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Becoming European: Mid- and Short-Term Development of a European Identity Among Adolescents

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ABSTRACT

European identity formation is a component of political identity and linked to the support of European institutions and values. To understand how it develops, we examined three processes of identity formation (commitment, in-depth exploration, and reconsideration of commitment) on a short- and mid-term time scale, and their interrelations. A total of 371 German adolescents ($M_{age} = 14.24$, $SD_{age} = 0.55$, 60.37% females) participated in a longitudinal study and in a ten-day daily diary study. We conducted latent growth curve analysis (LGCM) and assessed rank-order stability and profile similarity for both time scales. Next, conditional LGCMs were run to examine associations of both time scales. We found a significant increase of all identity processes from the beginning to the middle of the school year and a significant decrease from the middle to the end of the school year. Across 10 days, growth curves varied according to the identity process. Stabilities were high for both time scales. Commitment at the beginning of the school year was negatively associated with fluctuations in commitment. Our results highlight the importance of examining different time scales and focusing on specific domains for understanding identity development in adolescence. They further indicate that short-term processes are associated with long-term development.

KEYWORDS

European identity; longitudinal; latent growth curve analysis; short- and mid-term development; identity processes; daily diary; adolescents

Introduction

Identity formation is a key developmental task during adolescence (Erikson, 1950, 1968). Young people enter this period of life with a set of preliminary identity commitments (e.g., childhood identifications) that are based on parental or peer values and norms (Crocetti, 2017). These values and norms are questioned in adolescence as youth search for self-defined commitments across various life domains (e.g., educational, interpersonal; Vosylis et al., 2018). Identity domains also include those related to adolescents' belonging to different social groups (Tajfel & Turner, 1979) such as gender, ethnicity, or nationality (Crocetti et al., 2018). Within Europe, one potentially important social identity is the European identity.

Identifying with Europe is considered to be a crucial factor for securing the future of the European Union (EU; Habermas, 2014; for empirical evidence, see Ciaglia et al., 2018; Hooghe & Marks, 2004; Vries & van Kersbergen, 2007). After all, the EU's continuity significantly builds on the support of its

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younger, and hence future generations (Hooghe & Marks, 2004). When examining adolescents' identification with Europe, a study across eight EU countries showed that a large share of adolescents and young adults (30% to >50%) either identified to a similar extent with Europe and their nation, or even identified more strongly with Europe than with their nation (Landberg et al., 2018). The large share of adolescents identifying with Europe would constitute a positive finding for the future of the EU. However, approximately a quarter of young people reported no or low identification with Europe and a sizable share supported Eurosceptic and right-wing political movements during the recent EU Parliament elections 2024 (Schnetzer et al., 2024).

A limitation of previous studies on European identity (e.g., Agirdag et al., 2012; Brummer et al., 2022) is that most examined only one identity dimension (i.e., commitment or identification with Europe) using cross-sectional designs and, therefore, offer little evidence on European identity development. However, identity is not achieved once and then remains unchanged, rather individuals can explore their identities, reflect upon, revise, or change them (Crocetti, 2017). Thus, it is of utmost importance to longitudinally tackle developmental processes of stability and change in European identity.

Furthermore, we need to consider different time scales in the development of European identity. Following Lichtwarck-Aschoff et al. (2008) conception of identity development, which is based on dynamic systems theory, identity can be seen as an order parameter that emerges out of real-time interactions between person and context. As such, identity provides a pattern, structure, or regularity for its real-time components, like emotions and interactions (i.e., an adolescent strongly committed to their European identity might discuss topics to their European identity more often than an adolescent who is not committed to a European identity). At the same time, the real-time components are the basis from which identity is assumed to emerge (i.e., daily experiences shape identity and over time lead to change). Hence, considering identity's expression on different time scales is crucial for a comprehensive understanding of identity development. First, processes across longer periods of time (e.g., months) manifest differently than processes across shorter periods of time (e.g., days; Klimstra & Schwab, 2021). Thus, results should not be cross-generalized across time scales (Lichtwarck-Aschoff et al., 2008), but different time scales should be considered when examining developmental processes. Second, this separation would allow to systematically examine how momentary fluctuations and development change are interrelated (Bosma & Kunnen, 2001; Lichtwarck-Aschoff et al., 2008).

So far, research on identity development mainly focused only on mid- to long-term development (e.g., change over one year; Greischel et al., 2018; Schubach et al., 2016; for a review, see van der Gaag et al., 2016), and only few studies examined different time scales conjointly (e.g., Becht et al., 2017, 2021; Klimstra, Luyckx, et al., 2010). Regarding adolescents' European identity, there is only one study that examined its development by drawing on a mid-term time scale (Jugert et al., 2021). The current study contributes to our understanding of European identity development by examining two time scales, a short-term time scale and mid-term time-scale, and their association. Thereby, it offers novel insights into how developmental processes of European identity manifest on different time scales and whether short-term processes influence mid-term processes.

European identity in adolescence

Building on Erikson's psychosocial theory (Erikson, 1950) and Marcia's identity status paradigm (Marcia, 1966), the three-factor identity model from Crocetti et al. (2008) is currently one of the major theoretical approaches on *how* identity is developed. It proposes three interacting dynamic processes of identity development: commitment, in-depth exploration, and reconsideration of commitment. *Commitment* refers to making enduring choices and the self-confidence derived from these choices. *In-depth exploration* refers to the extent to which adolescents think about their current commitments and reflect upon their meanings. *Reconsideration of commitment* refers to the comparison of current

commitments with possible alternatives, if the current ones are perceived as no longer satisfactory (Crocetti, 2017).

The interaction of the three processes is captured by two cycles, an identity maintenance cycle and an identity formation cycle (Crocetti, 2017). In the *identity maintenance cycle*, based on the interplay between commitment and in-depth exploration, individuals can delve deeply into their choices, examining whether they align well with their aspirations, abilities, and potential. When this does not happen, and individuals begin to doubt their identity, they transition into the *identity formation cycle*. In this cycle, based on the interplay between commitment and reconsideration of commitment, they seek out new options because their existing commitments fail to satisfy or align with their needs. Consistent with a dynamic conception of identity (Bosma & Kunnen, 2001; Lichtwarck-Aschoff et al., 2008), both cycles are assumed to take place on a day-to-day basis as well.

