ZfE

SCHWERPUNKT

Heritage culture and national identity trajectories: Relations to classroom cultural diversity climate and socioemotional adjustment for adolescents of immigrant descent

Linda P. Juang (iD) · **Miriam Schwarzenthal** · **Maja K. Schachner**

Abstract Adolescents' heritage culture and national identities are potential developmental assets for socioemotional adjustment. The school context can support the development of such identities. Therefore, the aims of our study are to (1) identify patterns of heritage and national identity trajectories across mid-adolescence, (2) test whether they are predicted by classroom cultural diversity climate, and (3) test whether they are linked to socioemotional adjustment. Adolescents of immigrant descent in Germany ($N=431$, 50.3% female, $M_{age}=12.36$ at T1) filled out surveys at the beginning (T1) and end of 7th grade (T2), and end of 8th grade (T3). Using latent growth mixture models, three trajectories were identified, which had stable, moderate national identities but varied in heritage identity: "high decreasing heritage identity", "moderate stable identities", and "low increasing heritage identity". At the classroom level (but not individual level) diversity climate at T1 predicted a "moderate stable identities" trajectory, compared to a "low increasing heritage identity" trajectory. Further, adolescents in the "moderate stable identities" trajectory reported higher life satisfaction at T3 compared to those in the "low increasing heritage identity" trajectory. Overall, the findings suggest heterogeneity in identity trajectories with implications for socioemotional adjustment.

✉ Linda P. Juang

Inklusionspädagogik, Universität Potsdam, 24–25 Karl-Liebknechtstraße, 14476 Potsdam, Germany
E-Mail: juang@uni-potsdam.de

Miriam Schwarzenthal
Institut für Bildungsforschung, Universität Wuppertal, Gaußstr. 20, 42119 Wuppertal, Germany
E-Mail: schwarzenthal@uni-wuppertal.de

Maja K. Schachner
Institut für Pädagogik, Martin Luther Universität Halle-Wittenberg, Franckeplatz 1, 06110 Halle, Germany
E-Mail: maja.schachner@paedagogik.uni-halle.de

🖉 Springer

Entwicklungsverläufe herkunftskultureller und nationaler Identitäten: Zusammenhänge mit dem kulturellen Diversitätsklima und der sozioemotionalen Adaptation von Jugendlichen mit Einwanderungsgeschichte

Zusammenfassung Herkunftskulturelle und nationale Identitäten sind eine mögliche Ressource, deren Entwicklung die Schule unterstützen kann. Die Studie beabsichtigt (1) Muster herkunftskultureller und nationaler Identitätsverläufe zu identifizieren, und zu untersuchen, (2) inwiefern diese Muster mit dem kulturellen Diversitätsklima in der Klasse sowie (3) mit sozioemotionaler Adaptation zusammenhängen. 431 Jugendliche mit familiärer Einwanderungsgeschichte (50,3 % weiblich, $M_{Alter} = 12{,}36$) füllten zu Beginn (T1) und Ende der 7. Klasse (T2) sowie Ende der 8. Klasse (T3) Fragebögen aus. Latent growth mixture models identifizierten drei Entwicklungsverläufe mit stabilen, moderaten nationalen und unterschiedlichen herkunftskulturellen Identitäten: „hohe abnehmende herkunftskulturelle Identität", „moderat stabile Identitäten" und „niedrige zunehmende herkunftskulturelle Identität". Auf Klassenebene sagte das kulturelle Diversitätsklima zu T1 „moderat stabile Identitäten" voraus, verglichen mit einer „niedrigen zunehmenden herkunftskulturellen Identität". Jugendliche mit „moderat stabilen Identitäten" berichteten außerdem eine höhere Lebenszufriedenheit zu T3 im Vergleich zu denen mit „niedriger zunehmender herkunftskulturellen Identität". Die Ergebnisse verweisen auf vielfältige Entwicklungsverläufe mit Implikationen für die sozioemotionale Adaptation.

Two well-known approaches to the study of identities among adolescents of multiple heritages differ in their emphasis. On the one hand, acculturation models were developed to describe experiences of adolescents of immigrant descent and emphasize that engaging in and identifying with both heritage[1] and national cultures are important for socioemotional adjustment (Benet-Martinez and Haritatos 2005; Berry et al. 2006; Stogianni et al. 2022). On the other hand, ethnic-racial identity models were developed to describe experiences of minoritized adolescents, not necessarily only those of immigrant descent, and emphasized that affirming one's ethnic-racial

---

[1] The term "ethnic-racial identity" is used in North American literature (Rivas-Drake et al. 2014) and "ethnic identity" is used in German acculturation literature, but usually only for immigrants and not meant to capture experiences of non-immigrants, meaning ethnic identity tends to refer to heritage culture. Yet, the term "ethnic German" also is used to refer to a shared ancestry, such as between East and West Germans, or so-called German repatriates, *(Spät)Aussiedler,* from Poland or the former USSR (Titzmann et al. 2011). To try to be transparent, we chose to use the term "heritage culture identity" or "heritage identity" for our study, but also use "ethnic identity" when referring to specific studies that have used that term.

identity in inequitable societies is important, especially for marginalized and minoritized youth (Neblett et al. 2012; Rivas-Drake et al. 2014). Both frameworks have drawn from developmental and social theories of identity (Erikson 1968; Tajfel and Turner 1986) to argue that developing and maintaining a sense of belonging to one's heritage and national cultural groups can be a resource for positive socioemotional adjustment (Phinney et al. 2001). In other words, there is potential for these identities to become developmental assets (Neblett et al. 2012). Importantly, school is a key context for the development of such identities (Schachner et al. 2016; Umaña-Taylor et al. 2018) and over-time changes in identities are important for understanding adolescent adjustment (Gonzales-Backen et al. 2016; Spiegler et al. 2019). The aims of our study, then, are to (1) identify patterns of heritage and national identity trajectories across mid-adolescence, (2) test whether they are predicted by classroom cultural diversity climate, and (3) test whether they are linked to socioemotional adjustment.

1 Heritage and national identities and socioemotional adjustment

From developmental and social identity perspectives (Erikson 1968; Tajfel and Turner 1986), a strong heritage as well as national identity can be both promotive and protective. Heritage or ethnic-racial identity refers to how individuals' think and feel about being a member of their heritage or ethnic-racial groups (Umaña-Taylor et al. 2014). Likewise, national identity refers to how individuals' think and feel about being a member of the country they live in. Youth of immigrant descent who internalize the importance of belonging to multiple groups and cultures incorporate this sense of belonging into their self-concepts and identities (Verkuyten et al. 2019). These various identities provide affirmation of being part of a valued social community and have been linked to more positive socioemotional adjustment (Rivas-Drake et al. 2014).

In Germany, adolescents with stronger heritage identities report better psychological well-being in terms of lower depressive symptoms, greater life satisfaction, and self-esteem (Göbel and Preusche 2019; Juang et al. 2020; Kunyu et al. 2020; Schachner et al. 2018; Schotte et al. 2018). In contrast, national identity is not linked as consistently to socioemotional adjustment (Schotte et al. 2018). Adolescents with stronger national identities do, however, report better academic performance, greater school motivation and engagement in some studies (Schachner et al. 2016) but not in others (Spiegler et al. 2018).

Most studies of heritage and national identities are cross-sectional and focus on mean-levels of identity scores (e.g., how higher or stronger levels are linked to more positive adjustment). Importantly, longitudinal studies show that ethnic identity *change* is related to socioemotional adjustment. For instance, increasing ethnic identity affirmation, i.e., feeling proud of and a sense of belonging to one's ethnic group(s), is related to increasing self-esteem for Mexican American heritage adolescents across a period of 3.5 years (Gonzales-Backen et al. 2016). In contrast, increasing ethnic identity exploration, i.e., actively questioning and learning about one's heritage and ethnic group(s), was related to greater depressive symptoms

among early adolescents (but not older adolescents), highlighting that changes in specific identity dimensions relate to adjustment in different ways and at different developmental periods (Gonzales-Backen et al. 2016). In our study we focus on changes in heritage and national identity *affirmation* as this particular aspect is consistently related to positive socioemotional adjustment (Rivas-Drake et al. 2014).

In contrast to the previous studies listed above, we include national identity together with heritage culture identity in analyses for three main reasons. One, from an acculturation perspective, adolescents of multiple heritages are simultaneously forming their identities regarding their heritage culture(s) as well as national culture. Thus, ignoring one or the other gives an incomplete picture of how these multiple identities intertwine and together contribute to development and well-being (Berry et al. 2006; Verkuyten et al. 2019). Two, our longitudinal analyses address an important limitation in acculturation research where most studies are cross-sectional, focus on the traditional four Berry typologies, and do not capture the two processes over time (Bierwiaczonek and Kunst 2021). Rather than start with the four typologies which demonstrate weak relations to well-being (see Bierwiaczonek and Kunst 2021 for a meta-analysis), we adopt a data-driven approach to examine trajectories of the two identities over time. Three, national identity in Europe is often seen as synonymous to ethnic identity, also called ethnic nationalism (Brubaker 2009). German citizenship until 2000 was based on *jus sanguinis* ("right of blood") rather than *jus soli* ("right of soil"), which coupled ethnicity to Germanness. This ended up being exclusionary as equating ethnicity with nationality results in national identities where "Germans", for instance, are only reserved for ethnic majority non-immigrant individuals and as a contrast to "immigrants", "foreigners", or being of immigrant descent (Moffitt et al. 2018). Equating ethnicity with nationality is now considered "outdated" (Federal Government Expert Commission 2021). Subsequently, to address the exclusionary implications of ethnic nationalism, we consider how multiple identities (e.g., heritage cultural identity and national identity) can and do co-exist among adolescents of immigrant descent. As Verkuyten et al. (2019) put it, it is possible "to be both, and more".

