we expected that making self-event connections would be related to higher levels of educational commitment and exploration, and lower levels of educational self-doubt and reconsideration. In a second step, we accounted for the valence of the connection. We hypothesized that making a self-event connection of negative valence would be associated with lower levels of commitment and exploration, and higher levels of reconsideration. We expected neutral- and especially positive-valence connections to be associated with higher commitment and exploration, and lower reconsideration. The research questions, hypotheses, and analyses of the current study were pre-registered at <https://osf.io/n7zay>.

## Study 1

### Method

#### *Participants and procedure*

Data from Project-Me was used in Study 1. The total study consisted of four annual measurement occasions, the first of which occurred in late 2015-early 2016. At the first measurement occasion 1,941 adolescents participated. Of these adolescents, 349 were also included in the longitudinal part of the study. We used narrative data from Wave 1 and well-being data from Wave 2 of the project. As not everyone (fully) completed Wave 2, our final sample consisted of 180 participants. The adolescents in the sample were on average 14.7 years-old ( $SD = 0.68$ ) at Wave 1, and a little over half of them identified as girls ( $n = 102$ , 56.7%). Compared to all participants who participated at Wave 1, youth in our longitudinal sample on average made more self-event connections,  $t(1,576) = -3.10$ ,  $p = .002$ , and were more often in the academic educational track,  $\chi^2(4) = 82.62$ ,  $p < .001$ . The sample did not differ from the full Wave 1 sample in terms of age,  $t(228.83) = 0.14$ ,  $p = .890$ , or gender distribution,  $\chi^2(1) = 1.08$ ,  $p = .299$ . General and educational well-being measures were not

included in the Wave 1 questionnaire and differences therein could therefore not be tested. For the project, various secondary schools in the south of the Netherlands were approached, of which seven schools decided to collaborate. Two weeks before data collection of Wave 1 commenced, parents of potential participants received a letter with information on the study and on how to opt their child out of participation. To participate, parents had to provide passive consent (i.e., consented unless they responded to the letter that they did not agree to participation of their child) and adolescents of 16 years-old or older had to provide active consent. Of the 2,130 adolescents across the seven schools, 91% agreed to participate. Data collection during the first wave occurred in classrooms during one class hour (45 or 50 minutes) and was supervised and guided by trained graduate students. Participants filled out questionnaires and wrote a turning point narrative on the computer. Participants were allowed to stop with the questionnaire after the allotted hour. They received no incentive for participation. Participants were contacted again for the second wave approximately one year after the first wave. When they agreed to participation, parents provided active consent when their children were younger than 16 years old, and passive content when their children were 16 years old or over. Adolescents provided assent or consent, respectively. Participants completed the questionnaire during their own time, and received 5 euros for their participation. Project-Me received ethical approval in December 2015 (protocol number: EC-2015.49) from the local ethical review board at Tilburg University. The anonymized Project-Me data used in the present study (i.e., without identifier, gender, age, and education variables) is made available at <https://osf.io/58xtc/>.

### *Measurement instruments*

**Self-event connections.** Several narrative aspects were coded in written turning point narratives from Wave 1 (for the English prompt, see McLean et al., 2010, as adapted from McAdams, 2008). For this task, adolescents were asked to write about a moment in their lives which they considered a turning point in their understanding of themselves. They were asked to describe what had happened, when it had happened, who was involved, and what they were thinking and feeling during the event. Additionally, they were requested to write why the event was important and what it may say about them and their personality.

These narratives were coded by trained graduate and undergraduate coders for *self-event connections* using the coding system developed by Pasupathi et al., (2007; and adapted by Lilgendahl & McLean, 2019). Following this system, the presence of one or multiple self-event

connections was coded when adolescents made explicit connections between the event and the self. This connection could reflect illustration/explanation (i.e., the event explains or illustrates an aspect of the self), dismissal (i.e., the connection is made to clarify to the listener that the event does not reflect the self), causation (i.e., the event brought about a change in the adolescent), or revelation (i.e., the event revealed a previously unknown but already existing part of the self). Self-event connections were only coded when these links were explicitly stated in the text and linked the event to the current self. The coders coded the narratives in groups of three. Each coder first determined their code independently and the initial codes of all three coders had an interrater reliability of  $\kappa = .61$  (71.7% interrater agreement). Discrepancies were then discussed until consensus was reached. These consensus-based codes were used in our analyses. For the present study, the self-event connection codes were transformed into a variable indexing the number of self-event connections made in the narrative (i.e., 0, 1, or more).

**Self and event valence and content.** Next, each narrative was coded for *valence* and *content* by two independent coders. Valence and content were determined for the “self” and the “event” in the narrative. Valence was decided following the participants’ own perspective in the narrative, unless this differed substantially from what would generally be perceived as positive or negative (e.g., when an adolescent considers obsessive-compulsive behavior as gaining control). In this case, the coders decided on the most-fitting valence. Valence was scored across all elements of the self or event across the narrative, resulting in one self valence and one event valence score. Valence was coded as being negative (-1), neutral or ambiguous (0), or positive (1).

We used two coding systems for self and event content that were based on work by McLean et al. (2016) and Weststrate et al. (2018), respectively. The event coding manual was hierarchical, so that elements relating to relationships and to health and mortality could be further specified (e.g., for relationships, into romantic, friendship/important other, parent-child, parent-parent, and adolescent-peer(s)). Elements of the event were only considered content when they were more than background to the story. To evaluate this, coders had to evaluate whether the element could be interchanged with another without changing the plotline of the story. For instance, if the location of meeting one’s romantic partner could be changed from a church to a birthday party without the story therefore playing out differently or lacking important nuance, then the location should not be coded as content. For self and event content, the coders could choose out of a total of eight and seven

substantial content codes, respectively. For self-content, these were: occupation/education/hobby, religion/spirituality, politics, values/outlook, health/illness (physical and/or psychological), gender/sex(roles)/sexuality, social, and self-growth/self-development. The possible content domains for events were achievement, relationships, religion/spirituality, sex/sexuality, health/mortality, transition to school or grade, and leisure/recreation. In addition, each coding system also had a category of “other”, which could be used when there was content that could not be captured by any of the other codes (making the total of content codes nine and eight, respectively). Per narrative, the coders could decide on zero, one, or more content scores, with a possible total of nine and eight codes for self and event content, respectively. In practice, no more than three content codes were assigned per narrative.

Each narrative was first coded independently by two coders on valence and content, who had weekly meetings to discuss discrepancies. Interrater reliability for the pre-consensus codes was acceptable for self and event valence (ICC = .88, 81.1% agreement and ICC = .84, 80.6% agreement) and for self and event content ( $\kappa$  = .81, 66.8% agreement and  $\kappa$  = .80, 70.9% agreement). The self-event connections coding system can be found at <https://osf.io/tnyaf/>. The coding systems for valence and content can be found on the OSF page of the present study: <https://osf.io/58xtc/>.

**General and domain-specific well-being.** Well-being was assessed at Wave 2. To capture *general well-being*, mean scores across four of the original items of the Satisfaction with Life Scale (Diener et al., 1985) were used (as used in Cheung & Lucas, 2014). The items (answered on a scale from 1 (*complete disagree*) to 7 (*completely agree*)) were “In most ways my life is close to ideal”, “The conditions of my life are excellent”, “I am satisfied with my life”, and “So far I have gotten the important things I want in life”. The scale had acceptable internal consistency, with an omega total of .80. As a measure of educational domain-specific well-being, *academic functioning* was assessed with two items based on suggestions by the Central Institute for Test Development [CITO] in the Netherlands: “In the past year, how was your school performance?” and “In the past year, how did doing your homework go?”. These items were answered on a scale from 0 (*very bad*) to 10 (*very good*), and they were combined into one mean score of academic functioning (inter-item correlation of  $r = .47$ ). In addition, *perceived friendship quality* was assessed as a relational domain-specific well-being measure with the Network of Relationships Inventory – Behavioral System Version (NRI-BSV; Van Aken & Hessels, 2012; Furman & Buhrmester, 2009). Scores on the items from all positive friendship quality subscales (12 items in total, from the “provides safe haven”, “provides secure base”,

“seeks safe haven”, and “seeks secure base” scales) were combined. The items were answered on a Likert scale ranging from 1 (*little or none*) to 5 (*almost always*)<sup>2</sup>. The perceived friendship quality scale showed good internal consistency, with an omega total of .94. Higher mean scores on these constructs reflected more life satisfaction, and better academic and social functioning.

### *Analytical plan*

To investigate the overall association between identity and well-being, we estimated the zero-order correlations between the number of self-event connections and each of the well-being outcomes (i.e., life satisfaction, academic functioning, perceived friendship quality). Next, we examined this association in greater detail by differentiating distinct elements of the self-event connections. First, the data was split on whether valence was negative, neutral/ambiguous, or positive, and correlations were rerun for each of these three types separately. This step was conducted for valence of the self and valence of the event. Second, the data was split by content domain of the narrative (i.e., 9 content domains for self content and 8 content domains for event content) and correlations were again run separately for each of the domains. Because multiple content domains could be present within a single narrative, some narratives were included in more than one analysis<sup>3</sup>.

In addition to these pre-registered analyses, we conducted several sets of hierarchical path models, to examine whether content domain moderated the association between identity and well-being, and to additionally control for the effects of other variables and be able to utilize the full sample size. We first estimated a model with the number of self-event connections as predictor of the three well-being measures as outcomes. Next, we added either self or event valence or self or event content domain as dummy variables to the model, where we included dummies for all valence types and/or categories that had enough observations to facilitate convergence (e.g., we excluded the religion/spirituality domain because it was only scored once), minus one. For self and event valence, we used neutral/ambiguous valence as a reference category. For self and event content domain, the “other”

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2 The perceived friendship quality variable was already used in combination with self-event connections in a previous study by the present authors (De Moor et al., 2021). However, this previous study did not look at the role of valence and content in the association between perceived friendship quality and self-event connections.

3 In the case that the association with well-being was significant for the broader event content domain of relationships or of health and mortality, we pre-registered that we would rerun the correlations separately for the further specifications of these codes (e.g., romantic relationships versus parent-child relationships). As none of these associations proved significant, as is explained below, we did not run these additional analyses.



category was the reference category. In the third step, we included interaction terms of each of these dummies with the number of self-event connections in the model. Due to the large number of correlations and regression coefficients tested, we used a more conservative alpha level of  $p < .01$ . Effect sizes were evaluated using rules of thumb for psychological research by Funder and Ozer (2019). Data preparation and analysis were conducted in R (R Core Team, 2021).