As part of the three-factor identity model, the specification of identity domains (e.g., cultural, Kranz & Goedderz, 2020, and regional, Schubach et al., 2017) addresses the essence of *what* is being developed. Identity domains within a person do not necessarily develop simultaneously (Vosylis et al., 2018). For example, the congruence between vocational (e.g., commitment to one's job) and interpersonal identity (e.g., commitment to one's best friend) was found to be small with only 18% of youth showing high commitment in both domains (Luyckx et al., 2014). Thus, it is important to study specific identity domains instead of generalizing findings from one domain to another. While some identity domains are well studied (e.g., educational or interpersonal domain; see, for example, Hatano et al., 2020; Negru-Subtirica et al., 2023), others remain understudied, including the European identity domain.

Committing to a European identity is argued to be relevant for securing the stability of the EU (Habermas, 2014). Furthermore, a European identity could create a feeling of belonging together among ethnically diverse Europeans by being a unifying social identity (i.e., feeling European instead of German or Italian; Clycq, 2021), thereby reducing ingroup favoritism and outgroup bias. Additionally, even though previous studies did not link European identity commitment to indicators of well-being, stable and strong European identity commitments likely contribute to adolescent psychosocial adjustment as they decrease identity uncertainty (Branje et al., 2021). Relatedly, a study by Albarello et al. (2021) found that identification with proximal and distal groups (i.e., classmates and humanity) was positively related to social well-being in adolescence. Given the potential relevance of the European identity for the EU and for adolescents' adjustment, it is pivotal to study its development particularly close to its emergence. Work by Barrett (2007) suggests that this is around ages 10 to 15, making early adolescence an interesting period to study European identity development. Additionally, adolescence can be assumed to be a formative period for political identity (Erikson, 1968; Yates & Youniss, 1998) analogously to general development of political attitudes ("impressionable years hypothesis"; Sears & Funk, 1999; e.g., Rekker, 2018; Rekker et al., 2015).

Looking at identity development through different time scales

Development unfolds across time, rendering it necessary to consider the role of time in identity development. In this vein, Lichtwarck-Aschoff et al. (2008) described a framework for identity development based on dynamic systems theory. One dimension of their framework that is particularly relevant for research on identity is the differentiation between an aggregated time-level, and one that is rooted in daily experiences (Klimstra & Schwab, 2021). The aggregated time-level describes changes in a mid- (e.g., months up to a year) or long-term time scale (e.g., years). Identity processes at this level include individuals' reflections and abstract thoughts on their lives, including accumulated daily experiences. The short-term time scale (e.g., hours or days) captures the level where interactions between the person and context take place. Identity processes at this level include experiences, feelings, and interactions situated in contexts (Lichtwarck-Aschoff et al., 2008).

Identity processes on both time scales are assumed to be interconnected (Bosma & Kunnen, 2001; Lichtwarck-Aschoff et al., 2008; for empirical evidence, see Becht et al., 2021; Klimstra, Luyckx, et al.,

2010). Identity on the mid-term time-level provides patterns that guide short-term expressions of identity. For example, adolescents strongly committed to their European identity will more likely discuss meanings of being European with others than someone not committed to being European. Although guided by identity on the mid-term time-level, identity on the short-term level can eventually lead to change on the mid-term level. As such, by repeatedly learning negative things about Europe, adolescents' commitment might decrease, which could cause them to engage less in discussion about the meaning of being European.

Even though processes on different time-levels are interrelated, the expression and manifestation of identity processes can vary depending on the chosen time-level. For example, commitment and reconsideration were found to be negatively correlated with each other on the same day (Klimstra, Luyckx, et al., 2010), but higher levels of reconsideration were positively associated with commitment three to six months later (Becht et al., 2017). Considering the interrelations of short- and mid-term identity, as well as differences in the expression of identity processes depending on the time scale, it is necessary to systematically investigate different time scales and their interrelations for a comprehensive understanding of identity development.

Despite the need to consider different time-levels, most studies on identity development focused on mid- to long-term development (e.g., Greischel et al., 2018; Schubach et al., 2016). In regards to European identity, only one study examined its development across a mid-term time scale (Jugert et al., 2021). The study by Jugert et al. (2021) focused on identity statuses and their stability as well as change across one year within two-longitudinal samples of young people (i.e., German and Czech youth). They found moderate to high stability in identity profiles with little evidence of systematic transitions from one identity status to the other. Thus, this prior study tackled individual differences in how adolescents cope with the task of developing their European identity and related transitions in it.

In the current study, we take a step further by systematically examining European identity development at short- and mid-term time scales separately and conjointly. Furthermore, instead of examining identity status transitions, we investigated growth patterns of identity processes separately to also capture smaller changes in identity formation (Klimstra, Hale, et al., 2010; Meeus, 1996). To assess short-term and mid- to long-term development, multiple indicators of change and stability (Bornstein et al., 2017), such as mean-level change, rank-order stability, and profile similarity, can be used.

Mean-level changes

Longitudinal research on adolescents' development commonly focused on patterns in mean-level changes (e.g., Bornstein et al., 2017), which have mostly been studied for mid- (within a year, e.g., Pop et al., 2016) and long-term identity development (for a review, see Branje et al., 2021; Meeus, 2011). The results indicate that identity development is rather stable from adolescence to young adulthood in terms of mean levels irrespective of the examined domain (e.g., adolescents with strong identity commitments remain strong in their commitments). When studies found developmental change, it was mostly in the direction of identity maturation (i.e., an increase in commitment and exploration and a decrease in reconsideration). Developmental change in the direction of identity regression, although less common, was also observed (i.e., a decrease in commitment and exploration and an increase in reconsideration within a year; Pop et al., 2016). In the literature on identity formation, daily assessments have become increasingly popular. Studies on day-to-day mean-level changes indicated that adolescents generally show relatively high and stable mean-levels in their identity processes (Becht, Nelemans, et al., 2016).