Considering both identities together showcases the heterogeneity of patterns and is informative for adolescent adjustment. Importantly, as opposed to variable-centered analyses, we took a person-centered approach to highlight distinct developmental trajectories that would be invisible if we only looked at sample-averaged continuous data on the original scales or at the sample-averaged progression on the two scales over time. Person-centered analyses acknowledge that there is no such thing as "the" developmental process (Keijsers and Van Roekel 2019). A study of *Aussiedler* mid-adolescents found three trajectories across three years: those with high and stable national identity and low but increasing heritage identity, low and stable national identity and high but decreasing heritage identity, and those with medium-level and stable national and heritage identities (Stoessel et al. 2014). A study of Turkish-heritage German early adolescents found that ethnic and national identities (affirmation) changed from 4th grade to the 6th grade with two main trajectories (Spiegler et al. 2018). Both trajectory groups showed moderate stable German identities over time and were distinguished by one group having high stable Turkish identity and the other group having a moderate increasing Turkish identity. While adolescents in

both trajectories were well-adjusted in school, adolescents in the trajectory marked by high stable Turkish identity showed greater school motivation compared to those in the other. The authors concluded that having a strong and steady heritage identity throughout early adolescence was a developmental asset for school adjustment (Spiegler et al. 2018).

Another longitudinal study of ethnic and national identities among Muslim adolescents in four European countries (England, Germany, the Netherlands, and Sweden) found four classes of identity trajectories: 1) moderately strong increasing ethnic and national identities, 2) strong decreasing ethnic identity with moderate strong increasing national identity, 3) weak to strongly increasing ethnic identity and moderately strong increasing national identity, and 4) strong decreasing ethnic identity with continuously weak national identity—a pattern that was marked by having the greatest distance between the two identities (Spiegler et al. 2019). Adolescents in Germany were more likely to be in this last class compared to adolescents in the other countries, perhaps due to the high stigmatization and discrimination that Muslim people face in Germany (Foroutan 2012). The results show that adolescents with converging identities (i.e., strong ethnic identity that is slightly decreasing with moderate strong increasing national identity converging by later adolescence) showed greater declines in problem behavior, greater life satisfaction and better health. Taken together, the two studies (Spiegler et al. 2018, 2019) show that, in general, (a) ethnic identity is usually reported to be higher than national identity, (b) national identity is more stable across adolescence, (c) there is more individual variation around ethnic identity, (d) when both identities are considered in combination there are between two and four trajectory patterns, and (e) it is the change across time manifesting in different patterns of trajectories that is linked to socioemotional adjustment.

2 Schools can afford positive identity development

During adolescence, more sophisticated cognitive abilities allowing for deeper self-reflection and critical thinking, along with exposure to new contexts and growing peer and community networks, contribute to a more complex understanding of the self in relation to society (Habermas and Bluck 2000). In addition to exposure to new contexts, family messages around issues of ethnicity-race and culture continues to be an important source of socialization for the development of ethnic-racial identities (Huguley et al. 2019). Another important context for identity development is school. Schools are places for young people to explore, understand, and gain clarity regarding their heritage and national identities (Umaña-Taylor et al. 2018). Schools can provide affordances—aspects of the environment providing psychological opportunities (Walton and Yeager 2020)—to support and foster positive identities. One specific aspect of the school environment gaining increasing attention is the classroom cultural diversity climate (Byrd 2017; Schachner et al. 2016, 2021). Drawing from theories on intergroup contact (Allport 1958; Pettigrew 1998) and culturally responsive teaching and multicultural education (Banks 1993; Gay 1975), two broad approaches to diversity adopted by teachers and schools can manifest in

the classroom cultural diversity climate (Schachner et al. 2016, 2021). The *cultural pluralism* dimension emphasizes that cultural diversity in the classroom should be acknowledged, valued, seen as a resource, and opportunities should be provided to learn about this diversity. The *equality and inclusion* dimension emphasizes that all students from all backgrounds should be treated equally, no one should be excluded, and opportunities for contact, cooperation, and creating common goals among diverse groups, are intentionally supported.

Importantly, early adolescents in Germany who perceived their classrooms to afford more opportunities to learn and value cultural diversity, reported stronger heritage acculturation orientation and identification, and subsequently did better in terms of greater well-being and fewer psychological and behavioral problems (Schachner et al. 2016). Another study in Germany found similar results, showing that adolescents of immigrant descent in classrooms that supported cultural diversity reported stronger heritage and national identities (Aral et al. 2022). In these classrooms, affirmation of diverse heritages as well as more inclusive, multicultural notions of national identity potentially nurture both identities. Beyond Germany, schools supporting cultural pluralism was related to greater ethnic-racial identity exploration and resolution for minoritized and majority students in the US and Italy (Camacho et al. 2018; Moscardino et al. 2019). Taken together, classrooms and schools that affirm diverse backgrounds and provide opportunities for intercultural learning, afford the development of both heritage and national identities.

In Germany, early adolescents who perceived their classroom diversity climate as lower in perceived equality and inclusion (which included two dimensions of equal treatment and contact/cooperation) reported lower national acculturation orientation and identity and higher heritage acculturation orientation and identity one year later, with the latter only significant on a classroom level (Schachner et al. 2016). In another study, adolescents who perceived their classrooms as lower in equal treatment also showed lower national but higher heritage identities (Aral et al. 2022). Thus, classrooms characterized by lower equal treatment (i.e., greater unequal treatment) seem to dampen national identification yet heighten identification with heritage group(s). These findings are in line with rejection-identification and rejection de-identification hypotheses.

Based on the rejection-identification hypothesis (Branscombe et al. 1999) experiencing rejection from majority society may lead one to turn towards their heritage group as a salient ingroup to reinforce their self-value. Rejection de-identification is an extension of this hypothesis, that experiencing greater discrimination would also prompt adolescents to identify less with the majority group or national category. Indeed, among immigrant descent individuals in Europe, those who experienced greater discrimination tend to report stronger ethnic and religious identities and lower national identities (Fleischmann et al. 2019; Verkuyten and Yildiz 2007). Thus, we would expect that adolescents who perceive their classrooms to be greater in unequal treatment, would show higher and increasing heritage identity and lower and decreasing national identity across time.

In sum, we expect that in classroom climates where diversity is affirmed and all cultures are valued, adolescents would feel more open to explore, gain clarity, and feel a sense of belonging to both heritage and national cultures and thus show

higher or increasing identity trajectories over time for both identities. Further, we expect a differential pattern in classrooms climates where there is higher inequality and exclusion among groups such that adolescents would show higher or increasing heritage identity and lower or decreasing national identity. Because our data are nested and climate is by definition something shared, we will examine the climate dimensions at the individual- and classroom-levels (i.e., individually perceived and classroom-aggregated) and expect both to contribute to identity trajectories in similar ways.

3 Current study

The purpose of this longitudinal study is to uncover patterns of heritage and national identity trajectories through mid-adolescence (research question 1), test whether classroom diversity climate contributes to these trajectories at the start of 7th grade (research question 2), and whether these trajectories are linked to socioemotional adjustment (physiological stress, depressive symptoms, life satisfaction) at the end of 8th grade among adolescents of immigrant descent (research question 3). We preregistered the hypotheses (below) and analysis plan (https://osf.io/x75zk/?view_only=83fdf10c74ed4a84843b8b13f53cf25f).

4 Hypotheses and exploratory analyses by research question

- 1. Using three time points (T1, T2, and T3), there will be between 2 and 4 trajectories with national identity more stable than heritage identity.
- 2a. Higher scores on heritage intercultural learning climate at T1 will predict greater likelihood of being in trajectories marked by high or increasing heritage and national identities.
- 2b. Higher scores on unequal treatment climate at T1 will predict greater likelihood of being in trajectories marked by high or increasing heritage identity, and decreasing national identity.

For 3a and 3b we focus on one dimension without specifying the other because based on the literature it is plausible, for instance, that the positive effects of increasing heritage identity may outweigh potential variation in national identity (3a). This would not be captured in a hypothesis referring to both dimensions simultaneously. Formulating hypotheses and exploratory analyses separately about the two dimensions also accommodates better the mostly data-driven approach we take to identify the patterns.

- 3a. Trajectories marked by high or increasing heritage identity will be related to positive socioemotional outcomes at T3.
- 3b. Because the literature regarding national identity associations is less consistent, our tests for whether trajectories marked by high or increasing national identity are linked to socioemotional outcomes at T3 are exploratory.

5 Method

5.1 Participants and procedure

We drew on a diverse sample of adolescents with data collected in Berlin, Germany, across three waves between 2017 and 2019 as part of an intervention study (brief self-affirmation writing intervention; Cohen and Sherman 2014). Adolescents completed the first survey at the beginning of 7th grade (T1), the second at the end of 7th grade (T2) and the third at the end of 8th grade (T3). The survey was administered by members of the research team, giving students two class periods (90 min) to complete. The study was approved by the Berlin Senate Committee for Education, Youth, and Science, the representative for data protection of the city of Berlin, and the university ethics committee. Informed consent was further obtained from school principals and adolescents' guardians.