## Results

### *Descriptive statistics and correlations*

The descriptive statistics of the number, valence, and content of self-event connections, and of general well-being, academic functioning, and perceived friendship quality are presented in Table 1. For both life satisfaction and academic functioning, adolescents on average reported well above the midpoint of the scale. For perceived friendship quality, this score was slightly above the midpoint. There were more adolescents who made a self-event connection in their narrative than adolescents who did not,  $\chi^2(1) = 5.69, p = .017$ . Adolescents who made a connection were more likely to make one connection instead of more than one,  $\chi^2(1) = 46.23, p < .001$ . For valence of the self there was no significant difference between how many narratives contained negative and neutral/ambiguous elements,  $\chi^2(1) = 1.88, p = .170$ , but more narratives contained positive elements of self than neutral/ambiguous,  $\chi^2(1) = 51.58, p < .001$ , or negative elements,  $\chi^2(1) = 66.98, p < .001$ . In contrast, the valence of the events mentioned in the narratives was significantly more often negative than neutral/ambiguous,  $\chi^2(1) = 33.00, p < .001$ , and positive,  $\chi^2(1) = 21.15, p < .001$ , but there was no significant difference between the number of adolescents with neutral/ambiguous and positive events,  $\chi^2(1) = 1.57, p = .210$ . Regarding content for both self and event, one of the most frequently mentioned domains was the social domain. Additionally, content of the self in narratives was often related to self-growth and self-development, whereas for events content often centered around health and mortality (see Table 1 for the complete distribution of content in the narratives).

The correlation analyses showed that making self-event connections was not related to any of the well-being variables (Table 2). Thus, on average adolescents who made self-event connections did not report higher or lower well-being. There were also no significant correlations of perceived friendship quality with academic functioning or life satisfaction, but academic functioning was associated with higher life satisfaction.

Similarly, examining the correlations for each of the valences separately did not indicate any significant associations between self-event connections and well-being (Table S1 and S2 in the Supplementary Material). Next, we reran the correlations for each of the used self and event content codes. This meant that we examined the correlations six times for self content (i.e., for occupation/education/hobby, values/outlook, health/illness, social, self-growth/self-development, and other) and six times for event content (i.e., achievement, relationships, health/mortality, transition to school or grade, leisure/recreation, other), because some of the content domains were not used or used too little to run analyses on (e.g., religion/spirituality was only coded once for self content). Again, these analyses did not point to any significant links between self-event connections and well-being (Table S3 and S4). However, there was large variation in the direction (i.e., positive vs. negative) and strength of these correlations, depending on the life domains for which the correlations were estimated. For example, the sign of the correlation for number of self-event connections with life satisfaction was positive for self content related to values and outlook ( $r = .39$ , Table S3) but negative for occupation, education, or hobby-related self content, and for health and mortality and for school or grade transition-related event content ( $r = -.29$ ,  $r = -.28$ ,  $r = -.45$ , Table S3 and S4). This suggested that there may be differences in the association between self-event connections and well-being, depending on the type of content. Possibly, however, these differences did not reach significance using small subsamples of the dataset.

Table 1  
*Descriptive statistics of Study 1 (N = 180)*

	Mean (SD)/N (%)	Range
Life satisfaction	5.08 (1.08)	2–7
Academic functioning	6.66 (1.56)	1–9.50
Perceived friendship quality	2.97 (0.94)	1–5
Self-event connections		
Narratives with no connections	74 (41.11%)	–
Narratives with one connection	88 (48.89%)	–
Narratives with two connections	16 (8.89%)	–
Narratives with three connections	2 (1.11%)	–
Event content		
Relationships	82 (45.8%)	–
Health and mortality	64 (35.8%)	–
Achievement	27 (15.1%)	–
Transition to school or grade	26 (14.5%)	–
Leisure/Recreation	21 (11.7%)	–
Other theme	17 (9.5%)	–
Religion/Spirituality	3 (1.7%)	–
Self content		
Self-growth and self-development	56 (31.3%)	–
Social	51 (28.5%)	–
Occupation, education or hobby	27 (15.1%)	–
Values and outlook	22 (12.3%)	–
Health/Illness	18 (10.1%)	–
Other	6 (3.4%)	–
Religion/Spirituality	1 (0.6%)	–
<b>Valence coding of event and self</b>	Event	Self
Negative valence	99 (49.7%)	13 (7.3%)
Neutral/Ambiguous valence	33 (18.4%)	21 (11.7%)
Positive valence	44 (24.6%)	100 (55.7%)

Table 2  
*Correlations between the number of self-event connections and general and domain-specific well-being in Study 1*

	1.	2.	3.
1. Number of self-event connections			
2. Life satisfaction	-.09		
3. Academic functioning	-.02	.28*	
4. Perceived friendship quality	.08	-.10	-.01

Note. \*  $p < .01$ .

### *Post-hoc hierarchical path models*

To make use of the full sample and control for the effects of other variables, additional path models were estimated with the well-being variables as outcomes and the number of self-event connections as predictor. In a second and third step, we added dummy variables of the self or event valence or the self or event content domains, and the interaction of these dummy variables with the number of self-event connections, respectively. For moderation by self valence, there were no significant main or moderation effects (Table S5). Thus, the valence of the self in the narrative was not predictive of better well-being, nor was the predictive effect of self-event connections on well-being dependent on self valence. For event valence, no predictive effects reached the threshold of significance at  $p < .01$  (Table S6), but there was a borderline significant main effect of the negative event valence dummy ( $p = .033$ ). Specifically, adolescents who discussed a negative event in their narrative reported lower academic functioning.

For the model with self content domains, there was one significant and several borderline-significant effects (Table S7). Specifically, although the number of self-event connections was not a significant predictor in the model without the dummy and interaction variables, in the final model the number of self-event connections was associated with lower life satisfaction. Further borderline-significant effects suggested that having occupation, education, or hobby-related self content compared to other types of content was related to higher life satisfaction ( $p = .041$ ) as was having social content ( $p = .015$ ), and a higher number of self-event connections was related to higher life satisfaction in the presence of content related to values or outlook compared to other types of content ( $p = .014$ ). The number of self-event connections was also borderline-significantly related to lower academic functioning ( $p = .010$ ), and to higher academic functioning in the presence of self content concerning

health or illness ( $p = .040$ ) and concerning self-growth or self-development ( $p = .049$ ). None of the effects on perceived friendship quality were significant.

Finally, for moderation by event content domain, there was again evidence for one significant and several borderline-significant associations (Table S8). Specifically, achievement-related and leisure or recreation-related event content compared to other content were borderline-significantly associated with higher life satisfaction ( $p = .032$  and  $p = .014$ , respectively). Making self-event connections in the presence of content related to relationships instead of other content was associated with higher life satisfaction ( $p = .004$ ) and was borderline-significantly related to lower life satisfaction in the presence of event content related to health or mortality ( $p = .040$ ). Making self-event connections in the presence of content related to relationships compared to other types of content was also borderline-significantly associated with better academic functioning ( $p = .040$ ). Again, there were no significant effects on perceived friendship quality.

## Study 2

### Method

#### *Participants and procedure*

Study 2 used data of the longitudinal INTRANSITION project, which followed youth in the year before and after they made the transition to secondary school. In total, 244 youth, one of their parents, and (optionally) a friend participated in the study. There were four assessments that were evenly spread out across two years (i.e., in the fall/winter 2019, spring/summer 2020, fall/winter 2020, and spring/summer 2021). The present study used data on narrative identity from an interview and identity processes as measured through a questionnaire on Wave 4, which resulted in a total of 160 participants. Adolescents had a mean age at this wave of 13.08 ( $SD = 0.46$ ), and 86 were girls (53.8%). The vast majority identified as Dutch ( $n = 155$ , 96.9%); the remainder of the sample identified as Moroccan ( $n = 1$ ), Surinamese ( $n = 2$ ), or other ( $n = 2$ ). Additionally, 72 adolescents reported a second group with which they identified, for which the most common was Dutch-identifying adolescents also identifying as Moroccan ( $n = 41$ ). Our sample did not differ significantly from the complete study sample of 244 participants in terms of age, gender, identification with commitment, exploration in breadth, exploration in depth, self-doubt, general well-being or perceived friendship quality at Wave 1 ( $t(239) = 1.59$ ,  $p = .112$ ,  $\chi^2(1) = 2.23$ ,  $p = .135$ ,  $t(228) =$

-1.03,  $p = .303$ ,  $t(228) = 0.39$ ,  $p = .697$ ,  $t(228) = -0.23$ ,  $p = .820$ ,  $t(228) = -0.18$ ,  $p = .856$ ,  $t(240) = 1.11$ ,  $p = .268$ , and  $t(102.63) = -0.67$ ,  $p = .505$ , respectively).

Participants were recruited via primary schools in the Netherlands. Most participating schools were in the area of Utrecht (central part of the Netherlands), but we also recruited in the eastern, western, and south-eastern parts of the country. In line with the European General Data Protection Regulation (GDPR), schools sent information about the study to parents and students upon which parents and students could volunteer to participate. Participants could only join if they were in the final year of primary school at the time of the first measurement wave. They were asked to participate with one of their parents and to invite a friend at each wave. During the fourth wave, there were (online) home visits in which adolescents were interviewed about the transition to secondary school. In addition, adolescents (and their parents and friends) filled out an online questionnaire. Participants received €10 compensation per online questionnaire and an additional €10 for participating in observation tasks. If they participated at all waves, they received an additional €5 after the fourth and final wave. The INTRANSITION project was funded by the European Research Council (number: ERC-2017-CoG – 773023 INTRANSITION) and approved by the local ethical review board at Utrecht University in February 2019 (protocol number: FETC18-135). The anonymized INTRANSITION data is made available on the project OSF page: <https://osf.io/58xtc/>.

