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The 'mixed bag' of segregation—On positive and negative associations with migrants' acculturation

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Abstract

Many researchers and practitioners consider ethnic segregation in neighbourhoods or schools detrimental to migrants' acculturation in host societies. Empirically, however, segregation is a 'mixed bag' and its effects depend crucially on the investigated acculturation domain (e.g., negative for language skills, positive for well-being). As most prior studies have focused on a restricted spectrum of acculturation, a comprehensive assessment within one single study is needed to establish comparability across different acculturation domains. Among over 8000 immigrant-background students from four countries, we investigated the association of classroom segregation, defined as opportunities for contact with natives and other migrants, with a broad spectrum of acculturation (academic, attitude-related, identity-related, social, health-related, and psychological criteria). Some findings were consistent (e.g., academic acculturation), some were contrary to prior research (e.g., social acculturation). In sum, our results shed light on the 'mixed bag' of segregation and contribute to the understanding of a crucial social issue.

KEYWORDS
acculturation, context effects, integration, migration, segregation

1 | INTRODUCTION

Policymakers consider ethnic segregation—the spatial separation of individuals along ethnic boundaries—an important obstacle to migrants' acculturation in Western societies (e.g., Council of the European Union, 2010). In line with this view, desegregation has become an important part of integration policies (Bolt et al., 2010a; 2010b). Indeed, research associates segregation with a broad spectrum of negative context conditions, such as rusticity, economic deprivation, and environmental threats (Lichter et al., 2010; Massey, 1990; Smith, 2009; Spencer et al., 2006). However, perhaps most important from a psychological perspective, segregation increases opportunities for contact with other migrants (Baysu et al., 2014; Knies et al., 2016), which might in fact have positive consequences (Berry, 1997; Keles et al., 2018; Rjosk et al., 2017).

Considering these negative and positive aspects of segregation, it is not surprising that empirical research provides mixed evidence on the effects of segregation. While some scholars demonstrate negative effects of segregation on migrants' acculturation (Agirdag et al., 2012; Danzer & Yaman, 2013; Putnam, 2007; Smith et al., 2016), others suggest the possibility of positive effects as well (Asendorpf & Motti-Stefanidi, 2017; Bécares et al., 2018; Lee & Liechty, 2015; Stafford et al., 2009; 2010). Thus, empirically, segregation is a 'mixed bag' when it comes to migrants' acculturation.

The effects of segregation seem to depend crucially on the investigated domain of acculturation. Scholars define acculturation broadly as 'the ways in which immigrants, and subsequent generations, change culturally and psychologically in order to adapt to living' in the host societies (Berry & Hou, 2017, pp. 29f.). This change occurs in numerous domains, and pertains to migrants' employment situation, language

abilities, academic achievements, attitudes towards and identification with the heritage and host culture, social contacts, health, and psychological well-being (e.g., Bécares et al., 2018; Clark & Drinkwater, 2002; Heizmann & Böhnke, 2016; Kalter & Kogan, 2014; Knies et al., 2016; Kogan & Kalter, 2006; Leszczensky & Pink, 2019; Pettigrew et al., 2011; Rjosk et al., 2017; Wölfer et al., 2016). While segregation has negative consequences for some of these acculturation outcomes (e.g., academic achievements; Motti-Stefanidi et al., 2012), it has positive consequences for others (e.g., psychological well-being, Hjern et al., 2013).

In the present research, we argue that it is so far difficult to compare, evaluate and generalize the effects of segregation on acculturation on the basis of prior mixed results. It remains unclear whether mixed findings emerge due to the assessment of different acculturation domains, or due to prior studies relying on different migrant samples, investigating different social units, or employing different operationalizations of segregation. Consequently, a solid, common basis for comparing, evaluating, and generalizing prior findings is lacking.

Solving the entire puzzle is, of course, beyond the scope of this study. However, we took a first step towards shedding light on the 'mixed bag' of segregation by employing an unusually broad range of individual acculturation outcomes in one single study. This enabled us to establish comparability across various acculturation domains for the first time while holding constant aspects of the migrant sample, the social unit, and the operationalization of segregation at hand. We comprehensively explored migrants' acculturation via academic, attitude-related, identity-related, social, health-related, and psychological outcomes. We captured these outcomes using a variety of measures, including test performance scores, sociometric data, and self-reported measures of over 8000 students with an immigrant background. We operationalized segregation as proportion of immigrant-background students in over 900 classrooms in four European countries while at the same time controlling for other compositional aspects (e.g., ethnic diversity).