Of the 652 adolescents in 58 classes and 17 schools who participated in the study at the beginning of 7th grade, we included 431 (66%) adolescents (M_{age} = 12.36; 49.2% male, 50.3% female, 0.5% missing) who were of immigrant descent, defined as having at least one parent who was born abroad. Of these, 11.8% attended an academic school track (*Gymnasium*) and 88.2% attended integrated school tracks (*Integrierte Sekundarschule* or *Gemeinschaftsschule*), combining former vocational and comprehensive tracks, and offering school leaving certificates at vocational and academic level. The vast majority (90.4%) of the adolescents were 2nd or 3rd generation, with only a few (7.7%) having immigrated to Germany themselves (1.9% missings). The adolescents were of many different heritages, with the largest groups having backgrounds from Eastern Europe (26.9%, 45% female), South-West Asian and North African (SWANA) heritage[2] countries (26.7%, 52% female) and Turkey (26.5%; 55% female).

5.2 Measures

Unless otherwise stated, the response scales ranged from (1) *no, that's not right*, to (5) *yes, that's right*. For all measures, we calculated the mean score of all items to create a scale score. All measures have been used with German adolescents and showed good reliability and support for validity in other studies.

5.2.1 Latent trajectory indicators (T1, T2, T3)

Heritage and national identities We assessed heritage and national identities (six items each) using the German measure of adolescents' heritage and national identity that focuses on affirmation (Leszczensky and Santiago 2014). A sample item for heritage identity is, "I feel like I am a part of my family's heritage country"

---

[2] SWANA heritage includes those from Egypt, Algeria, Iraq, Jordan, Palestine, Kuwait, Lebanon, Libya, Morocco, Mauritania, Tunisia, Chad, Qatar, Saudi Arabia, Oman, Somalia, Sudan, Syria, Bahrain, Djibouti, Eritrea, United Arab Emirates, Kurdish from Iraq and Yemen. They share a commonality in terms of language and religion. Most (but not all) are primarily Arab-speaking countries.

and a sample item for national identity is, "I feel like I am a part of Germany". Adolescents' responses were rated on a 4-point Likert-scale (1 = *totally disagree* to 4 = *totally agree*). Cronbach's alpha at T1, T2, and T3 for heritage identity were $\alpha = 0.85$, 0.91, and 0.90 and for national identity were $\alpha = 0.85$, 0.87, and 0.84. These two scales formed the basis for the trajectories reported in the analytical section.

5.2.2 Predictors of latent trajectories—Classroom cultural diversity climate (T1)

Heritage and intercultural learning and unequal treatment   Two dimensions of classroom cultural diversity climate were assessed (Schachner et al. 2021). A sample item for heritage and intercultural learning is "We learn about the heritage cultures of students in my class." A sample item for unequal treatment is "Some students in our class talk badly about students from other heritage cultures." In a previous version of this scale, "unequal treatment" was labeled as "equal treatment" as positive items were included. The current scale is now labeled "unequal treatment" because further replication and measurement invariance testing with another independent, larger sample suggested positive items to be dropped and only negative items retained for this subscale. Cronbach's alpha at T1 for heritage culture learning was $\alpha = 0.87$ and for perceived unequal treatment, $\alpha = 0.79$.

5.2.3 Consequence of latent trajectories—Socioemotional adaptation (T1, T3)

Physiological stress and depressive symptoms   (Berry et al. 2006) were measured with 5 items each. A sample item for physiological stress is "I feel tired." and a sample item for depressive symptoms is "I feel unlucky and sad." Cronbach's alpha at T1 and T3 for physiological stress were $\alpha = 0.72$, and 0.84, and for depressive symptoms were $\alpha = 0.83$ and 0.87.

Life satisfaction   was measured with 5 items (Diener et al. 2013). A sample item is "I am satisfied with my life." Cronbach's alpha at T1 and T3 were $\alpha = 0.84$ and 0.86.

5.2.4 Control variables

We controlled for gender (0 = *male*, 1 = *female*) and socioeconomic status. The latter was assessed by calculating a factor score that combined the Family Affluence Scale (Boyce et al. 2006; German version by Richter and Leppin 2007) with the number of books in the household (Bos et al. 2003). Moreover, we controlled for migration status (0 = born in Germany, 1 = born outside Germany) and intervention condition (0 = *control,* 1 = *experimental*).

5.3 Analytic approach

First, we estimated missing data and in attrition analyses, compared those adolescents who participated in all waves vs. those who missed at least one wave regarding demographics and the main study variables. We inspected whether adolescents com-

pleted only the demographics and not the measures to potentially exclude them from analyses. Next, we inspected descriptive statistics for potential outliers and calculated correlations between the study variables. We calculated intraclass correlations (ICCs) to estimate the proportion of variance on the classroom level.

To test our hypotheses, we proceeded in three steps: First, we ran dual process latent growth mixture models in Mplus 8 to identify different patterns of trajectories of heritage and national identity across time (Muthén and Muthen 2018). Starting with a model comprising one class, we first tested whether a linear growth model fit our entire sample (Johnson 2021). Then, we added one additional class at a time to the model. The covariance between intercept and slope was set to be equal across classes (Johnson 2021). To identify the best-fitting model, we drew on theoretical considerations and investigated the bootstrapped likelihood ratio test (BLRT) and the Lo-Mendell-Rubin likelihood ratio test (LMR-LRT) (based on $p < 0.05$), as well as Akaike information criterion (AIC) and Bayesian information criterion (BIC), with lower values indicating a better-fitting model (Nylund et al. 2007). After selecting a trajectory model, we assigned participants to their most likely trajectory membership based on their posterior probabilities.

In a next step, we predicted the resulting categorical latent trajectory variable in models without and with control variables (gender, SES, immigrant generation, intervention condition) and predictors at the individual and classroom level (individually perceived and classroom-aggregated unequal treatment climate and heritage and intercultural learning climate) using multilevel multinomial logistic regression. We used p-values for inferences at $p < 0.05$.

In a final step, we used the trajectory membership to predict socioemotional adaptation (physiological stress, depressive symptoms, life satisfaction) at T3 using multiple regression and the dummy-coded trajectory membership as predictors. We ran the model without and with the same control variables as the previous model, along with the two dimensions of classroom climate at T1 as covariates. We also estimated an additional model controlling for socioemotional adaptation at T1. We used p-values for inferences at $p < 0.05$.

6 Results

6.1 Missing data and attrition analyses

The percentage of missing data on the study variables assessed at T1 (national and heritage identity, classroom cultural diversity climate, control variables) ranged from 0.5 to 6.7%. Little's test (Little 1988) suggested that the data were missing completely at random ($\chi2 (155) = 155.83$, $p = 0.47$).

Of the $N = 431$ adolescents who participated in T1, $n = 368$ (85%) participated in T2, and $n = 286$ (66%) participated in T3. Adolescents who missed at least one wave did not differ significantly on the study variables at T1 (heritage and national identities, classroom cultural diversity climate, control variables, socioemotional adaptation) from those who participated in all three waves, $F (8, 323) = 1.62$, $p = 0.12$.

There were no adolescents who only completed the demographics but not the measures, so we did not exclude anyone from the analyses. We used Full Information Maximum Likelihood (FIML) (Muthén and Muthen 2018) to deal with missingness as it outperforms other missing data methods when data are missing at random (MAR) or missing completely at random (MCAR) (Enders and Bandalos 2001).

6.2 Descriptive statistics and intraclass correlations (iCCs)

Descriptive statistics and bivariate correlations among study variables are reported in Table 1. Inspection of descriptive statistics did not reveal any unusual outliers. The bivariate correlations show that heritage and national identities are positively related to one another across the three time points. Further, heritage and intercultural learning climate at T1 is positively related to national identity (and not heritage identity) at T1 and T3 while unequal treatment climate was not correlated with either identity. Heritage identity at the three time points is more consistently related to the three indicators of socioemotional adjustment (lower stress, depressive symptoms, higher life satisfaction) than national identity.

We ran a repeated-measures ANOVA to test for sample-average changes in heritage and national identity affirmation over time. Heritage identity, $F(1.95, 419.29) = 3.31$, $p = 0.04$, $\eta2 = 0.02$, but not national identity, $F(1.96, 477.48) = 0.11$, $p = 0.89$, $\eta2 = 0.00$, changed significantly over time. Post-hoc pairwise comparisons suggested that heritage identity decreased significantly from T1 to T3 ($p = 0.045$), whereas the differences between T1 and T2 ($p = 0.94$) and T2 and T3 ($p = 0.37$) were not significant.

The ICCs (and ICC2s indicating classroom level reliability in square brackets) of heritage (0.05 [0.28], 0.08 [0.39], 0.11 [0.48]) and national (0.05 [0.28], 0.06 [0.32], 0.11 [0.48]) identity at T1, T2, and T3 indicated that a substantial proportion of variance was at the classroom level, even though it was small. The ICCs of heritage and intercultural learning at T1 was 0.08 [0.39] and unequal treatment was 0.10 [0.45]. Based on these analyses, we investigated relations between the classroom-aggregated cultural diversity climate and adolescents' latent trajectory membership, keeping in mind that we should be cautious in interpreting relations at the classroom level due to the low (but improving to fair over time) reliabilities of the classroom-level aggregates.