Rank-order stability

Another parameter to capture identity development is rank-order stability. It refers to the extent to which inter-individual differences are stable over time (Bornstein et al., 2017). In other words,

rank-order stability indicates whether the relative position of an adolescent within a group remains the same over a period of time, even if the group mean increases or decreases on that trait (Mroczek, 2010). For example, if one adolescent is higher in identity commitment than another one at the beginning of the school year and still shows relatively higher levels of identity commitment at the end of the school year, this would indicate high rank-order stability. The review on longitudinal studies of identity development by Meeus (2011) indicated that rank-order stability has medium (>.30) or large (>.50) effect sizes for survey periods between half a year and four years in adolescent samples, with shorter periods and older samples showing higher rank-order stability.

Profile similarity

Another parameter of development is profile similarity (Roberts et al., 2001). Profile similarity is a person-centered index capturing intra-individual consistency in a cluster of psychological dimensions. For example, if an adolescent scores high on commitment, moderate on exploration, and low on reconsideration at the beginning of the school year, and shows the same intra-individual rank-order at the end of the school year, this would be indicative of a consistent profile. Profile similarity for identity is high during adolescence, it increases with age (e.g., Klimstra, Hale, et al., 2010), and it is likely higher for shorter time scales compared to longer time scales.

Current study

This study aimed to explore developmental trajectories of European identity across one school year (mid-term time scale, aim 1) and 10 consecutive school days (short-term time scale, aim 2), and whether and how daily processes are associated with developmental trajectories across one school year (aim 3). To achieve these aims, we concentrated on students attending 9th grade in two German federal states: North-Rhine Westphalia (NRW, western Germany), primarily focusing on the Ruhr area, and Thuringia (eastern Germany). We selected the 9th grade because schools are required to teach EU- and Europe-related topics to a similar extent across school tracks at that time in both federal states (e.g., QUA-LiS, 2022; THILLM, 2022).

To address aim 1 and aim 2, we examined developmental trajectories for commitment, exploration, and reconsideration considering mean-level change, rank-order stability, and profile similarity. Based on the reviewed literature, we expected to either find stability or progressive changes in identity processes on the mid-term time scale (H1). In the case of identity progression, commitment and exploration were expected to increase, while identity reconsideration was expected to decrease across the school year. During the 10 consecutive school days, we expected mostly stable identity processes, meaning that we did not expect significant changes in mean-levels (H2; Becht et al., 2021). Regarding rank-order stability, we expected medium-sized rank-order stabilities for our mid-term time scale and generally higher rank-order stabilities for our short-term time scale (H3). Similarly, for profile similarity, we expected medium profile similarity for our mid-term time and higher profile similarity for our short-term time scale (H4; for a review of longitudinal studies, see Meeus, 2011, 2019; for stabilities for short-term time scale, see Becht et al., 2021; Klimstra, Luyckx, et al., 2010).

To address aim 3, we examined the association of daily fluctuations of European identity processes with developmental trajectories from the beginning to the end of the school year. Arguably, longer term identity development is intertwined with short term interactions (i.e., real time activities on a daily basis; Lichtwarck-Aschoff et al., 2008). Based on previous studies and the theoretical notion of self-sameness and continuity over time (Erikson, 1950), we expected that lower levels of daily fluctuations in commitment (i.e., indicating a high sense of sameness and continuity across days) would relate to higher levels of commitment half a school year later (H5; Lichtwarck-Aschoff et al., 2008). We examined associations of daily fluctuations in exploration and

reconsideration exploratively. In these analyses, we controlled for demographics (gender, ethnic background, and school track) and contextual characteristics (region). The study's hypotheses and statistical analyses were preregistered (https://doi.org/10.17605/OSF.IO/ARQNZ).

Materials and methods

Participants

The present study was part of a larger research project (*JUROP: Youth and Europe*) conducted in Germany (see supplemental material for further information). It included a longitudinal paper-pencil questionnaire with two measurement points (T1 and T3) and an online 10-day daily dairy study with a baseline assessment (T2) between the two main surveys (T1 and T3). The sample of the current study comprised 371 adolescents. Participants were on average 14.24 years old ($SD = 0.55$) at T1, and 60.38% were female (38.81% male, 0.54% nonbinary, and 0.27% missing). They were enrolled in the 9th school grade of college-bound high schools (64.42%), vocational schools (7.82%), or comprehensive schools (27.76%). Most students were ethnic majority members (72.77%; i.e., they and their parents were born in Germany), followed by second-generation immigrants (17.78%, at least one parent was born in another country) and first-generation immigrants (4.85%, they were born in another country; missing = 4.60%).

Procedure

This research was approved by the ethics committees of the University of Duisburg-Essen and the Friedrich-Schiller University Jena(FSV 21/047). We contacted schools via e-mail and telephone. If schools indicated interest, we sent them further information, including informed consent forms for students and their parents. After active informed consents were obtained, research team members visited participating schools and administered a paper-pencil questionnaire during school hours (average duration ~60 minutes; September 1, 2021 to January 2022; $n = 1{,}206$).

Participants could indicate with their informed consent, whether they wanted to participate in the daily diary study (January 2, 2022 to February 2022). From those, we randomly invited $n = 400$ participants from which $n = 371$ participated in the daily assessments. During the study, we sent participants daily text message invitations on their smartphones to an online questionnaire with 16 questions on 10 consecutive school days (2 × 5 days without weekends). Participants without own smartphones could borrow one from the research team. The invitations were sent out after school hours (5 p.m.) followed by up to two reminders at 6 p.m. and 7 p.m., when needed. Even though the final reminder was sent at 7 p.m., participants could answer until midnight every day to allow for individual flexibility. All daily diary participants received a 25€ coupon as compensation upon participation. To further incentivize them and ensure a large enough sample size, participants received an additional 15€ coupon when they filled out at least eight out of 10 questionnaires. This study procedure was approved by the ethics committee and is used frequently in intensive longitudinal studies (see Wrzus & Neubauer, 2023).

For T3, research team members visited participating schools again and administered a paper-pencil questionnaire during school hours (average duration ~60 minutes) between April 2022 and July 2022. All participating classrooms were compensated with 100€ for their class fund and first results were discussed with participants, if schools were interested.