### *Measurement instruments*

**Educational identity processes.** Educational identity processes were assessed at Wave 4 using the newly developed Educational Identity Processes Scale (EIPS; Christiaens et al., 2022), which captures identity development specifically in the context of the school transition. The questionnaire was based on the Dimensions of Identity Development Scale (Luyckx et al., 2008), the Utrecht-Management of Identity Commitments Scale (Crocetti et al., 2008), and the Vocational Identity Status Assessment (Porfeli et al., 2011). The questionnaire has pre-transition (22 items) and post-transition (18 items) versions. The post-transition version that was used for the present study consisted of five subscales: identification with commitment (4 items), exploration in breadth (3 items), exploration in depth (5 items), self-doubt (3 items), and reconsideration (3 items). The items were rated on a scale from 1 (*completely disagree*) to 5 (*completely agree*). Higher scores indicated higher levels on each of the identity dimensions. Internal consistency of each of the subscales was

good, with omega total scores of .88, .88, .80, .88, and .95, respectively. More information on the validity and reliability of the EIPS can be found in Christiaens et al. (2022).

**Self-event connections and connection valence.** Narrative identity aspects were coded in the transcripts of an interview about the school transition during Wave 4. The interview, conducted by trained student interviewers, was part of the home visits that were completed during Wave 4. During the interview, participants were asked “To what extent does your school fit you?”, “How do you think the transition has affected your life?”, and “To what extent do you think the transition to secondary school has affected you, for example who you are, what you find important, and how you behave?”. Responses to these questions were coded for the presence or absence of connections between the event and the self (i.e., self-event connections; Pasupathi et al., 2007) and valence of the self-event connection (i.e., negative, neutral/ambiguous, positive).

Similar to Study 1, self-event connections were coded using a coding system developed by Pasupathi et al. (2007) and adapted by Lilgendahl and McLean (2019). Again, four types of connections were coded: explain/illustrate, dismiss, causation, and revelation. This time a decision then had to be made on the positivity vs. negativity of the connection for each coded self-event connection. As in Study 1, the perspective of the adolescent was taken unless this perspective was substantially different from what would be considered positive in the general sense. All transcripts were coded by one undergraduate and one graduate student, who were trained to use the self-event connection system with example narratives. They coded each transcript independently and had weekly meetings to discuss discrepancies until consensus was reached. The consensus-based codes were used in the analyses. For the present study, we used a count variable which indicated the number of self-event connections present in the interview (i.e., 0, 1, or more). Valence was coded as - 1 (negative), 0 (neutral/ambiguous), and 1 (positive). Pre-consensus interrater reliability for coding of the presence or absence of self-event connections was near acceptable with a  $\kappa = .66$  (83.8% agreement). Reliability was acceptable for the coding of the valence of these connections (ICC = .85). We used the same coding system for self-event connections as in Study 1 (available at: <https://osf.io/tnyaf/>).

**General and domain-specific well-being.** Finally, well-being was again assessed in three different ways. *General well-being* was captured with the Cantril Ladder (Cantril, 1965), which asked adolescents to rate how well they felt in general by choosing a number from 1 (meaning it was going very badly with them) to 10 (meaning it was going well with them).

Two items based on suggestions from CITO were again used as a measure of *academic functioning* and differed only from those used in Study 1 in that they referred to functioning during the past week (rather than during the entire school year). The items were rated on a scale from 1 (*very poor/poorly*) to 5 (*very well*) and were combined into one mean score of academic functioning (inter-item correlation:  $r = .44$ ). Finally, to assess *perceived friendship quality*, we combined scores from all positive subscales of the Network of Relationships Inventory (NRI; Furman & Buhrmester, 1985; Bukowski et al., 1994): companionship, help, security, and closeness. Items (e.g., “How often do you feel admired and respected by your friend?”) were answered on a scale from 1 (*never*) to 5 (*very often*). The scores on the perceived friendship quality scale had good internal consistency ( $\omega$  total = .89).

### *Analytical plan*

Similar to Study 1, we examined the correlations of the number of self-event connections with general well-being, academic functioning, and perceived friendship quality. Next, we examined the correlation of each subscale of the EIPS with the number of self-event connections made in the interview. Lastly, we split our observations between the types of valence of the self-event connections, and reran the correlations for only the self-event connections that were negative, neutral, and positive. Because some interviews contained connections of different valences, they were included in more than one rerun. As in Study 1, we used a more conservative alpha level of  $p < .01$  and evaluated effect sizes using guidelines by Funder and Ozer (2019). All analyses were conducted in R (R Core Team, 2021).

## **Results**

### *Descriptive statistics and correlations*

The descriptive statistics for all EIPS subscales and the distribution of self-event connections and connection valence are reported in Table 3. Mean scores generally were below the midpoint of the scale for the identity dimensions, with the exception of identification with commitment which was above the midpoint. Means for reconsideration and self-doubt were particularly low, with adolescents on average disagreeing with the items. For self-event connections, there were more adolescents who had made connections than adolescents who had not,  $\chi^2(1) = 6.40$ ,  $p = .011$ . Of those who made a connection, the number of adolescents who made only one connection in their narrative was significantly higher than the number of those who made more than one,  $\chi^2(1) = 5.04$ ,  $p = .025$ . The vast majority of



self-event connections was positive (compared to neutral/ambiguous and negative,  $\chi^2(1) = 29.97, p < .001$  and  $\chi^2(1) = 76.54, p < .001$  respectively); neutral/ambiguous connections were also more common than negative connections,  $\chi^2(1) = 16.33, p < .001$ .

Table 3  
*Descriptive statistics for Study 2 (N = 160)*

	Mean (SD)/N (%)	Range
Identification with commitment	3.72 (0.92)	1–5
Exploration in breadth	1.96 (1.01)	1–4.33
Exploration in depth	2.67 (0.81)	1–4.40
Self-doubt	1.67 (0.89)	1–5
Reconsideration	1.52 (0.90)	1–5
General well-being	7.57 (1.17)	3–10
Academic functioning	3.77 (0.72)	1–5
Perceived friendship quality	3.72 (0.67)	1–5
Self-event connections		
Narratives with no connections	64 (40.0%)	–
Narratives with one connection	59 (36.9%)	–
Narratives with two connections	24 (15.0%)	–
Narratives with three connections	8 (5.0%)	–
Narratives with four connections	5 (3.1%)	–
Valence of the connections*		
Connections with negative valence	10 (6.6%)	–
Connections with neutral/ambiguous valence	38 (25.2%)	–
Connections with positive valence	103 (68.2%)	–

*Note.* This percentage is calculated on the total number of connections made ( $n = 151$ ).

Next, we examined the correlations of the number of self-event connections in the identity interview with general well-being, academic functioning, and perceived friendship quality (Table 4). Like in Study 1, the number of self-event connections was not related to any of the well-being outcomes. Academic functioning was again related to higher overall well-being, but perceived friendship quality was not related to general well-being or academic functioning.

Table 4  
*Correlations between the number of self-event connections and general and domain-specific well-being in Study 2*

	1.	2.	3.
1. Number of self-event connections			
2. General well-being	-.11		
3. Academic functioning	-.10	.24*	
4. Perceived friendship quality	.01	.05	.08

Note. \*  $p < .01$ .

There were also no significant correlations between the different EIPS identity processes and the number of self-event connections (Table 5). However, there were significant correlations between most of the EIPS subscales. When negative, neutral/ambiguous, and positive self-event connections were considered separately, the identity processes were still not significantly correlated with the number of connections (Table 6).

Table 5  
*Correlations of the EIPS scales with the number of self-event connections in Study 2*

	1.	2.	3.	4.	5.
1. Identification with commitment					
2. Exploration in breadth	-.11				
3. Exploration in depth	.33*	.42*			
4. Self-doubt	-.43*	.40*	.00		
5. Reconsideration	-.45*	.37*	-.04	.85*	
6. Number of self-event connections	.08	.06	.07	-.09	-.04

Note. \*  $p < .01$ .

Table 6  
*Correlations of the EIPS scales with the number of valenced self-event connections in Study 2*

	Negative SEC	Neutral/ ambiguous SEC	Positive SEC
1. Identification with commitment	-.01	.06	.06
2. Exploration in breadth	.12	-.03	.06
3. Exploration in depth	.05	-.01	.07
4. Self-doubt	.12	-.09	-.08
5. Reconsideration	.10	-.02	-.07

## Discussion

Much research has linked identity processes and narrative aspects to developmental outcomes in adolescence and beyond (e.g., Branje et al., 2021). However, the associations of identity with developmental outcomes and between different measures of identity are far from perfect, which might be because the content of identity often is not considered. In the present work, we examined the role of content in the association between identity processes and narrative aspects and between narrative aspects and well-being in two datasets. In Study 1 we found some support for a role of content in the association between identity and well-being, but Study 2 evidenced no support for content in this association or in the association between identity processes and narrative aspects.

### Linkages of identity with adolescent well-being

Identity development is a major developmental task that gains in importance during adolescence (Erikson, 1968). As such, it is important for adjustment during this life period as well as in later life. In Study 1, we linked the making of self-event connections in turning point narratives to general well-being as well as to two measures of domain-specific well-being (i.e., academic functioning and perceived friendship quality) one year later, and examined the role of content in these associations. We found no support for a role of content in the correlation analyses, but some support in post-hoc path models. Specifically, neither self or event valence moderated the association between identity and well-being, although negative event valence did seem related to lower academic functioning more strongly than neutral/ambiguous was. Therefore, adolescents who wrote about negative events seemed to function less well academically than adolescents who wrote about neutral/ambiguous events, but adolescents making self-event connections were not better or worse of when writing about negative, neutral/ambiguous, or positive events. Content of the self also did not moderate the association of self-event connections with the well-being outcomes. Interestingly, however, after controlling for the presence of content, the number of self-event connections was associated with lower life satisfaction, signaling that after accounting for differences in content of identity, adolescents making self-event connections reported poorer well-being. There was also support for moderation by event content. Specifically, making self-event connections about a relationships-related event compared to other types of content was related to higher life satisfaction. Thus, adolescents who focused on social experiences and

were able to link these experiences to their self were on average more satisfied with their life one year later than adolescents who were not able to make such a connection.

In addition to the moderation effect by relationships-related event content, we also found several borderline-significant moderation effects, oftentimes in the expected direction. For instance, making a self-event connection for health or mortality-related events was borderline-significantly associated with lower life satisfaction than making self-event connections about other types of events. Possibly, power problems may have concealed further moderating effects of content. At the same time, the fact that the moderation effect of social event content did reach significance may also suggest that the non-significant moderation effects are rather small. Furthermore, caution should be taken with interpreting these results, as the path model analyses were not pre-registered.