In the following, we first discuss different levels of segregation as different opportunities for contact with natives and other migrants. We then address several theories to explain potential negative and positive effects of segregation. Finally, we review prior empirical work on segregation effects.

1.1 | Segregation and opportunities for contact

Segregation influences by whom migrants are mostly surrounded in their daily lives (Baysu et al., 2014; Knies et al., 2016). Specifically, the higher the segregation in a region, neighbourhood, or school, the less migrants are surrounded by natives but the more they are surrounded by other migrants. While readily acknowledging other aspects of segregation, in this article we focus primarily on the particular function of segregation to provide opportunities for contact with natives and other migrants.

The different contact opportunity structures that result from different levels of segregation are particularly important as they influence personal tendencies to form ingroup relationships relative to intergroup contact (Bellmore et al., 2007; Smith et al., 2016). The stronger the segregation, the less frequent are opportunities for intergroup contact (Baysu et al., 2014), and the more migrants have (and prefer) contact with their respective ingroups (Smith et al., 2016). From a psychological perspective, this segregation effect can be considered potentially problematic according to two influential theories.

First, *intergroup contact theory* (Pettigrew, 1998) describes the benefits of intergroup contact for positive intergroup climate and reduction of prejudice. Positive minority–majority contact can reduce negative intergroup attitudes and discrimination experiences and improve psychological well-being and even the economic success of migrants in the host society (Bagci & Turnuklu, 2019; Brown & Hewstone, 2005; De Vroome & van Tubergen, 2010; Esser, 2009; Heizmann & Böhnke, 2016; Page-Gould et al., 2010; Pettigrew et al., 2011; Wölfer et al., 2016).

Second, *acculturation theory* (Berry, 1997) emphasizes the benefits of a bicultural orientation for migrants' acculturation outcomes. Migrants who find a balance between host and heritage culture should experience higher well-being and better academic and economic achievement than those who adapt fully to the host culture or who only stay among their heritage cultural group (Berry, 2005; Berry & Hou, 2017; Nguyen & Benet-Martínez, 2013; Zheng et al., 2004). Thus, both theoretical perspectives perceive segregation and the associated separation from the native group as detrimental to migrants' acculturation.

Importantly, the above theorizing assumes that segregation reduces positive intergroup contact. Segregation is, however, rather likely to reduce both positive and negative contact with natives (Baysu et al., 2014), and moreover increase contact with other migrants. As the effects of negative intergroup contact can even outweigh the effects of positive intergroup contact (Barlow et al., 2012), segregation might actually not only have detrimental effects, but protective effects as well. Three streams of literature might account for such positive segregation effects.

First, research on *ethnic density effects* (Bécares et al., 2018; Geven et al., 2016) holds that ethnically segregated contexts form a protective and supportive environment (Jurcik et al., 2013), where migrants can live their heritage culture and experience continuity and belonging (Berry, 1997; Keles et al., 2018; Rjosk et al., 2017). Second, potential benefits of large same-ethnic proportions correspond to the general human tendency for *homophily*––the preference for being surrounded by similar others (McPherson et al., 2001). Third and relatedly, research on *person–environment fit effects* further emphasizes the advantages of experiencing similarity to others: 'fitting in' might lead to higher self-esteem, life satisfaction, and positive emotions (Fulmer et al., 2010; Gebauer et al., 2017). Thus, these theoretical perspectives perceive segregation and the associated inclusion in a larger migrant community as conducive to migrants' acculturation.