Measures

European identity – questionnaire measures

We assessed European identity with a shortened version of the Utrecht-Management of Identity Commitments Scale (U-MICS; Crocetti et al., 2008) adapted for European identity (Noack & Macek, 2017). The scale included nine items, three for each identity process: commitment (e.g., "I feel a strong connection to Europe," $\omega = .76/.77/.82$, T1/T2/T3), exploration (e.g., "I think often about what it means to be European," $\omega = .66/.75/.70$, T1/T2/T3), and reconsideration (e.g., "My attitudes and thoughts about Europe are changing," $\omega = .66/.69/.75$, T1/T2/T3). All items were scored on a 5-point Likert scale (1 = *do not agree at all*, 5 = *fully agree*).

European identity – daily diary measures

We repeatedly assessed participants' daily European identity with adapted items from the U-MICS daily diary scale (Becht, Branje, et al., 2016; Klimstra, Luyckx, et al., 2010). The scale included one item for each identity process: commitment ("Today, I felt European"), exploration ("Today, I often thought about what being European means"), and reconsideration ("Today I felt like my attitudes and thoughts about Europe are currently changing"). All items were scored on a 5-point Likert scale (1 = *do not agree at all*, 5 = *fully agree*).

Fluctuations in short-term identity processes

To examine the influence of short-term identity processes on mid-term identity processes, we calculated intraperson standard deviations averaged across the daily diary study's 10 school days for each European identity process (Klimstra, Luyckx, et al., 2010). Higher values indicate higher intraperson fluctuations across the 10 school days.

Demographic variables

We included gender (1 = *female*, 2 = *male*; *nonbinary* removed due to small subsample size), federal state (1 = *NRW*, 2 = *Thuringia)*, ethnic background (1 = *ethnic majority*, 2 = *ethnic minority*), and school track (*college-bound high school*, *vocational school*, *comprehensive school*; dummy-coded) as control variables into the models.

Data analysis

Descriptive statistics, rank-order stability, and profile similarity were computed using IBM SPSS Version 29.0 for Windows. We conducted all other analyses in Mplus 8.10 (Muthén & Muthén, 1998–2017) using the Maximum Likelihood Robust (MLR) estimator (Satorra & Bentler, 2001). For preliminary analysis, we tested whether participants commitment, exploration, and reconsideration on both time scales showed longitudinal measurement invariance (Putnick & Bornstein, 2016). We compared configural invariant models (i.e., same pattern of free and fixed factor loadings) with metric invariant models (i.e., factor loadings equal across time points) and scalar invariant models (i.e., factor loadings and intercepts equal across time points). To evaluate model fit, we considered the Comparative Fit Index (CFI) and the Tucker–Lewis Index (TLI; both >.900) and Root Mean Square Error of Approximation together with its 95% confidence interval (RMSEA; < .080; Byrne, 2013). For model comparison, we considered both the χ^2-square difference test and changes in fit indices (ΔCFI $\geq -.010$ and ΔRMSEA $\geq .015$; Chen, 2007).

To study the development of commitment, exploration, and reconsideration across one year and across 10 school days, we conducted univariate Latent Growth Curve Models (LGCM)[1] for each

identity process on each time-level (mid-term: 3 LGCM with 3 measurement points; short-term: 3 LGCM with 10 measurement points). LCGM provides mean levels (i.e., intercepts), rates of change (i.e., slopes), and variability of these parameters (Duncan et al., 2006). Across one year, we estimated no-growth, linear, and piecewise growth models. We included piecewise growth models, since mean levels indicated non-linear growth, but free growth models cannot be estimated with three measurement points. Across the 10 consecutive school days, we estimated no growth, linear, quadratic, and free growth models. Model fit and model comparison were assessed with the same indices as presented above (Byrne, 2013).

To assess rank-order stability, we calculated Pearson's test–retest correlations with observed variables (i.e., correlation between commitment at T1 and T2 and that at T2 and T3). To assess profile similarity, we calculated *q*-correlations (e.g., Block, 1971). Coefficients equal to or higher than .30 signify moderate stability (Meeus, 2011), while coefficients equal to or higher .60 signify high stability (Mroczek, 2010). Additionally, we tested the significance of differences in rank-order stability and profile similarity using Fisher *r*-to-*z* transformation to convert correlation coefficients into *z*-scores and compare them for statistical significance. On the mid-term scale, we compared the stabilities of T1-T2 and T2-T3. On the short-term scale, we compared T1-T2 and T9-T10 (both weeks), T1-T2 and T4-T5 (first week), T6-T7 and T9-T10 (second week), and adjacent time points.

After model selection and to study the interrelation of both time scales, we reran our selected mid-term LGCMs including fluctuation scores as predictors (conditional LGCMs). We additionally controlled for gender, school track, ethnic background, and federal state. First, we tested each predictor separately for each process (see supplementary material Table S6). Second, we included all significant predictors in one conditional LGCM for each process. Furthermore, as part of a not preregistered exploratory analysis, we examined whether identity fluctuations predicted mean-level changes between T2 and T3 using a multivariate multilevel model with cross-level interactions. We did so to focus specifically on the association of identity fluctuations and change alone, thereby reducing model complexity. On the within-level, we defined a latent slope for mean-level changes between T2 and T3 that could vary between participants. On the between-level, we regressed latent slopes of mean-level changes on European identity fluctuation scores.

Results

Descriptive statistics and correlations of all study variables are reported in the supplemental materials (Tables S1 and S2). Configural and metric longitudinal measurement invariance and partial scalar invariance were established for commitment, exploration, and reconsideration. These results are also reported in the supplemental materials (Table S3). Mplus syntaxes and data to reproduce the study's results are available at the project's OSF page (https://doi.org/10.17605/OSF.IO/B6CY2).