In Study 2, we similarly linked self-event connections with general and domain-specific well-being cross-sectionally and found that across well-being outcomes, adolescents who made self-event connections did not report better or worse well-being. The absence of an association between self-event connections and well-being is not in line with theory or previous research on both identity processes and narrative aspects (e.g., Branje et al., 2021), which links a more developed and stable identity to better developmental outcomes.

There may be several reasons for why the outcomes of Study 2 differ from those reported in previous studies. Very practically, the size and homogeneous composition of the sample may have resulted in an underestimation of existing effects. Adolescents who participated in the INTRANSITION project generally had relatively high socioeconomic status and high levels of well-being. Thus, a larger and more diverse sample is greatly needed. However, it is also possible that at the age of thirteen, autobiographical reasoning may not yet serve the positive function it has in later adolescence and beyond. Previous work has suggested that making meaning of events may indeed be maladaptive in early adolescence (McLean et al., 2010; McLean & Mansfield, 2011). This is the case because autobiographical reasoning has not yet fully developed and is thus effortful; use of this skill may therefore not yet be developmentally appropriate and point to the experience of extremely negative events that necessitate the use of this narrative skill. It is possible that our study has captured youth at exactly that time where making self-event connections is neither uniformly positively or negatively associated with well-being. A developmental perspective on how the association between identity and well-being unfolds over time would be necessary to test this notion.

Notwithstanding potential issues of power, the scarcity of significant findings across the two

studies suggests that a more fine-grained approach is needed to capture content than a focus on valence and the life domain in which events or elements of the self are situated can provide. For instance, we may need to know what elements of the grade or school transition feature in adolescents' narratives to get a better sense of how they impact the association between identity and well-being.

### **Identity processes and narrative aspects**

As different measures of identity, identity processes and narrative aspects are supposed to reflect different but related elements of an underlying sense of identity. For individual adolescents, narratives may be one way through which they explore new identities and reflect on their existing commitments (McLean & Pasupathi, 2012). However, past work has reported weak and inconsistent relations between identity processes measured with questionnaires and identity as measured through narratives (e.g., McLean & Pratt, 2006; Van Doeselaar et al., 2020). In line with this work, Study 2 showed no evidence that adolescents who identified more with their educational commitments and engaged in more educational exploration and less in educational reconsideration, were more likely to make self-event connections in their narratives about their school transition.

The lack of support we found for associations between identity processes and narrative identity may reflect the specific context in which these adolescents reside. That is, the youth in this sample only just started secondary school. Past work on educational identity processes around this transition has shown that change during this period, and particularly during its runup, may be similar for most adolescents in part due to strong expectations regarding how adolescents ought to change. In other words, change may be normative (De Moor et al., 2022). In particular, the transition to a new school may require exploration of school options and the eventual choice for one school in all adolescents. In addition, the normativity of change observed elsewhere and the absence of links between different measures of identity found in Study 2 may be reflective of the age at which youth were assessed. Specifically, during this time the first steps of identity development are undertaken and the first identity commitments may pop up. Indeed, our findings suggested some engagement in identity processes and a distribution of self-event connections that suggests that at least some of the adolescents may already be engaging in autobiographical reasoning (Table 3). At the same time, we may see that these commitments are relatively fragmented, and lack integration of different identities across time and context (Syed & McLean, 2016). Like identity, such ego

integration takes shape across adolescence, and is further developed in older compared to younger adolescents (e.g., Van Hoof & Raaijmakers, 2002). Thus, it may be that a lack of integration between the reported identity processes and narrative aspects explains the absence of an association between the two during the aftermath of the educational transition.

Importantly, the lack of significant associations between identity processes and narrative aspects also refutes our hypothesis that the link between them would be stronger than in previous studies if these would both be focused on the school transition. Indeed, even if certain effects did not reach significance due to the small sample size, the correlation coefficients were small (Funder & Ozer, 2019). This could suggest that such a domain match and even content more generally may not matter after all. However, it is important to keep in mind that even within these domain-focused measures, there was room for interpretation. This is most evident in the narrative interview; although the interview centered around the school transition as a major life event, the impact of that event could and was indeed described across life domains. For instance, adolescents described how the transition had impacted their educational environment (e.g., having to do more homework), but also their social (e.g., friends going to other schools, making new friends) and personal sphere (e.g., becoming more mature, becoming a moody teenager), both in positive and negative ways. Therefore, in future work it is vital to take a more fine-grained look at what identity is about, focusing not just on the life domain of the event but also on the specific content of the event and identity in the narrative and how different contents in different domains are integrated with each other. This is important given that identity integration across contexts is thought to be key to psychological well-being (Syed & McLean, 2016).

### **Strengths and limitations**

The present work made a theoretical argument for a greater focus on content in narrative research, and examined what such an approach may look like in two empirical studies. To do this, we conducted in-depth coding of turning points narratives on not just self-event connections, but also the valence and content of the self and events. Furthermore, by employing two different samples with different study designs and different measures, we provided a more robust, generalizable test of the importance of valence and content domains.

Nevertheless, the findings from the conducted studies should be interpreted in light of some

limitations. First, the samples we used were relatively small, and homogenous in terms of socioeconomic and ethnic background and levels of overall well-being. The broader context in which an individual and their identity processes are situated provides important clues about how identity processes should be understood (Gallagher et al., 2017; Spencer, 1995). For instance, being a loner or becoming more mistrustful after certain events may in some contexts be a logical and even adaptive response to the situation, whereas identifying as a motivated student or believing that one can control situations may in certain contexts be maladaptive. A more diverse sample may shed more light on the role of identity content across different contexts.

Second, content was operationalized as the life domains in which the event and self were situated. However, as was also hinted at above, this focus may still be too broad. In addition to the domain being too broad, it may simply also not have been considered relevant by each adolescent. That is, in Study 2 the narrative identity interview was focused on the school transition, thus forcing adolescents to talk about this particular moment. It is possible and even plausible that some adolescents may not consider this transition relevant to their identity. To come closer to what adolescents actually deem relevant, future work should consider inductive coding of narrative data (e.g., as recently applied in Johnson et al., 2022). This work should additionally aim to capture adolescent identity across multiple contexts and domains of life and examine aspects of saliency and valence to get a better sense of where identity content is centered and how it is related to well-being. Such an approach may get closer to capturing actual content and improve knowledge on what adolescents themselves emphasize in their identity.

## **Conclusion**

Creating a sense of identity is an integral task from adolescence onwards and represents the challenge of creating a continuous and coherent self-view out of a multitude of thoughts, behaviors, and experiences. Yet, research on identity has often focused on identity processes and narrative aspects, without accounting for what they are about. In the present study, we argued for a greater focus on identity content, but showed in two studies that this focus may not be so straightforward to put into practice. Although we found some evidence that the life domain of identity and the event in the narrative may moderate associations of self-event connections with well-being, this evidence was by no means conclusive. Rather than proof

that content does not matter all that much after all, it is our hope that these preliminary attempts at capturing content will serve as impulses to deepen our thinking of what identity content is and how we may best capture it.







# 9

## Integration and General Discussion

*“Who in the world am I? Ah, that’s the great puzzle!”*

*– Alice’s Adventures in Wonderland (1865) by Lewis Carroll*

The work presented in this dissertation has examined the associations between life events and transitions, identity, and functioning. In particular, the aims were to examine a) the role of life events and transitions in identity processes, b) whether the processing of these experiences and integration into one’s identity is important for broader functioning, and c) what the role of differences in environmental and individual characteristics is in these processes and associations. Table 1 summarizes the main findings of each of the empirical chapters.

## **Summary and integration of the main findings and broader implications**

### **Aim 1 – The impact of events and transitions on identity**

#### *Summary and internal integration of findings*

The first aim of this dissertation was to examine whether life events and transitions impact adolescents’ identity. Although identity develops across adolescence (e.g., Branje et al., 2021 and Meeus, 2011), certain moments in individuals’ lives are considered catalysts for identity development. Indeed, following identity theory, experiences such as (stressful) life events and transition periods have the potential of bringing the question of identity to the fore (Bosma & Kunnen, 2008; Marcia, 1966; Waterman, 1982).

In **Chapter 2** and **3**, identity change was examined across the occurrence of non-normative, stressful life events and across a normative transition period, respectively. **Chapter 2** showed that neither a stressful event in the educational domain (i.e., having to repeat a grade) nor in the relational domain (i.e., death of a loved one) was predictive of identity change across the event. This was true both when there was a domain-match for the event and identity and when there was no match. However, when there was a domain-match, there was a reversed effect for having to repeat a grade, with the occurrence of the event being predicted by identity processes. This finding may reflect that low levels of educational commitment and high levels of reconsideration predict poorer educational performance or may reflect an anticipation effect where adolescents lower their commitment because they know they are

going to fail the year. In **Chapter 3**, educational identity was examined across the transition from primary to secondary school. There were average increases in commitment and decreases in exploration across the year before the transition, and decreases in commitment and exploration across the year after the transition. In sum, across the two empirical studies, only limited support was found for an effect of stressful experiences on identity. Thus, it does not seem to be the case that life events and transitions necessarily impact one's identity. Rather, identity may potentially predict the experiences that we have, either through anticipation of or through selection into them.

#### *Integration in broader literature and implications*

More support was found for a role of normative school transitions (in **Chapter 3**) than of non-normative life events (in **Chapter 2**) in identity development. Indeed, there were no predictive effects of having to repeat a grade or the death of a loved one on identity, whereas engagement in identity processes changed across the transition from primary to secondary school. In part, this may reflect the close content-match between the school choice-oriented identity measure and the experience of choosing and then transitioning to a new school. For normative transitions, there was also increased heterogeneity in identity change after the transition, indicating that adolescents changed in different ways (**Chapter 3**). This is in line with findings on identity around the transition to tertiary education (Christiaens et al., 2021), which also showed increased variation in adolescents' trajectories after the transition. Furthermore, it corroborates the idea that such experiences can increase individual differences between individuals (Graber & Brooks-Gunn, 1996).