6.3 Testing hypothesis 1: adolescents' heritage and national identity trajectories

We expected that there would be between two and four trajectories with national identity more stable than heritage identity based on previous research with German adolescents (Spiegler et al. 2018; Stoessel et al. 2014). To test this hypothesis, we conducted latent growth mixture models with heritage and national identity in Mplus 8 (Muthén and Muthen 2018). We first estimated a model to estimate whether an assumption of linear growth held across the entire sample (Johnson 2021). A model with a linear slope fit well for both heritage ($\chi2/df = 0.00^{***}$,

Table 1 Bivariate Correlations and Descriptives

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.
1. Gender	–																	
2. SES	0.072	–																
3. First generation immigrant	−0.022	−0.242**	–															
4. Intervention condition	−0.014	−0.065	−0.023	–														
5. Heritage identity T1	−0.004	−0.144**	−0.057	−0.076	–													
6. Heritage identity T2	0.131*	−0.053	−0.063	0.052	0.464**	–												
7. Heritage identity T3	0.085	−0.033	−0.069	−0.045	0.330**	0.462**	–											
8. National identity T1	0.051	0.082	0.062	−0.028	0.140**	0.006	−0.065	–										
9. National identity T2	−0.015	−0.014	0.080	0.159**	0.104	0.142*	−0.012	0.572**	–									
10. National identity T3	0.031	0.060	−0.014	0.029	0.167**	0.063	0.091	0.444**	0.542**	–								
11. Heritage/intercultural climate T1	0.018	0.059	0.083	0.027	0.035	0.030	0.088	0.166**	0.077	0.197**	–							
12. Unequal treatment climate T1	−0.083	0.009	0.044	0.028	−0.056	−0.075	0.056	−0.012	−0.002	0.087	0.345**	–						
13. Physiological stress T1	0.048	0.094	0.008	0.003	−0.142*	−0.113*	−0.087	−0.046	−0.014	−0.108	0.045	0.208**	–					
14. Physiological stress T3	0.143*	0.144*	0.149*	0.024	−0.107	−0.162*	−0.173**	0.005	−0.073	0.006	0.030	0.114	0.428**	–				
15. Depressive symptoms T1	0.111*	0.163**	0.040	−0.003	−0.168**	−0.130*	−0.064	−0.057	−0.045	−0.188**	0.074	0.260**	0.753**	0.395**	–			
16. Depressive symptoms T3	0.157**	0.230**	0.128*	0.022	−0.162**	−0.182**	−0.110	0.040	−0.031	0.019	0.076	0.156**	0.391**	0.753**	0.481**	–		
17. Life satisfaction T1	0.020	−0.012	−0.003	−0.100*	0.193**	0.130*	0.019	0.222**	0.117	0.249**	0.044	−0.212**	−0.315**	−0.235**	−0.430**	−0.273**	–	
18. Life satisfaction T3	0.014	−0.060	−0.098	−0.073	0.212**	0.218**	0.169**	0.161*	0.148*	0.254**	0.091	−0.091	−0.213*	−0.433**	−0.295**	−0.546**	0.460**	–
M	0.51	0.00	0.08	0.66	3.57	3.51	3.48	3.48	2.62	2.61	2.59	2.26	2.08	2.27	2.24	2.42	3.64	3.55
(SD)	(0.50)	(0.00)	(0.27)	(0.47)	(0.59)	(0.70)	(0.69)	(0.69)	(0.69)	(0.71)	(0.66)	(0.91)	(0.80)	(0.93)	(0.94)	(1.06)	(0.94)	(0.97)

SES uses Principal Component Score. Gender coded 0 = male, 1 = female. Intervention coded 0 = control, 1 = intervention. First generation immigrant coded 0 = born in Germany, 1 = born outside of Germany

*p < 0.05, **p < 0.01, ***p < 0.001

CFI = 1.00, RMSEA = 0.00 [90% CI 0.00; 0.00], SRMR = 0.00) and national identity (χ^2/df = 0.00***, CFI = 1.00, RMSEA = 0.00 [90% CI 0.00; 0.00], SRMR = 0.00).

After progressively adding more classes to the model, the model with three trajectories was chosen as the best solution. The scree plot of the AIC and BIC (Fig. 1S, Supplemental Materials) suggested a three-trajectory solution, and the LMR-LRT suggested that the three-trajectory model fit significantly better than a two-trajectory model. Moreover, the entropy was lower in a four-trajectory model (see Table 1S, Supplemental Materials). Even though the third class in the three-trajectory model was very small (N = 10), we chose the three-class solution as the third class replicated a class found in previous research (Spiegler et al. 2018), and this class comprised more than 1% of the sample (Jung and Wickrama 2008).

Supporting the first hypothesis, the three trajectory groups were mainly marked by changes in heritage identity over time, while national identity remained stable, moderate, and overall lower than heritage identity (see Fig. 1, and Table 2 for the intercepts and slopes in the three trajectory groups). Adolescents in the "high decreasing heritage identity" trajectory (80%) had a strong heritage identity at T1 that decreased slightly over time. Adolescents in the "moderate stable identities" trajectory (18%) showed medium levels of heritage identity that did not change significantly over time. Adolescents in the "low increasing heritage identity" (2%) had a low heritage identity at the start which increased strongly over time, ending up with the greatest divergence from national identity at the end of 8th grade.

6.4 Testing hypotheses 2a and 2b: classroom cultural diversity climate as a predictor of latent trajectories

We expected that stronger perceptions of heritage and intercultural learning climate would predict a greater likelihood of being in trajectories marked by high or increasing heritage and national identity (Hypothesis 2a), whereas an unequal treatment climate would predict a greater likelihood of being in trajectories marked by high or increasing heritage identity and decreasing national identity (Hypothesis 2b). With no control variables in the model, neither classroom cultural diversity climate dimensions at the individual- nor classroom-level predicted trajectory membership. With control variables in the model, at the individual level, neither heritage and intercultural learning climate nor unequal treatment climate predicted membership in the "high decreasing heritage identity" or the "low increasing heritage identity" (vs. the "moderate stable identities") trajectory, even though descriptive tendencies were in line with our expectations. At the classroom level, however, heritage/intercultural learning climate predicted a lower likelihood of being in the "low increasing heritage identity" trajectory (vs. the "moderate stable identities" trajectory), see Table 3.

6.5 Testing hypotheses 3a and 3b: latent trajectories and socioemotional adjustment

We expected that trajectories marked by high or increasing heritage identity would be related to positive socioemotional adjustment at T3 (Hypothesis 3a). We had planned to investigate in an exploratory fashion how trajectories marked by high

Fig. 1 Plots of Heritage and National Identity in the Three Trajectory Groups
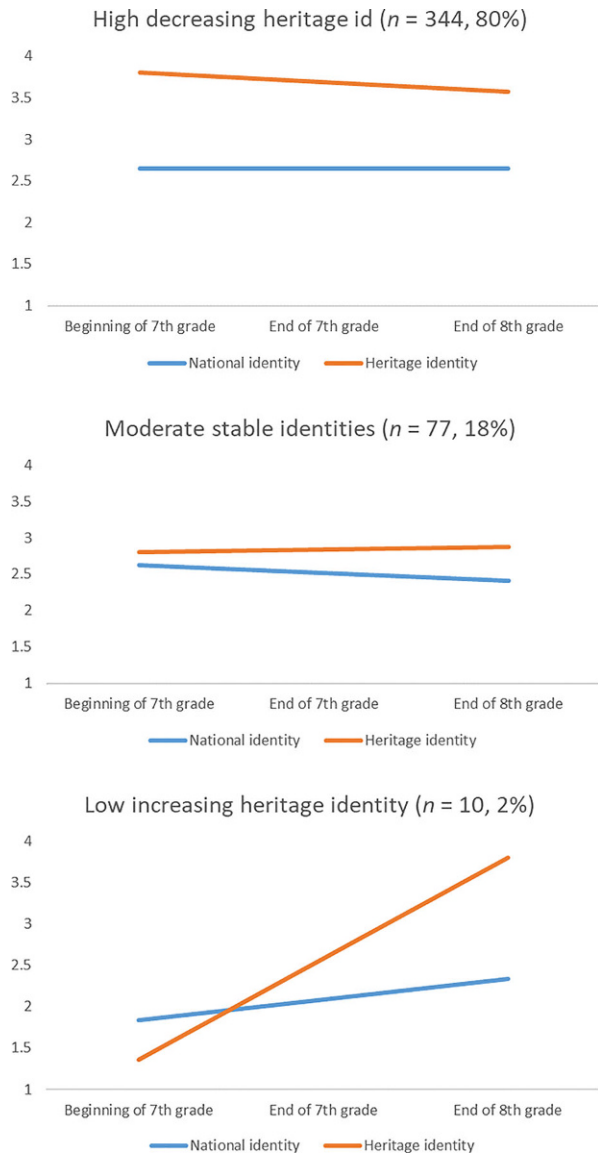
or increasing national identity were related to socioemotional adjustment at T3 (Hypothesis 3b), but we did not find a trajectory marked by high or increasing national identity. In all models, the two classroom climate diversity dimensions were also entered as covariates. With no control variables in the model with "moderate stable identity" trajectory as the reference group, membership in the "high decreasing heritage identity" trajectory predicted lower depressive symptoms at T3, and membership in the "low increasing heritage identity" trajectory predicted lower life satisfaction at T3. Additionally, unequal treatment climate at T1 predicted greater physiological stress, depressive symptoms, and lower life satisfaction at T3, and