1.2 | Negative consequences of segregation

Echoing the assumptions derived from *intergroup contact theory* and *acculturation theory*, empirical evidence suggests that segregation has numerous negative outcomes. For example, several studies have linked segregation to poorer school grades of migrant children (Baysu

et al., 2014; Birman et al., 2005; Motti-Stefanidi et al., 2012; Szulkin & Jonsson, 2007; for detrimental effects of extremely high and low segregation, see Rjosk et al., 2017), and to negative effects on migrants' employment outcomes (Clark & Drinkwater, 2002). Segregation may also hamper migrants' host language proficiency (Chiswick & Miller, 2001), which constitutes a main driver of migrants' academic and work-related achievements (Esser, 2009; Heizmann & Böhnke, 2016). Thus, segregation might be partly responsible for the well-documented achievement gap between migrants and natives (Andon et al., 2014).

Postmes and Branscombe (2002) report that migrants in segregated contexts tend to be more rejected by natives and more accepted by other migrants. Relatedly, living in segregated areas might evoke feelings of being victimized due to one's ethnicity (Sidanius et al., 2004). Finally, segregation can increase bullying against and negative attitudes towards natives among migrants (Bubritzki et al., 2018; Burgess & Platt, 2018; Plenty & Jonsson, 2017; Vervoort et al., 2011). Thus, segregation might foster negative intergroup experiences and attitudes among migrants.

Research further suggests that segregation diminishes migrants' adoption of native cultural behaviour and fosters the adherence to heritage cultural behaviour (e.g., media and language usage, food consumption, or social networks; Birman et al., 2005; Miller et al., 2009). In line with this observation, segregation might lead to a weaker common identification of migrants with natives (Agirdag et al., 2011; Birman et al., 2005; Sidanius et al., 2004) and a stronger identification of migrants with their own ethnic group (Miller et al., 2009). Thus, segregation might diminish a bicultural orientation among migrants. Importantly, however, it remains unclear whether this can be considered an unequivocally negative consequence of segregation, since some research suggests that for migrants a one-sided orientation towards the heritage culture might be equally, or even more, beneficial than a bicultural orientation (Baysu et al., 2011; Vedder et al., 2006).

1.3 | Positive consequences of segregation

Echoing the assumed positive consequences from research on *ethnic density effects*, *homophily*, and *person-environment fit effects*, empirical evidence suggests that segregation may have numerous positive outcomes. For example, several studies suggest that migrants are more popular, have more friends, and are less rejected by both native and other migrant peers in segregated contexts (Asendorpf & Motti-Stefanidi, 2017; Jackson et al., 2006; Plenty & Jonsson, 2017; Postmes & Branscombe, 2002). Moreover, one study has linked segregation to decreased discrimination experiences among migrants (Jurcik et al., 2013; see however also findings suggesting increased discrimination experiences, Durkin et al., 2012; Seaton & Yip, 2009). Thus, despite some mixed findings, segregation might have positive effects on migrants' social acculturation.

Furthermore, research has documented positive segregation effects on migrants' physical health, mental health, and life satisfaction (Bécares et al., 2018; Hjern et al., 2013; Jurcik et al., 2013; Knies et al., 2016; Lee & Liechty, 2015; Stafford et al., 2009; 2010; Yuen & Lee, 2016; for positive effects of medium levels of segregation see Enchautegui-de-Jesús et al., 2006). On the basis of on such findings, it has been suggested that the common well-being gap between migrants and natives is eliminated in contexts in which migrants are predominantly surrounded by same-ethnic migrants (Kanazawa & Li, 2015). With regard to migrants' self-esteem, some researchers have reported non-significant segregation effects (Agirdag et al., 2012; Simmons et al., 1978), while others have observed positive segregation effects (for ethnic self-esteem: Verkuyten & Thijs, 2004). Thus, despite some non-significant and inconsistent results, segregation seems to have predominantly positive consequences for migrants' health and psychological well-being.

1.4 | The present study

In sum, building on prior research we hypothesized that segregation is linked to negative as well as positive aspects of acculturation. Specifically, with respect to negative aspects, we expected that high levels of segregation have negative effects on migrants' academic acculturation (operationalized as *host language ability* and *cognitive ability*), and attitude-related and identity-related acculturation concerning the host group (operationalized as *attitudes towards host culture behaviour*, *feelings towards natives*, and *identification with the host society*). With respect to positive aspects, we expected that high levels of segregation have a positive effect on migrants' social acculturation (operationalized as *popularity rates*, *friendship rates*, *rejection rates*, *victimization* and *discrimination experiences*), attitude-related and identity-related acculturation concerning the heritage and broader migrant group (operationalized as *attitudes towards heritage culture behaviour*, *broader migrant culture behaviour*, *identification with one's own ethnic group*, and *religious group*) and health-related and psychological acculturation (operationalized as *physical health*, *negative affect*, *self-esteem*, *school satisfaction*, and *life satisfaction*).