On the whole, however, these findings fit into a growing body of literature that reported null or inconsistent effects of life events and transitions in relation to personal development (e.g., Bleidorn et al., 2018; Den Boer et al., 2021; Luhmann et al., 2021), including **Chapter 4** of this dissertation. In **Chapter 4**, personality traits did not develop across the transition to tertiary education and working life, either in the runup of aftermath. As also suggested in the personality literature, the absence of consistent effects of impactful events and transitions may in part reflect methodological complexities in how to capture these effects (Bleidorn et al., 2021). For example, on which timescale best to measure such effects (e.g., days, months, years) and how permanent such effects need to be (Haehner et al., 2022).

More likely, however, is that something about the theorem as it is formulated does not hold. That is not to say that life events and transitions do not at all matter for self-development and

identity more specifically; rather, it is likely that important nuances need to be made. For one, it is possible that only *certain* events or transitions impact identity. Indeed, identity change has been found following extremely stressful experiences such as war and childhood maltreatment (Erikson, 1968; Penner et al., 2019). Possibly then, events and transitions need to be sufficiently impactful – and even life-altering – for there to be an association with identity. Relatedly, events or transitions may impact only *certain* identity processes. The present dissertation reported more evidence for effects when there was a domain-match (e.g., in **Chapter 3**), and it may be that life events and transitions may only affect very specific processes of the self that are directly relevant for the domain in which the experience took place.

Another nuance is that identity change does not happen after one particular experience, but rather is the consequence of the buildup of several events or transitions. Support for such a cumulative effect of stress has already been shown on adolescent personality (Laceulle et al., 2012) and adolescent psychopathology (Suldo & Huebner, 2004). Therefore, it is plausible that adolescents will only adjust their identity after multiple impactful experiences. In this dissertation, the focus was on independent events or transitions, but in reality it is likely that many changes may occur at the same time. For instance, for relational identity many more events – minor and more major – may be happening at the time of the death of a relative, such as an intensification of one relationship, strain on another relationship, and the formation of new bonds.

Finally, it is possible that there is not one way in which a particular stressful life event or transition period impacts identity. In line with this, for both the non-normative life events and the normative transition to secondary school the presented work showed variation in the way that adolescents' identity changed around these experiences. It is likely that the impact of an experience depends on factors in the person (Denissen et al., 2019), in the event (Haehner et al., 2022), and in the context of the environment and the broader lived life (Bleidorn et al., 2021). For instance, the effect of a particular event may depend on whether another had preceded it, such as whether or not a young adult had already moved out of the house for college when they get married. For all of these personal and environmental factors, then, what seems to matter is what the meaning is of a particular experience, for a particular person, in the context of their particular life.

## **Aim 2 – The role of identity processing of impactful experiences for broader functioning**

### *Summary and internal integration of findings*

The second aim of this dissertation was to examine if whether and how adolescents process their experiences matters for their broader functioning. The presented work reported null findings for the effect of stressful life events on identity (**Chapter 2**) and mostly effects post-transition of the school transition on identity (**Chapter 3**). Building onto this, a more detailed investigation into how these experiences are processed was considered important. Indeed, it has been argued that the interpretation more than the occurrence of an event is important (Skaggs & Barron, 2006).

**Chapter 4** and **5**, and **Chapter 6** and **7** examined identity around normative life transitions and turning point moments, respectively. Regarding normative life transitions, **Chapter 4** indicated that although self-concept clarity does not consistently moderate the association between life transitions and personality, youth with higher self-concept clarity reported more adaptive personality levels in general and more conscientiousness particularly in the aftermath of the transition to tertiary education. In **Chapter 5**, early commitments in the pre-transition year to a particular secondary school predicted poorer adjustment after the transition, whereas early exploration and an increase in exploration over the pre-transition year predicted better adjustment. Regarding moments that were perceived as turning points in adolescents' lives, **Chapter 6** showed that higher perceived friendship quality is cross-sectionally linked to the presence of self-event connections and redemption sequences in narratives, but did not report evidence for longitudinal associations. Similarly, extending our knowledge on identity in vulnerable populations, **Chapter 7** reported evidence for cross-sectional but no longitudinal associations between positive event valence and better functioning. Self-event connections were not found to be linked to functioning either cross-sectionally or longitudinally. Overall, these chapters provide some evidence that identity processes around life events and transitions play a role in whether and how these experiences impact broader functioning. Therefore, how adolescents process their experiences *may* be important for how these experiences will further impact them.

### *Integration in broader literature and implications*

Cross-sectionally, the findings of **Chapters 4, 6, and 7** indicated that identity processes around life events and transitions may be important for social and personality functioning. This is in line with previous work that has linked narrative identity processes to better

functioning (e.g., McLean et al., 2020). However, only limited evidence from **Chapter 5** indicated that identity around life events and transitions predicts functioning. Possibly, effects of identity on functioning occur more “in the moment” (Bosma & Kunnen, 2001; Lichtwarck-Aschoff et al., 2008). That is, identity around impactful experiences may not predict functioning half a year, or even longer, afterwards, but may predict how well that person is likely to feel or behave soon after. Past work using daily diary or experience sampling methods has linked adolescents’ identity scores to their mood (Klimstra et al., 2016; Van der Gaag et al., 2017), although here identity appeared to be more an outcome rather than a predictor. However, these micro-timescale measures of identity have been critiqued for not tapping into micro-level processes of identity (Klimstra & Schwab, 2021), and a focus on smaller, more here-and-now processes of identity and identity expression is needed to adequately capture identity in the moment and its relation to functioning. For example, a focus on the interactive exploration behaviors in conversations with others may provide us with insights into how identity processes unfold in the here-and-now (Sugimura et al., 2022). By examining identity and functioning during and around life events and transitions, we may better understand the importance of identity processes for the impact of such experiences on functioning (Branje, 2022).

Alternatively and additionally, potential third variables should be examined that may predict both identity and functioning. As an example, and in line with previous work, this dissertation has linked high neuroticism or negative affectivity to more reconsideration (**Chapter 2**) and poorer functioning (**Chapter 7**). Possibly, through its characteristic focus on negative elements or experiences (Brown & Rosellini, 2011) and the tendency to ruminate (Roberts et al., 1998), adolescents who are neurotic may report both identity and functioning issues. Such potential explaining factors should be considered in future research on the role of identity in understanding the impact of events or transitions on functioning.

In addition, only limited evidence for a role of identity processing in functioning may have been found because we need a closer look at what identity is about. As is discussed in several chapters of this dissertation and is brought to the fore in **Chapter 8**, a focus on identity content may be necessary to further improve our understanding of the association of identity with functioning. In line with this, **Chapter 5** reported an association of educational identity before the transition to secondary school with post-transition adjustment. In this study, identity was measured context-specifically for the school transition, and was linked to a domain-matched outcome, educational adjustment, in addition to a more general one,



psychological adjustment. Interestingly, this study reported effects on adjustment mainly for educational exploration rather than commitment, whereas the reverse is usually found to be true (e.g., in **Chapter 2**) and exploration has even been linked to poorer functioning (Crocetti et al., 2008). Potentially, this may be explained by the use of a more concrete, context-specific measurement of identity during a school transition, where exploration may be relevant and beneficial for later adjustment. Furthermore, and surprisingly, **Chapter 8** provided only modest evidence that a focus on the life domain in which events and identity are situated may moderate the associations between identity and adjustment. In particular, making a self-event connection for a social event was related to greater well-being. Valence did not impact these associations. Possibly, an even more fine-grained approach to content is needed to understand its potential moderating role.

### **Aim 3 – The importance of environmental and personal influences**

#### *Summary and internal integration of findings*

As a third and final aim, this dissertation set out to shed light on the role of the environment and personal differences in how adolescents' identity changes across life events and transitions. In particular, this dissertation focused on the quality of the social context and on neuroticism, as both have been linked to identity development (e.g., Hatano et al., 2017; Klimstra et al., 2012; McLean & Jennings, 2012; Pasupathi & Hoyt, 2009) and have been found to moderate the effect of stressful events on functioning (DuBois et al., 1994; Murberg & Bru, 2004; Watkins et al., 2008; Yang et al., 2010).

**Chapters 2** and **3** investigated the role of social support and neuroticism in explaining individual differences in identity development across life events and transitions. **Chapter 2** showed that there was substantial variation in the association between life events and identity, but found no evidence that parental support, best friend support, and neuroticism moderated the association between life events and identity. However, low neuroticism and especially high support were predictive of a more stable identity. In **Chapter 3**, interindividual differences in identity change around the school transition were limited to three out of five identity processes, and mostly existed after the transition. Only parental support and not best friend support and neuroticism was predictive of subgroup membership. In particular, higher parental support predicted a more adaptive trajectory of exploration in breadth across the transition to secondary school. **Chapter 6** further examined the association of identity with friendship quality, reporting a bidirectional association between the two. Taken together,

mixed evidence was found for the role of environmental and personal influences.

*Integration in broader literature and implications*

In line with previous work, our findings underscore the importance of the social environment and personality for identity, such that those with more supportive environments and more stable personalities on average also had a more committed identity (**Chapter 2**), a more adaptive identity trajectory (**Chapter 3**), and a more developed narrative identity (**Chapter 6**). These associations were found across samples and across different approaches to conceptualizing and measuring identity. Furthermore, and although this was not a main focus of the empirical work, feeling supported by parents (**Chapter 5**) and reporting little negative affect and emotional stability (**Chapter 7**) was associated with better functioning more generally. This also corroborated previous work on the role of parental expectations (e.g., Chatterjee & Sinha, 2013; Grossman et al., 2011) and negative affectivity (Kotov et al., 2010; Krueger & Markon, 2006; Lahey, 2009) in psychosocial functioning.

However, how much support adolescents experienced and how emotionally stable they were did not explain individual differences in identity development specifically around life events and transitions, with the exception that parental support predicted a more adaptive trajectory of exploration in breadth across the transition to secondary school (**Chapter 3**). This does not necessarily mean, however, that these environmental and personal factors are not important. Indeed, we found that these factors were related to identity more generally, and it may be that these stable effects are at play both when adolescents are and are not experiencing life events and transitions. In other words: even during impactful life events or transition periods, the same individual differences may be at play in explaining which adolescents will fare better and which will fare worse.