Table 2 Intercepts and Slopes of Three Trajectory Groups

Trajectory group	Intercept Mean (SE)	Intercept Variance (SE)[a]	Linear slope Mean (SE)	Linear slope Variance (SE)[a]	Residual variances estimate (SE) Wave 1[a]	Wave 2[a]	Wave 3[a]
High decreasing heritage identity (n = 344, 80%)							
National identity	2.65[***] (0.04)	0.36[***] (0.05)	0.00 (0.02)	0.07[**] (0.03)	0.11[*] (0.05)	0.24[***] (0.03)	0.11[*] (0.05)
Heritage identity	3.81[***] (0.03)	0.04 (0.03)	–0.12[***] (0.03)	0.07[**] (0.02)	0.02 (0.03)	0.28[***] (0.04)	0.13 (0.07)
Moderate stable identities (n = 77, 18%)							
National identity	2.63[***] (0.08)	0.36[***] (0.05)	–0.11 (0.08)	0.07[**] (0.03)	0.11[*] (0.05)	0.24[***] (0.03)	0.11[*] (0.05)
Heritage identity	2.80[***] (0.10)	0.04 (0.03)	0.04 (0.08)	0.07[**] (0.02)	0.02 (0.03)	0.28[***] (0.04)	0.13 (0.07)
Low increasing heritage identity (n = 10, 2%)							
National identity	1.84[***] (0.22)	0.36[***] (0.05)	0.25 (0.18)	0.07[**] (0.03)	0.11[*] (0.05)	0.24[***] (0.03)	0.11[*] (0.05)
Heritage identity	1.36[***] (0.14)	0.04 (0.03)	1.22[***] (0.32)	0.07[**] (0.02)	0.02 (0.03)	0.28[***] (0.04)	0.13 (0.07)

$N = 431$. Unstandardized coefficients
[*]$p < 0.05$; [**]$p < 0.01$; [***]$p < 0.001$
[a]Indicates a parameter that was equated across trajectory groups

heritage and intercultural learning climate predicted greater life satisfaction at T3. With control variables in the model, only membership in the "low increasing heritage identity" trajectory (vs. the "moderate stable identities" trajectory) predicted lower life satisfaction at T3 (see Table 4). Additionally, unequal treatment climate at T1 predicted greater physiological stress, depressive symptoms, and lower life satisfaction at T3, and heritage and intercultural learning climate predicted greater life satisfaction at T3. When we also controlled for life satisfaction at T1, the trajectory-life satisfaction relation disappeared (see Table 2S Supplemental Materials), indicating that trajectory membership predicted socioemotional adjustment at T3, but not *change* in adjustment across time.

6.6 Additional, exploratory non-preregistered analyses

We also estimated within time or cross-sectional covariances (and standardized covariances) between trajectory membership and adjustment at T1 with control variables. Compared to the "moderate stable identity" trajectory, those in the "low increasing heritage identity" trajectory showed lower life satisfaction ($r = -0.11$, $p = 0.03$) at T1 and those in the "high decreasing heritage identity" showed lower physiological stress ($r = -0.11$, $p = 0.02$) lower depressive symptoms ($r = -0.16$, $p = 0.001$), and higher life satisfaction ($r = 0.18$, $p < 0.001$) at T1.

We tested whether membership in a higher stigmatized group (Turkish/SWANA heritage vs. non Turkish/SWANA heritage) predicted trajectory membership. We tested this grouping because Turkish- and SWANA-heritage German adolescents are more likely to report being perceived as an *"Ausländer*in"* (foreigner) than

Table 3 Results of Multinomial Logistic Regression Analyses with Moderate Stable Trajectory ($n = 77$, 18%) as Reference Category

	High decreasing heritage identity ($n = 344$, 80%)		Low increasing heritage identity ($n = 10$, 2%)	
	B (SE)	Odds Ratios [95% CI]	B (SE)	Odds Ratios [95% CI]
Control variables				
Gender	0.15 (0.27)	1.16 [0.68; 1.97]	1.18 (0.68)	3.26 [0.86; 12.41]
SES	−0.18 (0.13)	0.83 [0.64; 1.08]	0.91 (0.49)	2.47 [0.94; 6.50]
1st generation immigrant	0.25 (0.58)	1.29 [0.42; 3.97]	1.51 (1.06)	4.50 [0.56; 36.22]
Intervention condition	−0.38 (0.30)	0.68 [0.38; 1.23]	0.55 (0.79)	1.73 [0.37; 8.07]
Individual-Level Predictors				
Heritage/intercultural learning climate	0.17 (0.15)	1.19 [0.88; 1.61]	−0.32 (0.76)	0.73 [0.16; 3.25]
Unequal treatment climate	−0.24 (0.17)	0.79 [0.57; 1.09]	0.02 (0.47)	1.02 [0.41; 2.55]
Classroom-Level Predictors				
Heritage/intercultural learning climate	0.23 (0.39)	–	−1.94[*] (0.93)	–
Unequal treatment climate	0.19 (0.45)	–	2.20 (1.16)	–

Gender coded 0 = male, 1 = female. Intervention coded 0 = control, 1 = intervention. 1st generation immigrant coded 0 = born in Germany, 1 = born outside of Germany. Mplus does not provide odds ratios for the classroom-level

[*]$p < 0.05$

other groups (Juang et al. 2021) and report experiencing the highest levels of discrimination based on their ethnic heritage compared to other groups (Antidiskriminierungsstelle des Bundes 2013). We found that Turkish/SWANA-heritage adolescents were more likely than those of non-Turkish/SWANA-heritage to be in the "high decreasing heritage identity" trajectory compared to the "moderate stable identities" trajectory. We also tested whether classroom cultural diversity climate dimensions moderated the association between trajectory membership and socioemotional adaptation (they did not), and whether being of Turkish- or SWANA-heritage moderated the association between trajectory membership and socioemotional adaptation (it did not). Please see Supplemental Materials for these analyses.

Finally, as suggested by a reviewer, we ran additional, non-pre-registered analyses using a variable-oriented approach with continuous variables where T1 climate predicted T2 identity which predicted T3 adjustment (controlling or not controlling for adjustment at previous time point). The results are presented in Supplemental Materials, Table 3S and Table 4S. The results showed that the variance of adjustment explained by using continuous indicators in this variable-oriented approach is comparable to variance explained using trajectories in our person-oriented approach.

Table 4 Regression Analyses Regressing Socioemotional Adjustment on Trajectory Membership with Moderate Stable Trajectory as Reference Group

	Socioemotional adjustment		
	Physiological stress T3	Depressive symptoms T3	Life satisfaction T3
	B (SE)	B (SE)	B (SE)
Intercept	1.96*** (0.24)	2.02*** (0.26)	3.53*** (0.25)
Control variables			
Gender	0.28** (0.11)	0.34** (0.12)	–0.01 (0.11)
SES	0.14* (0.06)	0.24** (0.07)	–0.08 (0.06)
1st generation immigrant	0.65* (0.29)	0.69* (0.29)	–0.47 (0.25)
Intervention condition	0.07 (0.12)	0.09 (0.13)	–0.16 (0.13)
Heritage/intercultural learning climate	–0.04 (0.07)	–0.01 (0.07)	0.15* (0.06)
Unequal treatment climate	0.17* (0.08)	0.24** (0.09)	–0.18* (0.08)
Predictors			
Low increasing heritage identity trajectory	0.16 (0.68)	–0.16 (0.38)	–1.01* (0.40)
High slightly decreasing heritage identity trajectory	–0.15 (0.14)	–0.29 (0.17)	0.17 (0.15)
R^2	0.10*	0.14**	0.09**

Gender coded 0 = male, 1 = female. Intervention coded 0 = control, 1 = intervention. 1st generation immigrant coded 0 = born in Germany, 1 = born outside of Germany

*$p < 0.05$, *$p < 0.01$, ***$p < 0.001$

These models with continuous indicators, however, capture sample-average levels in identity at T2 and not developmental trajectories, the main focus of our study.

7 Discussion

In increasingly diverse societies where immigrants and their descendants make up a significant and growing part of the population, having a sense of belonging and feeling valued as part of one's heritage communities and broader society, are important aspects of healthy development (Berry et al. 2006; Phinney et al. 2001). Therefore, for adolescents with multiple cultural backgrounds, social identities based on one's heritage and national cultures have potential to be developmental assets that are linked positively to socioemotional adjustment (Neblett et al. 2012). Because social identities can be both promotive and protective, it is important to understand what contributes to the development of positive identities.

Schools are key developmental contexts that can be supportive or potentially undermine adolescents' sense of self regarding their heritage and national identities (Schachner et al. 2016; Umaña-Taylor et al. 2018). The classroom diversity climate is one specific and important aspect of the school context that has been linked to adolescents' heritage and national identity exploration and resolution (Aral et al. 2022; Camacho et al. 2018; Moscardino et al. 2019), as well as acculturation orientations and heritage and national identities and, subsequently, socioemotional adjustment

(Schachner et al. 2016). Our study builds and expands on these previous studies by addressing whether classroom diversity climate can set the stage for how heritage and national identities together develop across mid-adolescence, with potential implications for socioemotional adjustment.