Development of European identity across different time scales

Mean-level changes

Across the school year, a piecewise growth model fits best for all three identity processes (commitment: $\chi 2(2) = 7.334$, CFI = .970, TLI = .955, RMSEA = .085 95% CI [.025, .154]; exploration: $\chi 2(2) = 1.257$, CFI = 1, TLI = 1, RMSEA = .000 95% CI [.000, .090]; reconsideration: $\chi 2(2) = 0.638$, CFI = 1, TLI = 1, RMSEA = .000 95% CI [.000, .073]). As can be seen from Figure 1, all processes showed a significant increase between T1and T2 and a significant decrease between T2 and T3, as well as significant variations in initial levels of commitment, exploration, and reconsideration (see Table 1 for detailed results of growth estimates). The results indicate, differently from our hypotheses, that participants increased in the three processes from the beginning to the mid of the school year and decreased again from the mid to the end of the school year. Furthermore, they varied in their initial values.

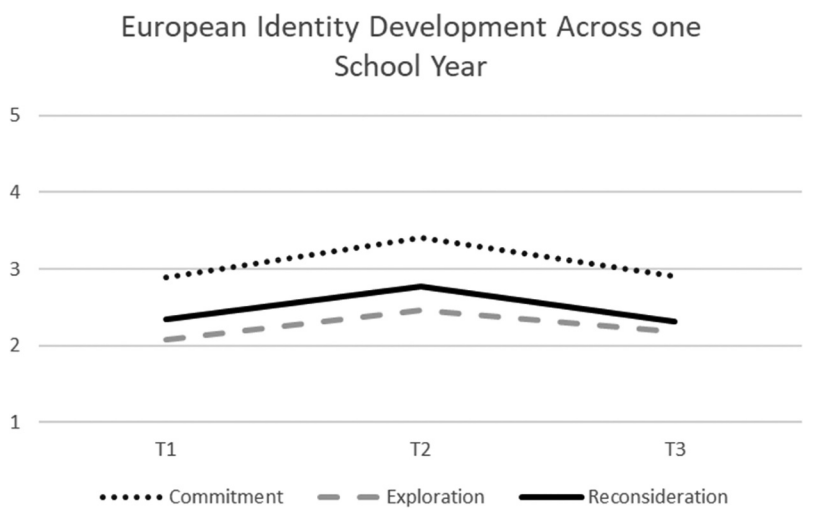

Figure 1. European identity development across one school year.

Table 1. Unstandardized growth estimates for short- and mid-term European identity development.

	Intercept		Slope T1-T2		Slope T2-T3	
Mid-Term	*M*(*SE*)	σ2(*SE*)	*M*(*SE*)	σ2 (*SE*)	*M*(*SE*)	σ2(*SE*)
Commitment	2.88*** (0.05)	0.42 (0.04)	0.52*** (0.05)	/	−0.51*** (0.05)	/
Exploration	2.08*** (0.04)	0.32 (0.03)	0.38*** (0.04)	/	−0.29*** (0.04)	/
Reconsideration	2.35*** (0.05)	0.27 (0.03)	0.43*** (0.05)	/	−0.46** (0.05)	/
	Intercept		Slope		Curvature	
Short-Term	*M*(*SE*)	σ2(*SE*)	*M*(*SE*)	σ2(*SE*)	*M*(*SE*)	σ2(*SE*)
Commitment	3.80*** (0.04)	0.53 (0.05)	−0.02** (0.01)	0.00 (0.00)	/	/
Exploration	2.76*** (0.06)	0.65 (0.07)	−0.05* (0.02)	0.05 (0.01)	0.01* (0.00)	0.00 (.00)
Reconsideration	2.87*** (0.05)	0.70 (0.06)	−0.01 (0.01)	0.01 (0.00)	/	/

For all mid-term identity LCGMs, residual variances of slopes had to be fixed.
***$p < .001$, **$p < .01$, *$p < .05$.

Across the 10 days, we selected linear growth models for commitment and reconsideration (commitment: $\chi 2(50) = 67.120$, CFI = .986, TLI = .987, RMSEA = .032 95% CI [.000, .050]; reconsideration: $\chi 2(50) = 70.941$, CFI = .985, TLI = .986, RMSEA = .035 95% CI [.012, .052]) and quadratic growth model for exploration: $\chi 2(46) = 34.823$, CFI = 1, TLI = 1, RMSEA = .000 95% CI [.000, .018]. The mean-level changes were overall small and could therefore be interpreted in line with our hypothesis (H2). As can be seen in Table 1 and Figure 2, commitment significantly decreased over time. Exploration first significantly decreased over time, but then significantly increased again. We found no significant mean-level change for reconsideration. We found significant variability in initial levels of commitment ($b = 0.531$, $SE = 0.049$, $p < .001$), exploration ($b = 0.646$, $SE = 0.073$, $p < .001$), and reconsideration ($b = 0.699$, $SE = 0.061$, $p < .001$). Furthermore, there was significant variability in slopes for commitment ($b = 0.004$, $SE = 0.001$, $p < .001$), exploration [($b = 0.053$, $SE = 0.014$, $p < .001$; quadratic factor: ($b = 0.001$, $SE = 0.000$, $p < .001$)], and reconsideration ($b = 0.005$, $SE = 0.001$, $p < .001$). Overall, the results suggest that participants varied in their initial values of all three processes and varied in steepness or direction of mean-level change.

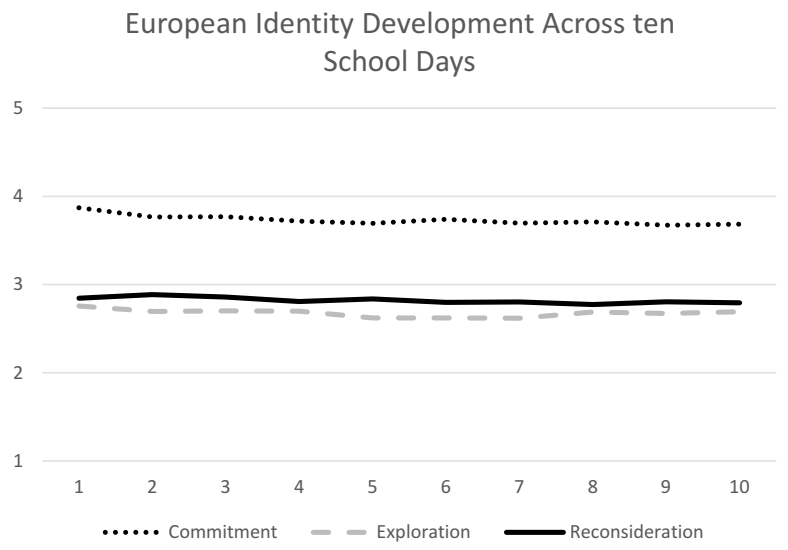

Figure 2. European identity development across 10 consecutive school days without the weekend days.