Another possibility is that to capture moderation of the impact of life events and transitions, a more proximal measure of the environment and the person is needed. For instance, by focusing on how neuroticism acts out “in the moment” of the event or transition, through rumination about the event (Roberts et al., 1998) or the perception of the valence of the event (Brown & Rosellini, 2011), we may better capture the moderation effect of such factors in the association of life events and transitions with identity.

Finally, it may be the case that individual differences are indeed less important for predicting identity change around the studied life events and transitions. Especially when such experiences carry a strong expectation of how individuals *ought* to change such as in a school

transition, individual differences may play a more limited role. Thus, based on the presented work the environmental and personal influences seem important for identity and well-being in general, but not specifically in the context of life events or transitions.

## **Conclusions of the dissertation and suggestions for future directions**

Taken together, having used different approaches to identity in different samples of Dutch youth, the presented work indicates that life events and transitions may be important. However, the interpretation of events might be more important than the occurrence itself. Although environmental and personal factors are important for predicting identity development and functioning generally, their role in adolescents' identity change around life events and transitions appears limited. Three key messages may be derived.

### **Key message 1 – Life events and transitions seem to matter, but...**

The impact of life events and transitions is not set in stone, but rather may depend on how adolescents interpret them. This seems especially true when there is a match between the domain of the experience and the domain of identity. A focus on interpretation is in line with an increasing body of literature on personal change around life events and transitions. However, for future work it is important to examine both the effect of occurrence and of the interpretation of events and transitions together. Such an approach may provide interesting insights into their unique contributions.

### **Key message 2 – Identity seems to matter, but...**

The presented findings provide support for cross-sectional but not longitudinal associations of identity around life events and transitions with functioning. However, possibly a more “in-the-moment” measure of identity is needed. Moreover, more longitudinal work is needed to dissect broad “identity” constructs such as commitment or self-event connections into smaller, more meaningful constructs that allow us to better understand *why* these associations occur. The content of identity should be a major focus in this work, and inductive coding should be used in addition to the more commonly used deductive coding to capture this content. That is, in addition to top-down coding of the data using existing systems (e.g., on

the presence or absence of a self-event connection), there should be a bottom-up exploration data to pick up on commonalities or general themes in the data. Such a combined method will shed more light onto the domains and elements of identity that matter to adolescents themselves (see Johnson et al., 2022 for a recent application of such an inductive coding approach), and may move forward our understanding of identity and why it matters.

### **Key message 3 – Individual differences seem to matter, but...**

Individual differences seem mostly predictors of identity and broader functioning, and not so much moderators of the effects of life events and transitions on identity. In addition to examining more proximal aspects of the social environment and neuroticism, future research should broaden the scope of potentially influential moderating factors. A range of less and more modifiable moderators has been identified for the association between stressors and adolescent psychopathology (Grant et al., 2006), and we should look to such neighboring fields to hypothesize what factors may be important in moderating the effects of stressful life events and transitions on adolescents' identity. As an example, and related to the discussion of rumination as a proximal element of neuroticism, cognitions regarding the event or transition may be a promising future avenue.

### **Implications for Alice**

So what does all of this mean for Alice? First, it does not seem to be the case that the experience of tumbling into Wonderland will necessarily impact her identity. Indeed, and second, the way that she processes her time in Wonderland may be more important to consider. For instance, does she look back on it as an adventure, or rather as a disruption of her life? Is she able to link the experience to aspects of who she is – fanciful, adventurous – or does she not consider the experience to say anything about who she is? Finally, the role of the characters she met and her own character in all of this remains uncertain: her social context and her own level of emotional stability are important for her identity, her functioning more generally, and how she approaches all adventures no matter what their nature, but may not play a role in how her specific adventures in Wonderland affect her.

### **Strengths and limitations**

The work presented in this dissertation had several notable strengths. Across chapters, the association between identity, life events and transitions, and functioning was examined using

a diverse set of approaches. In particular, data were used from five different samples of Dutch youth, ranging from adolescents from the general population to those with severe psychopathology, with different conceptualizations of identity and functioning, and with a focus on different life events or transition periods. Identity was examined from both an identity processes and a narrative identity aspects perspective, and a wide array of identity-relevant variables was included. As a result, the conclusions are more reliable as they can be generalized across a broad range of Dutch adolescents and approaches to studying identity. In addition to who and what were studied, the presented work also utilized several methods and **Chapter 5** even combined quantitative research methods with a more qualitative approach. Finally, in all of the presented work there was a focus on individual differences, acknowledging that the studied processes may not be the same for every adolescent. Together, these features made it possible to paint a complex, but nuanced image of the associations between identity, life events and transitions, and functioning.

Needless to say, there were also some limitations, which call for replication and for new, exciting work. First, with the exception of the sample of **Chapter 7**, the adolescents were relatively well-adjusted and came from general population samples. However, as this study pointed out, the association of life events and transitions, identity, and functioning may not be the same for adolescents who are well-adjusted and those who are additionally dealing with other issues. Therefore, more research with more diverse samples is greatly needed, to gain a better understanding of the unique experiences of adolescents from less advantaged backgrounds and those with psychological problems. This research should aim not just for a comparison of identity and its association with functioning with more often studied populations, but should also examine other ways in which identity may be influenced or may come to encompass parts of adolescents' circumstances (e.g., regarding identity and psychopathology; Klimstra & Denissen, 2017). For instance, in youth with psychopathology, the disorder may be both the context that shapes identity development as well as the content on which identity is built.

Furthermore, the measurement of identity through questionnaires such as the Dimensions of Identity Development Scale (DIDS; Luyckx et al., 2008) and the Utrecht-Management of Identity Commitments Scale (U-MICS; Crocetti et al., 2008) has been critiqued for being rather abstract and limited in the breadth and depth of identity that they can capture (Waterman, 2015). To some extent, this also reflects the fuzziness in the construct of identity; what is being understood and studied as "identity" has varied a lot over the years and across

the entire breadth of the identity research field (e.g., dual cycles of commitment and exploration processes, life narratives, distinctiveness, real-time self-statements, domain-specific identity). In line with this, the U-MICS identity questionnaire used in **Chapter 2** has been shown to distinguish poorly between adolescents with differing identity trait scores (e.g., reconsideration; using Item Response Theory modeling, Johnson et al., 2022). Thus, this questionnaire may provide little information on the underlying traits that we aim to measure, and this may be especially true for adolescents at the lower and higher ends of the trait distribution. For the Educational Identity Processes Scale (EIPS; Christiaens et al., 2022) which built onto the U-MICS and which was used in **Chapter 3, 5, and 8**, psychometric properties of the questionnaire – both at the scale-level and the item-level – still need to be examined in greater detail. Although a first validation has been conducted (Christiaens et al., 2022), the questionnaire should be validated in more diverse settings, with more diverse samples, and with an additional focus on the way these items function for individuals with differing scores on the trait distribution. Such an examination would give more insights into the possibilities for application but also the limitations of this questionnaire in terms of usage. Thus, a challenging but important step for future work is to improve the measurement and – if we can – the conceptualization of identity.

Finally, several of the presented chapters have made use of narrative identity measures. Specifically, **Chapter 5, 6, 7, and 8** included data derived from turning point narratives provided by participants to create a measure of identity. The use of such an approach in addition to an identity processes approach is a strength of this dissertation, especially because it centers around the subjective experience of individuals. At the same time, the use of narrative methods has also posed some challenges. Unfortunately, highlighting the greater intensiveness of such measurement for both researchers and participants, such samples were generally on the small side, especially longitudinally. As a result, power to detect effects may have been limited, and small effects may have been overlooked. Relatedly, the presented work and much of the previous work in this field has focused on singular identity narratives. Although processes in and aspects of these narratives are to an extent generalizable to broader identity, a focus on single experiences does not allow for easy integration into broader identity (Lilgendahl & McLean, 2020). Another important drawback of the current state of the narrative identity literature is that longitudinal research with narratives has been relatively scarce, and that information regarding the development of narrative identity and intraindividual variability therein is limited (although see McLean et al., 2016 and Pasupathi

et al., 2020). Thus, in addition to the call above and in **Chapter 8** for a focus on content, more longitudinal work on narratives with large samples and multiple narratives is greatly needed.

### **Concluding remarks**

This dissertation examined the association between life events and transitions, identity, and functioning, and investigated individual differences therein. The findings of each of the empirical studies as well as the overall conclusions provide evidence that life events and transitions, and especially the processing thereof, may be important, but also point out that an even more detailed, nuanced investigation of these associations is necessary. Individual differences in the social environment and in adolescents' levels of neuroticism were important for differences in their identity and functioning in general, but not so much for explaining the impact of life events and transitions on these outcomes. In sum, the presented work in this dissertation has provided some complex, preliminary answers to the studied aims. At the same time, more research is needed to answer these and new, exciting questions that were raised across the studies. As Alice would say, what we know of life events and transitions, identity, and functioning is becoming "curiouser and curiouser" – but all the more interesting!