7.1 Heritage and national identities together

Bivariate cross-sectional correlations between heritage and national identities in this sample were small and positive, similar to a study of German adolescents of immigrant descent living in North-Rhein-Westphalia (Fleischmann et al. 2019). In contrast, other studies with adolescent German samples find no relation between the two identity dimensions (Spiegler et al. 2018), while most find a negative relation between the two (Göbel and Preusche 2019; Schachner et al. 2016, 2018; Schotte et al. 2018; Spiegler et al. 2019; Stoessel et al. 2014). In contexts with strong assimilation demands to the dominant culture, multiple identities may not be supported and as such, these identities are more likely to be conflicting rather than compatible (Fleischmann et al. 2019). Indeed, evidence in a broader context shows that heritage and national identities tend to be more strongly negatively correlated in countries such as Germany and France that emphasize greater assimilation, compared to countries such as Australia with policies supporting more multiculturalism, with the Netherlands in between (Yağmur and van de Vijver 2012). Our study was a convenience sample drawn from Berlin, a highly diverse context that may be more conducive to valuing diverse, multiple identities.

When the sample was considered as a whole, a sample-averaged trajectory showed that heritage identity decreased from T1 to T3, and national identity remained stable. Further person-oriented analyses, however, suggested that instead of one general dual identity trajectory to describe the sample, the model with three patterns fit the sample best, supporting Hypothesis 1. The three trajectories had similar and stable national identities and varied more on level and slope of heritage identity. This general pattern of more stable national identities and greater variation with heritage identity is found in early adolescence (Spiegler et al. 2018), mid-adolescence (our study), and mid- to late-adolescence (Spiegler et al. 2019). Also similar to previous studies, most adolescents fell into the trajectories with stable moderate national identities and higher heritage identities, indicating that endorsing dual- or multiple-identities of heritage and national is normative.

The low and sharply increasing heritage identity with lower national identity shows a pattern similar to Spiegler et al.'s (2019) study of Muslim European adolescents from four countries where 8% were assigned to this class, made up of mostly German adolescents. In a context of high discrimination towards being Muslim (Foroutan 2012), it may be more challenging to value and affirm both identities simultaneously. In Spiegler et al.'s (2019) study and ours, this pattern reported the least positive socioemotional adjustment. This is a small group, but one to pay attention to. Adolescents in this group started off 7th grade with slightly higher national than heritage identities, the only group to do so. But adolescents in this group sharply increased their heritage identities and increased the gap to their national identities, so that by the end of 8th grade, the widely diverging trajectories suggested

a growing incompatibility of the two identities. Finally, in exploratory analyses we found that Turkish/SWANA-heritage adolescents were more likely than those of non-Turkish/SWANA heritage to be in the "high decreasing heritage identity" trajectory compared to the "moderate stable identities" trajectory, suggesting that those in an assumed higher stigmatized group show stronger heritage identities, perhaps because they may also experience more discrimination (Antidiskriminierungsstelle des Bundes 2013), in line with the rejection-identification hypothesis.

7.2 Classroom cultural diversity climate and identity trajectories

In partial support of Hypothesis 2, heritage and intercultural learning classroom climate as the classroom level (but not individual level) predicted identity trajectories. The aggregated heritage and intercultural learning classroom diversity climate at T1 was related to a greater likelihood to belong in the moderate stable identity trajectory rather than the low increasing heritage identity trajectory. Thus, at the beginning of 7th grade, adolescents who perceived their classrooms to value and learn about cultural diversity of students also had stronger and more stable heritage and national identities through the end of 8th grade. These findings add to other evidence that school contexts that value (rather than ignore or reject) cultural diversity among students can reinforce a sense of belonging at school (Celeste et al. 2019; Schachner et al. 2018) as well as support stronger orientations and identification with heritage and mainstream cultures (Aral et al. 2022; Schachner et al. 2016). Similar to these previous studies, we did find that classroom climate (especially unequal treatment) at the beginning of 7th grade predicted socioemotional adjustment at the end of 8th grade. Taken together, affirming classroom diversity climates may afford a sense of belonging on various levels—to schools, heritage communities and broader society, with positive implications for well-being. Nonetheless, the low (but increasing to fair over time) reliability of classroom-level aggregates means our interpretations regarding this classroom level effect should be taken with caution.

In contrast to our hypothesis, classroom climate marked by greater unequal treatment did not relate to identity trajectories. Based on the rejection-identification (Branscombe et al. 1999) and rejection de-identification hypotheses we expected that adolescents perceiving a more unequal treatment climate would be more likely to fall into trajectories characterized by stronger and increasing heritage and weaker national identity, similar to what Schachner et al.'s (2016) study of early adolescents found using variable-oriented analyses. Fleischmann et al.'s (2019) study reported similar findings, not with classroom diversity climate specifically but assessing experiences of discrimination, such that greater discrimination predicted increases in heritage and religious identity and decreases in national identity over time. The rejection-identification model focuses more on personal experiences of discrimination and being a direct target. Because students' perceptions of an unequal (discriminatory) classroom climate may not always align with their own experiences of discrimination (Byrd 2017), this may be a reason why we did not find the hypothesized relation with identity trajectories. In our study, we assessed classroom diversity climate at the beginning of 7th grade and assessed trajectories through the end of 8th grade. Perhaps classroom diversity climates regarding unequal treatment

changed throughout the two years to influence the trajectories such that the starting classroom climate did not matter as much to how identities changed over time.

7.3 Heritage and national identities with socioemotional adjustment

The bivariate correlations showed that in general, heritage identity related negatively to physiological stress and depressive symptoms and positively to life satisfaction both within and across time. National identity was most consistently related to more positive life satisfaction both within and across time. These correlational findings are in line with developmental and social identity perspectives suggesting that strong social identities that provide a sense of belonging and security of being part of valued communities are linked with better socioemotional adjustment (Erikson 1968; Tajfel and Turner 1986). These findings also address the call to identify adaptive aspects of culture (Garcia Coll et al. 1996).

Analyses showed that while trajectory membership did not predict change in socioemotional adjustment from 7th to 8th grade, adolescents in the low increasing heritage identity trajectory showed lower life satisfaction at the end of 8th grade compared to adolescents in the moderate stable identity trajectory. The divergence between heritage and national identities may indicate a growing incompatibility of these identities, which may be distressing (Schwartz et al. 2015). Further, exploratory analyses showed that at the beginning of 7th grade adolescents in the high slightly decreasing heritage identity trajectory reported lower physiological stress, fewer depressive symptoms, and greater life satisfaction compared to adolescents in the moderate stable trajectory. These two trajectories show similar, stable, moderate levels of national identity and are distinguished by differences in heritage identity. In general, adolescents who reported higher heritage identities across 7th and 8th grade were also more likely to report more positive socioemotional adjustment, at least at the beginning of 7th grade. It may be the case that more positive socioemotional adjustment also supports identity growth and commitment, to feel good about belonging to both heritage community and larger society. Alternatively, finding that identity trajectories did not strongly predict socioemotional adjustment suggests that in addition to fostering positive social identities, it is also important to focus on structural/contextual factors that contribute to well-being such as supportive migration policies and availability of resources and supports for minoritized youth (Bierwiaczonek and Kunst 2021).

7.4 Limitations and future directions

There were some limitations to the study. One limitation was that our sample was part of a self-affirmation brief intervention study and while we controlled for intervention status, we cannot be entirely sure how the intervention may have affected our findings. Nonetheless, the correlational data show that intervention condition did not generally relate to the main study variables. Another limitation is that we measured only two dimensions of identity—heritage and national. Focusing on only these two has been critiqued as too simplistic and not acknowledging the multiplicity of identities that all young people have (Verkuyten et al. 2019). Because of the

low number of students per classroom, another limitation is the low (but increasing to fair over time) reliability of classroom-level aggregates. Therefore, as we stated above, we should be cautious in our interpretations regarding the classroom level effect.

Our participants were drawn from a convenience sample from Berlin, a very culturally and migration diverse context. Studies of various dimensions of classroom cultural diversity climate among German adolescents have been conducted in similarly diverse parts of Germany, such as in the federal states of Baden Württemberg (Schachner et al. 2016) and North-Rhine-Westphalia (Aral et al. 2022). Studying how classroom cultural diversity climates relate to adolescent development in less culturally and migration diverse areas is needed. Studies show that youth having no intergroup contact show increasing prejudice against outgroups as they grow older than those who do experience intergroup contact (Raabe and Beelmann 2011). Further, if adolescents have parents who are prejudiced against immigrants and attend a less diverse classroom, adolescents are more likely to show similar levels of prejudice as their parents (Miklikowska et al. 2019). Therefore, ensuring more positive classroom diversity climates may be even more important in more homogeneous schools and communities that do not have many opportunities for intergroup contact.

Another important limitation is that one trajectory was very small, so it is difficult to draw stable statistical conclusions with such a small trajectory. We had decided to keep this class because it was a similar pattern shown in another study (Spiegler et al. 2018). Larger samples may be needed in order to replicate this trajectory. The timespan of our study covered two years with three measurement points. Because identity is situational and develops through everyday interactions, assessing adolescent identity, climate, and socioemotional adjustment at shorter timescales would be helpful and may show more dynamic, everyday change (Branje 2022).