Table 2. Rank-Order Stability and Profile Similarity for Short- and Mid-Term Development.

Short-Term									Mid-Term	
T1-T2	T2-T3	T3-T4	T4-T5	T5-T6	T6-T7	T7-T8	T8-T9	T9-T10	T1-T2	T2-T3
European identity commitment										
.51	.60	.64	.70	.69	.61	.64	.72	.69	.54	.50
European identity exploration										
.51	.58	.64	.70	.69	.61	.64	.74	.70	.50	.45
European identity reconsideration										
.51	.60	.64	.70	.69	.61	.63	.72	.71	.39	.41
Profile Similarity										
.72	.76	.73	.79	.81	.82	.83	.80	.81	.55	.50

Note. T = Time.
All correlations were significant at $p < .001$

Rank-order stability

Across one school year, rank-order stability was moderate to high (see Table 2) and did not differ across time points. This means that, for example, an adolescent high in commitment at the beginning of the school year in comparison to other adolescents would still show higher commitment at the end of the school year. Across the 10 days, rank-order stability was generally higher (see Table 2) and stability significantly increased from the beginning to the end of the study period (commitment: $z = -3.87$, $p < .001$, exploration: $z = -4.13$, $p < .001$; reconsideration: $z = -4.40$, $p < .001$). Results were in line with our hypothesis. Stability increased especially during the first week (T1-T5) and did not significantly increase during the second week. Comparisons of adjacent correlations did not show any difference in strength except for T7-T8 to T8-T9 stabilities, of which the latter were significantly higher for all three processes (commitment: $z = -2.03$, $p = .042$; exploration: $z = -2.61$, $p = .009$; reconsideration: $z = -2.25$, $p = .024$). This implies that the rank-order of participants became more stable across the 10 days.

Table 3. Conditional LGCMs with significant predictors only and unstandardized estimated parameters.

	European identity commitment			European identity exploration			European identity reconsideration		
	Intercept	Slope T1-T2	Slope T2-T3	Intercept	Slope T1-T2	Slope T2-T3	Intercept	Slope T1-T2	Slope T2-T3
Fluc. com.	−0.47**	−0.01	−0.20	−0.27	0.13	0.08	/	/	/
Gender									
Female	0.08	−0.20*	−0.01	0.11	−0.14	0.06	/	/	/
Ethnic Background									
Ethnic minority	/	/	/	/	/	/	−0.39***	0.19	0.27*
School track									
College-bound	/	/	/	/	/	/	0.02	−0.01	0.04
Vocational	/	/	/	/	/	/	−0.30	0.60***	−0.46**
Federal state	0.16	−0.01	−0.14	/	/	/	0.13	−0.09	−0.04

T = Time. References are male and comprehensive schools. Participants identifying as nonbinary were removed from analysis due to small sample size ($n = 2$). Non-significant univariate predictors are marked with /.
European identity commitment: $\chi^2(2) = 4.36$, CFI = 0.99, TLI = 0.94, RMSEA = 0.06, 95% CI [0.00, 0.14], SRMR = 0.04.
European identity exploration: $\chi^2(2) = 1.49$, CFI = 1, TLI = 1, RMSEA = 0.00, 95% CI [0.00, 0.10], SRMR = 0.03.
European identity reconsideration: $\chi^2(2) = 0.64$, CFI = 1, TLI = 1, RMSEA = 0, 95% CI [0.00; 0.08], SRMR = 0.01.
*** $p < .001$, ** $p < .01$, * $p < .001$.

Profile similarity

Across one school year, profile similarity was moderately high with no significant differences in profile similarity across time points (see Table 2). This indicates that a participant that scored high on commitment, moderate on exploration, and low on reconsideration at the beginning of the school year was likely to show the same intra-individual rank-order at the end of the school year. Across the 10 days, profile similarity was high across all time points (see Table 2). The results were in line with our hypothesis. Profile similarity significantly increased from the beginning to the end of the study period ($z = -2.98$, $p = .003$), especially during the first week (T1-T5) and did not significantly increase during the second week. Adjacent correlations did not differ in strength. This implies that the within-person configuration of commitment, exploration, and reconsideration became more stable across the 10 days.

Interaction between European identity processes at short- and mid-term time scale

Confirmatory analysis

Daily fluctuations of commitment were negatively and significantly associated with initial values of commitment ($b = -0.47$, $SE = 0.16$, $p = .004$). This indicates that participants with lower levels of commitment at the beginning of the study showed less stable commitment during the daily diary period. Fluctuations of exploration and reconsideration were not significantly associated with growth parameters (see Table 3).

Regarding our control variables, we found that participants identifying as female showed significantly lower slopes for commitment from T1 to T2 compared to male participants ($b = -0.20$, $SE = 0.10$, $p = .038$), meaning that their increase in commitment was lower compared to the increase of participants identifying as male.

For school track, participants in vocational schools showed a significantly higher increase in reconsideration from T1 to T2 ($b = 0.60$, $SE = 0.17$, $p < .001$) and significant lower decrease in reconsideration from T2 to T3 ($b = -0.46$, $SE = 0.18$, $p = .009$) compared to participants in comprehensive schools and college-bound high schools. We further found that ethnic minority participants showed significantly lower initial levels of reconsideration at T1 compared to ethnic majority participants ($b = -0.39$, $SE = 0.11$, $p < .001$) and a significantly stronger decrease from T2

to T3 ($b = 0.27$, $SE = 0.13$, $p = .031$). This means that ethnic minority participants reconsidered their European identity commitment less at the beginning of the study, increased similarly compared to ethnic majority adolescents between T1 and T2 in reconsideration, and decreased less in reconsideration between T2 and T3 compared to ethnic majority adolescents.