Table 1  
*Overview of research findings per chapter*

Ch.	Aim	Findings
2	1.	<ul style="list-style-type: none"> <li>● Having to repeat a grade or experiencing the death of a loved one did not predict identity change, both when there was and when there was not a domain-match</li> </ul>
3.		<ul style="list-style-type: none"> <li>● Parental support, best friend support, and neuroticism did not moderate the effect of the events on identity</li> <li>● Parental and best friend support, and to a lesser extent low neuroticism, predicted more stability in educational and relational identity commitment, exploration, and reconsideration</li> <li>● Low educational commitment and high reconsideration predicted having to repeat a grade</li> </ul>
3	1.	<ul style="list-style-type: none"> <li>● On average, identity commitment increased and exploration decreased before the transition, and commitment and exploration decreased after the transition to secondary school</li> <li>● Subgroups of identity trajectories could only be distinguished for three out of five identity processes. The different profiles per process were relatively similar before the transition, but differed more from each other after the transition</li> </ul>
3.		<ul style="list-style-type: none"> <li>● Parental support, but not best friend support and neuroticism, was associated with more adaptive identity change</li> </ul>
4		<ul style="list-style-type: none"> <li>● Making the transition to tertiary education or working life was not related to pre- or post-transition personality change. However, having the role of employee was related to higher conscientiousness</li> </ul>
2.		<ul style="list-style-type: none"> <li>● Self-concept clarity did not moderate the association between life transitions and personality. Youth with greater self-concept clarity did show more adaptive levels across all timepoints for several traits, and higher conscientiousness after the transition to tertiary education</li> </ul>
5	2.	<ul style="list-style-type: none"> <li>● Early commitments to a secondary school predicted poorer post-transition psychological adjustment, whereas more exploration at the start of the pre-transition year and a greater increase in exploration predicted better educational adjustment</li> <li>● Negative parental expectations predicted poorer educational and psychological adjustment</li> <li>● Most adolescents were able to provide reasons for their school choice, and most provided more than one reason</li> </ul>
6	2 and 3.	<ul style="list-style-type: none"> <li>● Cross-sectionally, friendship quality was related to making a self-event connection and a redemption sequence</li> <li>● Making a self-event connection was also positively related to making a redemption sequence</li> <li>● Longitudinally, there were no significant associations but links were similar in size, especially for friendship quality and redemption</li> </ul>



Ch.	Aim	Findings
7	2.	<ul style="list-style-type: none"> <li>● Cross-sectionally and longitudinally, making self-event connections was not related to personality functioning</li> <li>● Cross-sectionally, positive event valence was related to higher functioning, but not after controlling for negative affectivity</li> <li>● Cross-sectionally, negative affectivity was strongly related to lower personality functioning</li> </ul>
8	2.	<ul style="list-style-type: none"> <li>● Narrative identity was not correlated with general and domain-specific well-being either cross-sectionally or longitudinally</li> <li>● Identity processes were not correlated with concurrent narrative identity when they both related to the secondary school transition</li> <li>● Valence did not impact the associations between identity and well-being, but content domain was a tentative moderator</li> </ul>



# Appendix

References

Summary in Dutch

Acknowledgements

Curriculum Vitae

Publication List

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## Summary in Dutch (Samenvatting in het Nederlands)

Identiteit betreft de fundamentele vraag “Wie ben ik?”, maar ook “Wat vind ik belangrijk” en “Wie ben ik in verschillende rollen in mijn leven?”. Identiteit gaat over de huidige zelf, maar refereert ook naar eerdere (i.e., “Wie was ik hiervoor?”) en toekomstige zelden (i.e., “Wie wil ik worden?”) en hun integratie. In het ontwikkelen van een identiteit beogen mensen een samenhangend en coherent geheel te vormen van wie men was, wie men nu is en wie men in de toekomst zal of wil zijn (McAdams, 1985). In de huidige dissertatie heb ik me gefocust op identiteit en identiteitsontwikkeling rondom levensgebeurtenissen en transities en de rol van de sociale context en persoonlijkheid daarin.

Identiteit kan worden bestudeerd vanuit verschillende perspectieven. Zo kan gefocust worden op *processen van identiteit* die jongeren gebruiken om een identiteit te “krijgen” en te “behouden”. Hierbij gaat het om de processen van exploratie van verschillende identiteitsopties en het kiezen van en verbinden aan een bepaalde optie (in het Engels: commitment; Marcia, 1966). Deze processen kunnen plaatsvinden terwijl individuen hun identiteit aan het vormen zijn (i.e., exploratie in de breedte, verbinding maken) en terwijl ze hun identiteit onderhouden (i.e., exploratie in de diepte, identificeren met verbindingen; duale-cyclus modellen van Luyckx et al., 2006 en Crocetti et al., 2008). Een andere benadering van identiteit kijkt naar de *aspecten van de narratieven* die mensen vertellen over hun identiteit. Vanuit deze benadering wordt identiteit gezien als het geïnternaliseerde levensverhaal over wie men is en hoe hun leven heeft bijgedragen aan het worden van die persoon (McAdams, 2011). Autobiografisch redeneren en betekenisverlening zijn narratieve constructies die belangrijk zijn voor de ontwikkeling van identiteit, omdat ze mensen helpen om hun ervaringen te interpreteren en om een gevoel van continuïteit in het zelf te creëren over de tijd heen (Habermas & Bluck, 2000; McAdams, 1993). Binnen de context van een verhaal over een enkele gebeurtenis kunnen mensen betekenis verlenen aan de gebeurtenis door expliciete connecties te maken tussen hun zelf en de gebeurtenis (Pasupathi et al., 2007). Deze zelf-gebeurtenis connecties kunnen afwezig of aanwezig zijn in de verhalen van mensen, maar kunnen ook variëren in waar ze over gaan (bijv. in termen van valentie en het levensdomein waar ze betrekking op hebben). De betekenis van een gebeurtenis kan ook veranderen over de tijd heen, wat kan resulteren in een narratieve constructie waarbij een initieel negatieve gebeurtenis een positieve interpretatie krijgt (Engelse term: redemption sequence; McAdams et al., 2001; McAdams, 2013b). In de huidige dissertatie zijn identiteit

en de centrale onderzoeksvragen vanuit beide perspectieven benaderd.

Gedurende de adolescentie is het vormen van een identiteit de belangrijkste ontwikkelingstaak (Erikson, 1950, 1968). Hierbij kan er sprake zijn van periodes van “crisis” – een actieve bevraging van de eigen identiteit – en wordt het succesvol oplossen van zulke crises gezien als essentieel voor gezonde ontwikkeling in latere levensfasen. In lijn hiermee is het hebben van een heldere, stabiele en coherente identiteit gelinkt aan een hogere mate van welzijn en minder psychologische en persoonlijkheidsproblemen gedurende de adolescentie en het latere leven (zie Branje et al., 2021 en Lind et al., 2020 voor recente overzichtsartikelen). Een gezonde identiteitsontwikkeling is dus van groot belang voor het welzijn van adolescenten.

### **De impact van levensgebeurtenissen en transitie momenten op identiteitsontwikkeling en de rol van de omgeving en de persoon**

De ontwikkeling van identiteit is een continu proces, dat zich gedurende het hele leven voortzet. Tijdens de adolescentie is er bewijs voor bescheiden verandering in de richting van een meer ontwikkelde identiteit maar ook voor overwegende stabiliteit in identiteitsprocessen (zie Branje et al., 2021 en Meeus et al., 2011 voor overzichten van dit werk gedurende de laatste twee decennia). Hoewel ontwikkeling dus verwacht wordt gedurende deze periode, is deze ontwikkeling vrij beperkt. Er kunnen echter momenten zijn die dienen als katalysatoren en de ontwikkeling van identiteit tijdelijk in stroomversnelling brengen. Gebeurtenissen zoals (stressvolle) levensgebeurtenissen en transities kunnen het identiteitsvraagstuk meer op de voorgrond brengen (Bosma & Kunnen, 2008; Marcia, 1966; Waterman, 1982) en kunnen adolescenten dwingen hun identiteit te (her)overwegen. Een aantal studies hebben aangetoond dat de identiteit van adolescenten inderdaad kan veranderen na het meemaken van non-normatieve levensgebeurtenissen (Penner et al., 2019) en normatieve transities (Christiaens et al., 2021). Anderen vonden echter geen verband tussen zulke gebeurtenissen en identiteit (bijv. Van Doeselaar et al., 2018). Of levensgebeurtenissen en transities een invloed hebben op de identiteit van adolescenten is dus nog onduidelijk.

Non-normatieve en normatieve gebeurtenissen kunnen niet alleen een impact hebben op identiteit, maar kunnen daarnaast ook op een bepaalde manier worden verwerkt en geïnterpreteerd vanuit de identiteit van adolescenten. Deze interpretatie is belangrijk om de impact van zulke gebeurtenissen op het bredere functioneren van adolescenten te begrijpen (Skaggs & Barron, 2006). Verscheidene studies hebben aangetoond dat betekenisverlening door adolescenten is gerelateerd aan beter functioneren (voor recente overzichtsartikelen,

zie Adler et al., 2016 en McLean et al., 2020). Niet alleen het wel of niet verlenen van betekenis, maar ook het soort betekenis dat wordt verleend, is echter mogelijk belangrijk voor breder functioneren. Onderzoek bij adolescenten naar de soort betekenisverlening en de relatie met algemeen functioneren is nog uitgebleven.

Verder is de impact van levensgebeurtenissen en transities mogelijk niet voor alle adolescenten hetzelfde en factoren in de omgeving en de persoon kunnen deze impact modereren. Hoewel identiteitsontwikkeling vaak wordt gezien als een individualistisch proces, speelt de sociale context een belangrijke rol hierin (Fivush et al., 2011). Ouders en in toenemende mate vrienden vormen een veilige basis voor adolescenten van waaruit ze hun opties kunnen exploreren (Ainsworth, 1989; Bowlby, 1969; Furman & Buhrmester, 2009) en dienen daarnaast als context om nieuwe identiteiten te ontdekken, verder te ontwikkelen of uit te testen (McLean & Jennings, 2012; Pasupathi & Hoyt, 2009; Swan, 2000; Swan et al., 2000). Persoonlijkheidskenmerken spelen daarnaast een rol in de mate waarin adolescenten durven te exploreren en verbindingen aangaan (Klimstra, 2013; Klimstra et al., 2013). Met name neuroticisme, een persoonlijkheidstrekk die de mate betreft waarin mensen emotioneel instabiel zijn, hangt samen met het maken van minder sterke verbindingen en meer heroverweging van die verbindingen (Hatano et al., 2017; Klimstra et al., 2012). Hoewel dus zowel de sociale context als neuroticisme gelinkt zijn aan identiteit is nog niet bekend of zij ook een rol spelen in de relatie van levensgebeurtenissen en transities met identiteit.

### **Doelstelling van dit proefschrift**

Dit proefschrift was erop gericht om te onderzoeken 1) of levensgebeurtenissen en transities gerelateerd zijn aan identiteitsverandering en 2) of de wijze waarop adolescenten zulke momenten verwerken in hun identiteit belangrijk is voor hun bredere functioneren. 3) Daarnaast werd in al het geïncorporeerde werk bekeken welke rol factoren in de omgeving en de persoon hebben als hulpbron of kwetsbaarheidsfactor voor de ontwikkeling van identiteit rondom levensgebeurtenissen en transities. De artikelen in dit proefschrift dragen op verschillende manieren bij aan de wetenschappelijke kennis over identiteitsontwikkeling gedurende de adolescentie. Ten eerste benaderen de studies in dit proefschrift de vraagstukken vanuit verschillende onderzoeksdesigns met verschillende conceptualisaties en metingen van gebeurtenissen, identiteit en functioneren. Identiteit werd bijvoorbeeld bekeken vanuit het perspectief van identiteitsprocessen en narratieve aspecten. De artikelen focusten daarnaast op zowel non-normatieve levensgebeurtenissen als normatieve transities.