We examined two key dimensions of classroom diversity climate, but other dimensions such as critical consciousness or polyculturalism climate (Schachner et al. 2021), may also be important for identity development. Critical conscious socialization and ethnic-racial identity development inform one another (Mathews et al. 2020). For instance, adolescents who learn about societal inequities and how some groups experience disadvantages and others more privileges, may be prompted to learn more about their own heritage groups to better understand what this group membership means in broader society. Or, in classrooms where culture(s) are seen as dynamic, changeable, and mutually influential, this more flexible view of cultural boundaries and groups may contribute to how adolescents think, feel, and identify with their own heritage(s) and broader society.

8 Conclusion

Because identity work is a key developmental task of adolescence, understanding the implications and conditions that afford the development of social identities relevant to adolescents living in diverse societies is necessary. Our findings suggest that adolescents who feel connected and identify with their heritage and national cultures

across mid-adolescence show positive links to socioemotional adjustment. Further, we have tentative evidence suggesting when heritage and national identities sharply diverge over time (which may indicate conflicting identities or less "bicultural integration"), adolescents may experience greater distress, as other studies have found (Schwartz et al. 2015). It will be important to continue to examine how classroom diversity climates contribute to the development of these various social identities, together, over time, and identify the implications for adolescent well-being.

References

Allport, G. W. (1954). *The nature of prejudice*. New York: Addison-Wesley.

Antidiskriminierungsstelle des Bundes (2013). Diskriminierung im Bildungsbereich und im Arbeitsleben [Discrimination in education and employment]. https://www.antidiskriminierungsstelle.de/SharedDocs/downloads/DE/publikationen/BT_Bericht/gemeinsamer_bericht_zweiter_2013.html

Aral et al. (2023). The social contexts of cultural identity among youth of immigrant descent. Manuscript under review.

Banks, J. A. (1993). Multicultural education: historical development, dimensions, and practice. *Review of Research in Education*, *19*, 3–49.

Benet-Martinez, V., & Haritatos, J. (2005). Bicultural identity integration (BII): components and psychosocial antecedents. *Journal of Personality*, *73*(4), 1015–1050. https://doi.org/10.1111/j.1467-6494.2005.00337.x.

Berry, J. W., Phinney, J. S., Sam, D. L., & Vedder, P. (2006). *Immigrant youth in cultural transition: acculturation, identity, and adaptation across national contexts*. Hillsdale: Lawrence Erlbaum.

Bierwiaczonek, K., & Kunst, J. R. (2021). Revisiting the integration hypothesis: Correlational and longitudinal meta-analyses demonstrate the limited role of acculturation for cross-cultural adaptation. *Psychological Science*. https://doi.org/10.1177/09567976211006432.

Bos, W., Lankes, E.-M., Prenzel, M., Schwippert, K., Walther, G., & Valtin, R. (2003). *Erste Ergebnisse aus IGLU. Schülerleistungen am Ende der vierten Jahrgangsstufe im internationalen Vergleich [First results from IGLU. School performance at the end of the 4th grade in international comparison]*. Münster: Waxmann.

Boyce, W., Torsheim, T., Currie, C., & Zambon, A. (2006). The family affluence scale as a measure of national wealth: validation of an adolescent self-report measure. *Social Indicators Research*, *78*, 473–487. https://doi.org/10.1007/s11205-005-1607-6.

Branje, S. (2022). Adolescent identity development in context. *Current Opinion in Psychology*, *45*, 101286. https://doi.org/10.1016/j.copsyc.2021.11.006.

Branscombe, N. R., Schmitt, M. T., & Harvey, R. D. (1999). Perceiving pervasive discrimination among African Americans: implications for group identification and well-being. *Journal of Personality and Social Psychology*, *77*(1), 135–149.

Brubaker, R. (2009). Ethnicity, race, and nationalism. *Annual Review of Sociology*, *35*, 21–42. https://doi.org/10.1146/annurev-soc-070308-115916.

Byrd, C. M. (2017). The complexity of school racial climate: reliability and validity of a new measure for secondary students. *British Journal of Educational Psychology*, *87*(4), 700–721. https://doi.org/10.1111/bjep.12179.

Camacho, T. C., Medina, M., Rivas-Drake, D., & Jagers, R. (2018). School climate and ethnic-racial identity in school: a longitudinal examination of reciprocal associations. *Journal of Community & Applied Social Psychology*, *28*(1), 29–41. https://doi.org/10.1002/casp.2338.

Celeste, L., Baysu, G., Phalet, K., Meeussen, L., & Kende, J. (2019). Can school diversity policies reduce belonging and achievement gaps between minority and majority youth? Multiculturalism, colorblindness, and assimilationism assessed. *Personality and Social Psychology Bulletin*, *45*(11), 1603–1618. https://doi.org/10.1177/0146167219838577.

Cohen, G. L., & Sherman, D. K. (2014). The psychology of change: self-affirmation and social psychological intervention. *Annual Review of Psychology*, *65*, 333–371. https://doi.org/10.1146/annurev-psych-010213-115137.

Diener, E., Inglehart, R., & Tay, L. (2013). Theory and validity of life satisfaction scales. *Social Indicators Research*, *112*(3), 497–527. https://doi.org/10.1007/s11205-012-0076-y.

Enders, C. K., & Bandalos, D. (2001). The relative performance of full information maximum likelihood estimation for missing data in structural equation models. *Structural Equation Modeling: A Multidisciplinary Journal*, *8*(3), 430–457. https://doi.org/10.1207/S15328007SEM0803_5.

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

Federal Government Expert Commission (2021). Shaping our immigration society together: Federal Government Expert Commission on the framework for sustainable integration. https://www.xn--fachkommission-integrationsfhigkeit-x7c.de/fk-int/dokumente

Fleischmann, F., Leszczensky, L., & Pink, S. (2019). Identity threat and identity multiplicity among minority youth: longitudinal relations of perceived discrimination with ethnic, religious, and national identification in Germany. *British Journal of Social Psychology*, *58*(4), 971–990. https://doi.org/10.1111/bjso.12324.

Foroutan, N. (2012). *Muslimbilder in Deutschland: Wahrnehmungen und Ausgrenzungen in der Integrationsdebatte: Expertise im Auftrag der Abteilung Wirtschafts- und Sozialpolitik der Friedrich-Ebert-Stiftung*. [Images of Muslims in Germany: Perceptions and exclusions in the integration debate: Expertise commissioned by the Economic and Social Policy Department of the Friedrich Ebert Foundation]. Abteilung Wirtschafts- und Sozialpolitik der Friedrich-Ebert-Stiftung.

Garcia Coll, C., Lamberty, G., Jenkins, R., McAdoo, H. P., Crnic, K., Wasik, B. H., & Garcia, H. V. (1996). An integrative model for the study of developmental competencies in minority children. *Child Development*, *67*(5), 1891. https://doi.org/10.2307/1131600.

Gay, G. (1975). Organizing and designing culturally pluralistic curriculum. *Educational Leadership*, *33*, 176–183.

Göbel, K., & Preusche, Z. M. (2019). Emotional school engagement among minority youth: the relevance of cultural identity, perceived discrimination, and perceived support. *Intercultural Education*, *30*(5), 547–563. https://doi.org/10.1080/14675986.2019.1616263.

Gonzales-Backen, M. A., Bámaca-Colbert, M. Y., & Allen, K. (2016). Ethnic identity trajectories among Mexican-origin girls during early and middle adolescence: Predicting future psychosocial adjustment. *Developmental Psychology*, *52*(5), 790–797. https://doi.org/10.1037/a0040193.

Habermas, T., & Bluck, S. (2000). Getting a life: the emergence of the life story in adolescence. *Psychological Bulletin*, *126*(5), 748–769. https://doi.org/10.1037/0033-2909.126.5.748.

Huguley, J. P., Wang, M.-T., Vasquez, A. C., & Guo, J. (2019). Parental ethnic–racial socialization practices and the construction of children of color's ethnic–racial identity: a research synthesis and meta-analysis. *Psychological Bulletin*, *145*(5), 437–458. https://doi.org/10.1037/bul0000187.

Johnson, S. K. (2021). Latent profile transition analyses and growth mixture models: a very non-technical guide for researchers in child and adolescent development. *New Directions for Child and Adolescent Development*, *2021*(175), 111–139. https://doi.org/10.1002/cad.20398.

Juang, L., Schwarzenthal, M., Moffitt, U., & Vietze, J. (2021). "No, where are you really from?": testing the foreigner objectification scale with German adolescents. *Zeitschrift Für Entwicklungspsychologie Und Pädagogische Psychologie*, *53*(3–4), 82–93. https://doi.org/10.1026/0049-8637/a000242.

Juang, L. P., Schachner, M. K., Pevec, S., & Moffitt, U. (2020). The *Identity Project* intervention in Germany: creating a climate for reflection, connection, and adolescent identity development. *New Directions for Child and Adolescent Development*, *2020*(173), 65–82. https://doi.org/10.1002/cad.20379.

Jung, T., & Wickrama, K. A. S. (2008). An introduction to latent class growth analysis and growth mixture modeling. *Social and Personality Psychology Compass*, *2*(1), 302–317. https://doi.org/10.1111/j.1751-9004.2007.00054.x.

Keijsers, L., & Van Roekel, E. (2019). Longitudinal methods in adolescent psychology. Where could we go from here? And should we? In L. B. Hendry & M. Kloep (Eds.), *Reframing adolescent research* (pp. 56–77). London: Routledge.