Exploratory analysis

Fluctuations in commitment were negatively associated with mean-level change of commitment ($b = -0.25$, 95% Credible Interval [−0.36, −0.13][2]), meaning that participants with higher short-term fluctuations in identity commitment had a higher decrease in commitment from T2 to T3. No other associations were significant. Tables and information on the model can be found in the supplemental material 1, Table A1.

Discussion

Adolescence is a crucial period for identity development across different domains. To better understand how adolescents develop a European identity, we examined (1) developmental trajectories on the mid-term (2) and short-term time scales and (3) whether short-term processes are associated with those developmental trajectories. The results contribute to our understanding of European identity development and highlight the importance of considering different time scales and domains when examining identity development.

European identity development across different time scales

In regard to mid-term development (aim 1), we found a significant increase of all three identity processes from the beginning to the middle of the school year and a significant decrease from the middle to the end of the school year. This growth pattern did not confirm our hypothesis (H1). We expected either gradual identity maturation or little change during the observation period as suggested by research focusing on other identity domains (e.g., Meeus, 2011, 2019) or stability of European identity statuses across time (Jugert et al., 2021). One explanation could be that adolescents did not engage in identity formation for their European identity yet and were therefore susceptible to external influences, such as school curricula (Kroger & Marcia, 2011). In the study's period, adolescents learned for the first time about Europe- and EU-related topics in school. This could have sparked interest, including exploration of meanings of being European and reconsideration of what has been known. Further, German school curricula aim to foster a European identity and positive attitudes toward Europe (e.g., QUA-LiS, 2022; THILLM, 2022), which might have increased commitment. The decrease in all three identity processes could be interpreted as reduced interest after the initial spark. Future studies could further delve into experiences in school to examine the influence of curricular factors on identity formation.

The specific macro-context might also have contributed to our unexpected growth patterns, which could hint at the importance of considering distal contextual factors (e.g., societal events; Bronfenbrenner & Morris, 2007), when studying development (see also Bobba et al., 2024; Gniewosz et al., 2013). The start of the Russian-Ukrainian war took place shortly after our mid-school year assessment (T2) and was a salient issue in social and political discourse. A highly discussed war on the European continent might have led to feelings of uncertainty and threat for German adolescents. During times of uncertainty, individuals are prompted to engage in exploration and even reconsideration (Erikson, 1968). Perceptions of threat toward perceived in-group members can additionally increase commitment (e.g., higher European Union identity during Russia's invasion of Crimea 2014; Gehring, 2022). The following decline from the middle to the end of the school year might be indicative of the reduced salience and a return to more usual levels of European identity processes. Since we did not include any explicit measures for contextual factors (e.g., news

consumption and consumed content, number of articles or tweets in the survey period), our interpretation, however, must remain speculative. We encourage future studies to collect data across longer periods of time to capture identity development across different stages of adolescence and include measures of socio-political conditions to control for macro-contextual effects.

In regard to short-term development (aim 2), we found a significant decrease in commitment, significant decrease but later increase in exploration, and no significant change for reconsideration. All changes, however, were small in size and could be interpreted as negligible, which would be in line with our expectations (H2) and align with previous research examining short-term identity development (Becht, Nelemans, et al., 2016). Hence, identity formation on the short-term time scale could be interpreted as a stable process (McNeish & Hamaker, 2020).

Regarding both indicators of stability, we found for both time scales moderate to high rank-order stability and profile similarity with generally higher stabilities for the short-term time scale. This is in line with our hypotheses 3 and 4. Further, this finding is in line with previous research on mid-term identity development for personal identity (rank-order stability across 6 months: .38 to .74; one year: .48 to .54, for a review, see Meeus, 2011), ethnic-racial identity (rank-order stability across 6 months: .51 to .70; one year: .29 to .59), and educational and interpersonal identity (rank-order stability from early to middle adolescence: .37 to .39; profile similarity from early to middle adolescence: .73). Mid-term European identity formation, hence, can be defined as a rather stable process similar to identity formation in other domains. Regarding short-term identity development, previous studies mostly relied on autoregression coefficients to indicate stability (e.g., Becht et al., 2017, 2021). Coefficients were moderate to high for educational identity (five daily measures across three weeks: .15–.66) and interpersonal identity (five daily measures across three weeks: .27–.66). Thus, short-term European identity formation is also rather stable and similar to identity formation in other domains.

The higher stability for the short-term time scale can be explained by the far shorter time lag between measurements. Stability is generally inversely related to the time lag between assessments (Crocetti et al., 2021), resulting in higher stabilities across days than across months. It should be noted that rank-order stability and profile similarity increased from the first to the last measurement occasion, mostly within the first week. While one explanation could be that we captured the solidification of identity processes across time, we cannot rule out that the increasing stabilities might also reflect methodological artifacts (e.g., memory effects). Longer observation periods or repeated short-term assessments are needed to disentangle memory effects from actual short-term developmental processes.

Interaction of short- and mid-term development

With regard to Aim 3, we found that lower levels of commitment at the beginning of the school year were associated with higher short-term fluctuations in commitment half a year later. Our findings partially support the assumption of identity theory that short-term processes are associated with long-term development (Bosma & Kunnen, 2001; Lichtwarck-Aschoff et al., 2008). Further, they indicate that adolescents with stable commitments are likely to maintain strong commitments over time (i.e., show less fluctuations in commitment; Klimstra & Schwab, 2021; Lichtwarck-Aschoff et al., 2008). On the mid-term time-level, identity includes adolescents' reflections and abstract thoughts on their lives. If these provide a feeling of sameness and continuity (Erikson, 1950), adolescents might be able to maintain firm commitments across time and situations. This is in line with other studies showing that a firm sense of identity is associated with long-term stability in commitment (for educational and interpersonal identity; Becht et al., 2017; Klimstra, Luyckx, et al., 2010). However, in those studies, fluctuations in reconsideration (instead of commitment) were significantly associated with changes in commitment over time. An explanation for the difference could be related to the specific of the European identity domain tackled in the current study.