Ten tweede is er gebruik gemaakt van verscheidene datasets van Nederlandse jongeren, waarbij identiteit is bekeken in de vroege, midden- en late adolescentie, alsook de vroege volwassenheid. Ten derde combineren de artikelen in dit proefschrift kwantitatieve data analyse methoden met een meer kwalitatieve benadering van adolescentie identiteit.

**Hoofdstuk 2 en 3** keken naar de vraag of levensgebeurtenissen en transitie gerelateerd zijn aan identiteitsverandering. In **Hoofdstuk 2** stond het verband tussen non-normatieve gebeurtenissen en identiteit centraal. Specifiek keek ik hier naar een jaar blijven zitten en naar de sterfte van een geliefde als stressvolle levensgebeurtenissen. Identiteit werd gemeten als verbinding, exploratie en heroverweging van verbindingen in het educatieve en relationele levensdomein. Het meemaken van de levensgebeurtenissen was niet voorspellend voor verandering in identiteit, maar het omgekeerde effect was wel zichtbaar: jongeren die een lagere verbinding voelden ten opzichte van hun identiteit in het educatieve domein en die deze verbinding meer heroverwogen, hadden een verhoogde kans om in het aankomende jaar te blijven zitten. **Hoofdstuk 3** focuste zich op identiteit rondom de transitie van de basisschool naar het voortgezet onderwijs. Jongeren vulden vragenlijsten in over hun educatieve identiteit in de herfst en lente van het pre- en post-transitie jaar. Er was een kleine toename over het pre-transitie jaar en een kleine afname in het post-transitie jaar in de mate waarin jongeren exploreerden en zich verbonden aan hun educatieve identiteitskeuzes. Samengenomen over de twee hoofdstukken heen was er echter beperkt bewijs voor een rol van levensgebeurtenissen en transitie in identiteit.

De rol van de interpretatie van levensgebeurtenissen en transitie vanuit identiteit binnen het bredere functioneren is onderzocht in vier hoofdstukken. **Hoofdstuk 4 en 5** focusten zich op normatieve gebeurtenissen, terwijl **Hoofdstuk 6 en 7** gericht waren op non-normatieve keerpunten in het leven van adolescenten. **Hoofdstuk 4** toonde aan dat de mate van helderheid van het zelfbeeld gelinkt is aan meer adaptieve niveaus van persoonlijkheidstrekken in het algemeen en hogere niveaus van zorgvuldigheid na de transitie naar tertiair onderwijs. Echter, het bleek geen consistente moderator van het effect van de transitie naar tertiair onderwijs en de transitie naar werk op persoonlijkheid. **Hoofdstuk 5** onderzocht exploratie van en verbindingen aan educatieve identiteitskeuzes in het jaar voor de transitie naar de middelbare school als voorspellers van welzijn in het post-transitie jaar. Een hoge mate van exploratie aan de start van het pre-transitie jaar en een toename daarin gedurende het jaar waren gerelateerd aan beter welzijn op de middelbare school. Sterkere verbindingen aan de start van het pre-transitie jaar waren daarentegen gerelateerd aan lager welzijn na de

transitie. Met het oog op keerpunten bekeek **Hoofdstuk 6** of de kwaliteit van de vriendschappen van jongeren voorspellend is voor en wordt voorspelt door de aspecten van hun narratieven over een keerpunt in hun leven. Deze studie toonde aan dat jongeren die in hun narratieven zelf-gebeurtenis connecties maken en negatieve gebeurtenissen positief ombogen (i.e., “redemption”), een hogere mate van vriendschapskwaliteit hadden op hetzelfde moment. Vriendschapskwaliteit was echter niet voorspellend voor, noch werd het voorspeld door deze narratieve aspecten. Ten slotte breidde **Hoofdstuk 7** de kennis over identiteit in kwetsbare populaties uit, door de associatie tussen zelf-gebeurtenis connecties en algemeen functioneren te bekijken in een steekproef van jongeren met ernstige psychopathologie. Er was een cross-sectionele associatie tussen een positieve valentie van de gebeurtenis in het keerpunt verhaal en beter algemeen functioneren, maar er was geen longitudinale associatie. Samen genomen verschaffen deze vier hoofdstukken bewijs dat identiteitsprocessen rondom levensgebeurtenissen en transities een rol spelen in of en hoe deze gebeurtenissen breder functioneren voorspellen.

De laatste doelstelling van dit proefschrift was om te onderzoeken wat de rol is van factoren binnen de omgeving en de persoon in identiteitsontwikkeling rondom levensgebeurtenissen en transities. Om deze vraag te beantwoorden heb ik me binnen dit proefschrift gefocust op de kwaliteit van de sociale context en op de persoonlijkheidstrek neuroticisme. **Hoofdstuk 2 en 3** onderzochten of steun van ouders en van een beste vriend(in) en neuroticisme individuele verschillen kunnen verklaren in identiteitsontwikkeling rondom levensgebeurtenissen en transities. In **Hoofdstuk 2** was er substantiële variatie in de associatie tussen het meemaken van de levensgebeurtenissen en identiteit, maar was er geen bewijs dat deze variatie kon worden verklaard door de mate waarin jongeren steun ervaarden van ouders of hun beste vriend(in), of waarin zij neurotisch waren. Laag neuroticisme en met name hoge steun waren wel voorspellend voor een meer stabiele identiteit, ongeacht of er een levensgebeurtenis plaatsvond. **Hoofdstuk 3** toonde interindividuele verschillen aan in identiteit in drie van de vijf onderzochte identiteitsprocessen en liet verder zien dat deze verschillen prominenter waren na de transitie naar de middelbare school dan ervoor. Enkel steun van ouders en niet steun van de beste vriend(in) of de mate van neuroticisme bleek voorspellend voor het patroon van verandering. Specifiek was meer steun van ouders gelinkt aan meer adaptieve verandering in exploratie in de breedte over de schooltransitie heen. **Hoofdstuk 6** liet verder nog een bidirectionele relatie zien tussen hogere vriendschapskwaliteit en de aanwezigheid van narratieve identiteitsaspecten. Deze

studies leken dus aan te tonen dat de sociale context en persoonlijkheidstrekken belangrijk kunnen zijn, maar met name voor identiteit in het algemeen en minder specifiek voor identiteitsontwikkeling rondom het plaatsvinden van levensgebeurtenissen of transities.

### **Conclusie**

Dit proefschrift was gericht op de relatie tussen levensgebeurtenissen en transities, identiteit en algemeen functioneren. Over zeven empirische studies werd aangetoond dat levensgebeurtenissen en transities belangrijk zijn, maar dat hun impact op adolescenten niet in steen gebeiteld staat. In plaats daarvan lijkt het belangrijker om te focussen op de betekenis die adolescenten toekennen aan deze gebeurtenissen en hoe ze deze momenten integreren in hun identiteit. Toekomstig onderzoek kan zich richten op het verdiepen van onze kennis over de nuances hierin; wanneer is integratie belangrijk, wanneer positief en voor wie – en wanneer en voor wie niet. Hierbij is een focus op de inhoud van identiteit van cruciaal belang. Daarnaast heeft het beschreven onderzoek bevindingen uit eerder onderzoek bevestigd en aangetoond dat de sociale context en neuroticisme belangrijk zijn voor identiteitsontwikkeling en algemeen functioneren. Deze factoren lijken echter geen rol te spelen in de relatie van levensgebeurtenissen en transities met identiteit. De sociale context en neuroticisme lijken dus in het algemeen belangrijk voor positieve ontwikkeling, maar niet in het bijzonder in de context van levensgebeurtenissen en transities. Verder onderzoek is echter nodig om te zien of andere factoren in de omgeving en persoon wel een rol spelen in deze context.

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## Curriculum Vitae

Elisabeth L. de Moor started her bachelor's education in Psychology and Health in 2013 at Tilburg University. From 2014 to 2016, she combined the regular program with an Excellence Program focused on different subdisciplines of psychology, both of which she graduated from with honors. Already during this time, she was interested in the self during adolescence, which was also the topic of her bachelor thesis under supervision of dr. Odilia M. Laceulle. She also studied the self in several voluntary internships with drs. Odilia M. Laceulle, Joanne M. Chung, and Theo A. Klimstra. After her bachelor's, Elisabeth completed the two-year Individual Differences and Assessment Research Master at Tilburg University (with honors), which she concluded with a thesis on adolescent identity and its relation to substance use under supervision of dr. Theo A. Klimstra. Furthermore, during this time she worked on a large-scale project of dr. Theo A. Klimstra to help collect data and code collected narratives for identity. In this role, she learned to use different narrative identity coding schemes. She was also involved with the European Journal of Personality as assistant to the Research Communications Editor (dr. Joanne M. Chung).

In September 2018, Elisabeth started a four-year PhD trajectory at the department of Youth and Family at Utrecht University, supervised by dr. Jolien Van der Graaff and prof. dr. Susan Branje. She was actively involved in setting up and executing data collection for the four-wave INTRANSITION project. Additionally, she attained funding for and set up the Becoming Me project, a two-wave study on adolescent (narrative) identity and the association with well- and ill-being. During her time as a PhD, she organized two online, international symposia on narrative identity in vulnerable populations and presented her own work at several national and international conferences, online and in person. She also worked and continues to work as Research Communications Editor at the European Journal of Personality and as co-host for the Personality Psychology Podcast. She published her bachelor's and master's thesis and seven other papers as a first author (five of which are included in this dissertation). In addition, she co-authored five other papers. Apart from doing research, Elisabeth was involved in several teaching activities, such as the teaching of workgroups to first-year bachelor students, supervision of master and research master theses, supervision of research master internships, and the teaching of several guest lectures.

Elisabeth continues to examine the development of self during adolescence and young

adulthood as an Assistant Professor at the department of Developmental Psychology at Tilburg University.

## Publication List

Branje, S., **De Moor, E. L.**, Spitzer, J., & Becht, A. (2021). Dynamics of identity development in adolescence: A decade in review. *Journal of Research on Adolescence*, *31*, 908–927. <https://doi.org/10.1111/jora.12678>

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