Kunyu, D., Juang, L. P., Schachner, M. K., & Schwarzenthal, M. (2020). Discrimination among youth of immigrant descent in Germany. *Zeitschrift Für Entwicklungspsychologie und Pädagogische Psychologie*, *52*(3–4), 88–102. https://doi.org/10.1026/0049-8637/a000231.

Leszczensky, L., & Santiago, A. G. (2014). Die Messung ethnischer und nationaler Identität von Kindern und Jugendlichen [The measurement of ethnic and national identity of children and youth]. *Arbeitspapiere – Mannheimer Zentrum für Europäische Sozialforschung*, *155*, 35.

Little, R. J. A. (1988). A test of missing completely at random for multivariate data with missing values. *Journal of the American Statistical Association*, *83*(404), 1198–1202. https://doi.org/10.1080/01621459.1988.10478722.

Mathews, C. J., Medina, M. A., Bañales, J., Pinetta, B. J., Marchand, A. D., Agi, A. C., Miller, S. M., Hoffman, A. J., Diemer, M. A., & Rivas-Drake, D. (2020). Mapping the intersections of adolescents' ethnic-racial identity and critical consciousness. *Adolescent Research Review*, *5*(4), 363–379. https://doi.org/10.1007/s40894-019-00122-0.

Miklikowska, M., Bohman, A., & Titzmann, P. F. (2019). Driven by context? The interrelated effects of parents, peers, classrooms on development of prejudice among Swedish majority adolescents. *Developmental Psychology*, *55*(11), 2451–2463. https://doi.org/10.1037/dev0000809.

Moffitt, U., Juang, L., & Syed, M. (2018). Being both German and Other: narratives of contested national identity among white and Turkish German young adults. *British Journal of Social Psychology*, *57*, 878–896.

Moscardino, U., Musso, P., Lan, X., Miconi, D., Inguglia, C., & Schachner, M. (2019). *Prosocial behavior in multicultural classrooms: The role of adolescents' perceived teacher support for cultural pluralism and ethnic identity*. Paper presented at the 19th European Conference on Developmental Psychology, Athens, 29 August–1 September.

Muthén, L., & Muthen, B. (2018). *Mplus user's guide*. Muthén & Muthén.

Neblett, E. W., Rivas-Drake, D., & Umaña-Taylor, A. J. (2012). The promise of racial and ethnic protective factors in promoting ethnic minority youth development. *Child Development Perspectives*, *6*(3), 295–303. https://doi.org/10.1111/j.1750-8606.2012.00239.x.

Nylund, K. L., Asparouhov, T., & Muthén, B. O. (2007). Deciding on the number of classes in latent class analysis and growth mixture modeling: a Monte Carlo Simulation study. *Structural Equation Modeling: A Multidisciplinary Journal*, *14*(4), 535–569. https://doi.org/10.1080/10705510701575396.

Pettigrew, T. F. (1998). Intergroup contact theory. *Annual Review of Psychology*, *49*, 65–85. https://doi.org/10.1146/annurev.psych.49.1.65.

Phinney, J. S., Horenczyk, G., Liebkind, K., & Vedder, P. (2001). Ethnic identity, immigration, and well-being: an interactional perspective. *Journal of Social Issues*, *57*(3), 493–510. https://doi.org/10.1111/0022-4537.00225.

Raabe, T., & Beelmann, A. (2011). Development of ethnic, racial, and national prejudice in childhood and adolescence: a multinational meta-analysis of age differences in prejudice. *Child Development*, *82*(6), 1715–1737. https://doi.org/10.1111/j.1467-8624.2011.01668.x.

Richter, M., & Leppin, A. (2007). Trends in socio-economic differences in tobacco smoking among German schoolchildren, 1994–2002. *European Journal of Public Health*, *17*, 565–571. https://doi.org/10.1093/eurpub/ckm01.

Rivas-Drake, D., Syed, M., Umaña-Taylor, A., Markstrom, C., French, S., Schwartz, S. J., Lee, R., & Ethnic and Racial Identity in the 21st Century Study Group (2014). Feeling good, happy, and proud: A meta-analysis of positive ethnic-racial affect and adjustment. *Child Development*, *85*(1), 77–102. https://doi.org/10.1111/cdev.12175.

Schachner, M. K., Noack, P., Van de Vijver, F. J. R., & Eckstein, K. (2016). Cultural diversity climate and psychological adjustment at school-equality and inclusion versus cultural pluralism. *Child Development*, *87*(4), 1175–1191. https://doi.org/10.1111/cdev.12536.

Schachner, M. K., Van de Vijver, F. J. R., & Noack, P. (2018). Acculturation and school adjustment of early-adolescent immigrant boys and girls in Germany: conditions in school, family, and ethnic group. *The Journal of Early Adolescence*, *38*(3), 352–384. https://doi.org/10.1177/0272431616670991.

Schachner, M. K., Schwarzenthal, M., Moffitt, U., Civitillo, S., & Juang, L. (2021). Capturing a nuanced picture of classroom cultural diversity climate: multigroup and multilevel analyses among secondary

school students in Germany. *Contemporary Educational Psychology*, *65*, 101971. https://doi.org/10.1016/j.cedpsych.2021.101971.

Schotte, K., Stanat, P., & Edele, A. (2018). Is integration always most adaptive? The role of cultural identity in academic achievement and in psychological adaptation of immigrant students in Germany. *Journal of Youth and Adolescence*, *47*(1), 16–37. https://doi.org/10.1007/s10964-017-0737-x.

Schwartz, S. J., Unger, J. B., Baezconde-Garbanati, L., Benet-Martínez, V., Meca, A., Zamboanga, B. L., Lorenzo-Blanco, E. I., Rosiers, S. E. D., Oshri, A., Sabet, R. F., Soto, D. W., Pattarroyo, M., Huang, S., Villamar, J. A., Lizzi, K. M., & Szapocznik, J. (2015). Longitudinal trajectories of bicultural identity integration in recently immigrated Hispanic adolescents: links with mental health and family functioning. *International Journal of Psychology*, *50*(6), 440–450. https://doi.org/10.1002/ijop.12196.

Spiegler, O., Sonnenberg, K., Fassbender, I., Kohl, K., & Leyendecker, B. (2018). Ethnic and national identity development and school adjustment: a longitudinal study with Turkish immigrant-origin children. *Journal of Cross-Cultural Psychology*, *49*(7), 1009–1026.

Spiegler, O., Wölfer, R., & Hewstone, M. (2019). Dual identity development and adjustment in Muslim minority adolescents. *Journal of Youth and Adolescence*, *48*(10), 1924–1937. https://doi.org/10.1007/s10964-019-01117-9.

Stoessel, K., Titzmann, P. F., & Silbereisen, R. K. (2014). Being "them" and "us" at the same time? Subgroups of cultural identification change among adolescent diaspora immigrants. *Journal of Cross-Cultural Psychology*, *45*(7), 1089–1109. https://doi.org/10.1177/0022022114534770.

Stogianni, M., Bender, M., Sleegers, W., Benet-Martínez, V., & Nguyen, A.-M. D. (2022). *Investigating the integration hypothesis: an updated meta-analysis on the relationship between biculturalism and adjustment*. 12th International Academy for Intercultural Research.

Tajfel, H., & Turner, J. C. (1986). The social identity theory of intergroup behavior. In W. Austin & S. Worchel (Eds.), *Psychology of intergroup relations* (2nd ed., pp. 7–24). Nelson-Hall.

Titzmann, P. F., Silbereisen, R. K., Mesch, G. S., & Schmitt-Rodermund, E. (2011). Migration-Specific Hassles Among Adolescent Immigrants From the Former Soviet Union in Germany and Israel. *Journal of Cross-Cultural Psychology*, *42*(5), 777–794. https://doi.org/10.1177/0022022110362756.

Umaña-Taylor, A. J., Quintana, S. M., Lee, R. M., Cross, W. E., Rivas-Drake, D., Schwartz, S. J., Syed, M., Yip, T., & Seaton, E. (2014). Ethnic and racial identity revisited: An integrated conceptualization. *Child Development*, *85*(1), 21–39. https://doi.org/10.1111/cdev.12196.

Umaña-Taylor, A. J., Douglass, S., Updegraff, K. A., & Marsiglia, F. F. (2018). A small-scale randomized efficacy trial of the *Identity Project*: promoting adolescents' ethnic-racial identity exploration and resolution. *Child Development*, *89*(3), 862–870. https://doi.org/10.1111/cdev.12755.

Verkuyten, M., & Yildiz, A. A. (2007). National (dis)identification and ethnic and religious identity: a study among Turkish-Dutch Muslims. *Personality and Social Psychology Bulletin*, *33*(10), 1448–1462. https://doi.org/10.1177/0146167207304276.

Verkuyten, M., Wiley, S., Deaux, K., & Fleischmann, F. (2019). To be both (and more): immigration and identity multiplicity. *Journal of Social Issues*, *75*(2), 390–413. https://doi.org/10.1111/josi.12324.

Walton, G. M., & Yeager, D. S. (2020). Seed and soil: Psychological affordances in contexts help to explain where wise interventions succeed or fail. *Current Directions in Psychological Science*, *29*(3), 219–226. https://doi.org/10.1177/0963721420904453.

Yağmur, K., & van de Vijver, F. J. R. (2012). Acculturation and language orientations of Turkish immigrants in Australia, France, Germany, and the Netherlands. *Journal of Cross-Cultural Psychology*, *43*(7), 1110–1130. https://doi.org/10.1177/0022022111420145.