In our exploratory analysis, we furthermore found that higher fluctuations of commitment were associated with a decrease in commitment between the middle and the end of the school year. Feelings

of instability regarding one's European identity might reflect an identity formation cycle, in which adolescents reconsider their current conceptions on European identity or try out different conceptions (Klimstra & Schwab, 2021). Accordingly, their commitment would first decrease and may be at a later point in time (e.g., a year later) increase again, if adolescents made a new commitment. Other findings generally support the idea that stable daily processes are associated with maintaining identity commitments (Lichtwarck-Aschoff et al., 2008). For example, Becht et al. (2021) found that adolescents with low daily commitment levels as well as fluctuations in daily reconsideration were more likely to show lower levels of identity commitment in emerging adulthood than others. These associations were found for the interpersonal and educational domain.

We found no other significant association between short- and mid-term measures. Drawing on other studies with daily assessment of identity processes (e.g., Becht et al., 2017; Klimstra, Luyckx, et al., 2010), we expected at least an association between fluctuations of reconsideration and levels of commitment at a later time point. As mentioned above, both commitment and reconsideration are part of the identity formation cycle. Arguably, instability in one of them could lead to a change in commitment across a longer period of time. It could be that the importance of the specific process of identity formation varies depending on the identity domain. Alternatively, the variance in fluctuations in reconsideration might have been too small to be detected. Future studies should continue examining identity formation in other domains to pinpoint whether different daily processes are more relevant for developmental change in some domains than others.

Regarding our control variables, we found significantly small to large associations between some growth parameters and gender, ethnic background, and school track. Gender was only significantly associated with slopes for commitment between T1 and T2, meaning that female students showed a lower increase than male students from the beginning to the middle of the school year. This is in line with previous studies that found that female compared to male participants showed lower levels of identification with Europe (e.g., Agirdag et al., 2016; Green, 2007). Since the European identity is related to a broader political identity, part of the lower increase might be explained by more general gender-specific patterns. For example, studies found that women feel less confident in their political skills and report lower levels of interest when it comes to "traditional politics" (Hooghe et al., 2004; Verba et al., 1997), which in turn may affect their level of commitment in certain political domains.

Ethnic background and school track were both significantly associated with growth parameters for reconsideration of commitment. Ethnic minority participants reconsidered their European identity less compared to ethnic majority participants at the beginning of the school year. Between T1 and T2 they increased in reconsideration similarly to ethnic majority participants and between T2 and T3 they decreased less in reconsideration compared to ethnic majority participants (i.e., ethnic minority adolescents remained on higher levels of reconsideration compared to the beginning of the school year). An explanation to this finding might be macro-contextual circumstances related to the study's design. Specifically, after the beginning of the Russian-Ukrainian war (in the context of which the T2 assessments took place), who belongs and who does not belong to Europe was highly debated in German media along ethnic-religious lines (e.g., being White Christian vs. nonwhite Muslim). The ethnic conception of being European might have led ethnic minority adolescents to reconsider whether they are or want to be European.

Despite similar initial levels of reconsideration, students from vocational schools have reconsidered their European identity commitment increasingly more from the beginning to the middle of the school year. Further, their levels of reconsideration decreased less from the mid to the end of the school year compared to students from other tracks. One explanation might be curricular differences in how Europe and EU-related topics are discussed in different school tracks (e.g., THILLM, 2022).

Limitations and future directions

Our results provide first insights into the development of an understudied identity domain and highlight the importance to examine different time scales conjointly to get a comprehensive understanding of identity development (Klimstra & Schwab, 2021; Lichtwarck-Aschoff et al., 2008). Despite the study's strengths, including its longitudinal design for two time levels, use of established measures, and assessment of between- and within-person variance, it has some limitations. First, the three-wave design of the mid-term time scale did not allow us to test non-linear trajectories other than piecewise growth. Future studies should include more waves of data collection, preferably across longer periods of time to better capture developmental changes. Additionally, future studies could investigate how European identity processes are related to multiple indicators of psychosocial adjustment. This would also allow examination of European identity throughout adolescence or emerging adulthood, in which a European identity might become more relevant, as well as its impact on psychosocial adjustment. We also encourage researchers to examine different time scales in one model (e.g., using multilevel SEM; Brose et al., 2022).

Second, we scheduled the daily study in between the two main assessments. Thus, we could not capture daily processes in conjunction with a specific event or moment. For this reason, future studies with more daily assessments are needed to unravel whether there are more fluctuations when a specific event is happening (e.g., when there are upcoming European elections or when the news target consistently an event relevant for the EU). This could be combined with assessing daily contextual factors (e.g., learning about Europe in school) to investigate what prompts adolescents to commit, explore, or reconsider their European identity.

Third, we collected data only in Germany. Considering that socio-political context can influence development, future studies could compare European identity development across different national contexts. On a related note, it would be interesting to examine whether contextual factors influence adolescents' European identity development differently depending on their conceptions of what it means to be European (e.g., civic, ethnic, personal conceptions; Mayer et al., 2023). Thereby, we could assess, what exactly changes across time.

Conclusion

Taken together, our results highlight the importance of examining different time scales, as well as different identity domains for comprehensively understanding identity development in adolescence. Furthermore, short-term processes are likely associated with long-term development. On the one hand, high levels of commitment were associated with less fluctuation in commitment half a year later. On the other hand, higher fluctuations in commitment were associated with lower commitment levels half a year later. These findings imply that strong commitments provide a feeling of sameness and continuity across time and situations and that wavering commitments might relate to a loss of such a feeling.

Notes

1. In our preregistration, we planned to conduct Multivariate LGCM for both time scales. However, model fit was poor for Multivariate LGCM across one school year. Therefore, we chose to model univariate LGCMs for the mid-term time scale, and, to ease comparability across time scales, the short-term time scale.
2. For this analysis, we used the Bayes estimator. Bayesian estimation a distribution of possible values instead of a single point estimate. The effect sizes can be interpreted in the same manner as MLR/ML/etc. estimators, but significance is indicated differently (p-value for MLR, non-null credible interval for BAYES). The credible

interval provides a 95% interval that covers 2.5 and 97.5%ile of the posterior parameters (McNeish & Hamaker, 2020).

Disclosure statement

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Data availability statement

Data and syntax to reproduce the results are available on the project's osf page https://doi.org/10.17605/OSF.IO/B6CY2.

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