We also formulated hypotheses for acculturation outcomes for which prior research has provided inconsistent or no segregation effects. This concerned migrants' identification with their religious group, victimization/discrimination experiences, self-esteem, and school satisfaction. Prior research demonstrated that segregation fosters migrants' identification with their ethnic group (Birman et al., 2005; Miller et al., 2009), which suggests that a similar mechanism might occur regarding migrants' religious identity. Furthermore, previous studies showed that segregation has positive effects on migrants' social inclusion (Asendorpf & Motti-Stefanidi, 2017; Jackson et al., 2006; Plenty & Jonsson, 2017), which might also decrease victimization and discrimination experiences. Finally, prior research found positive segregation effects on different well-being measures (Hjern et al., 2013; Jurcik et al., 2013; Knies et al., 2016; Yuen & Lee, 2016), suggesting that self-esteem and school satisfaction also might be positively linked to segregation. As some studies suggested non-linear effects of segregation (i.e., on educational achievements: Rjosk et al., 2017; on life satisfaction: Enchautegui-de-Jesús et al., 2006), we exploratively investigated curvilinear effects of segregation on each acculturation outcome as well.

To test our hypotheses, we followed prior approaches and focused on classrooms as a crucial social context and a central place of acculturation for adolescents (cf. Asendorpf & Motti-Stefanidi, 2017; Geven et al., 2016; Rjosk et al., 2017; Smith et al., 2016). From a methodological point of view, classrooms can be captured more systematically than for example neighbourhoods, as they are characterized by compulsory attendance and clear allocation of individuals. Moreover, although selection processes cannot be ruled out entirely on the parental level, self-selection is probably less likely compared to other contexts (Bleidorn et al., 2016). Thus, although we do not claim causality due to our cross-sectional design, we are convinced that the classroom context is a suitable environment to investigate the link between segregation and acculturation. Importantly, we readily acknowledge the importance of schools as a whole (cf. Baysu et al., 2014; Phalet & Baysu, 2020), and justify our decision for focusing on the classroom context in more detail in the Online Supplement.

Our approach extends prior research in several respects. First, we established comparability across an exceptionally large range of acculturation outcomes by holding constant other aspects that might have led to mixed results (i.e., different migrant samples, social units, operationalizations of segregation). In most previous cases, different acculturation outcomes have been examined separately, which puts strong limits on the comparability of results. Thus, our study is the first to actually demonstrate that segregation indeed is a 'mixed bag' with regard to migrants' acculturation. To measure acculturation, we drew on migrants' self-reports, but also included criteria that are highly independent of self-perceptions, that is, test performance measures and sociometric data on peer relations.

Second, we operationalized segregation as proportion of immigrant-background students in classrooms while controlling for ethnic composition of classrooms as another indicator of segregation (see Knies et al., 2016; Rjosk et al., 2017). Prior findings point to the importance of disentangling these different aspects of segregation: on the one hand, larger shares of migrants often come along with higher ethnic diversity (Rjosk et al., 2017), which might enhance conflict between dissimilar ethnic groups (Putnam, 2007) and increase perceptions of discrimination (Oyserman & Yoon, 2009; Seaton & Yip, 2009). On the other hand, ingroup perceptions might as well extend to all migrants, regardless of their ethnicity (Motti-Stefanidi et al., 2012; Reitz et al., 2016).

Third, we tested our hypotheses with immigrant-background samples from four different European countries, thereby allowing us to compare effects across countries. Prior studies in turn have mostly been conducted in one country and might thus have observed findings specific to the country under investigation (e.g., due to different ethnic compositions of the migrant populations in different countries).

2 | METHODS

2.1 | Sample and data

We drew on the immigrant-background subsample of the *Children of Immigrants Longitudinal Survey in Four European Countries* (CILS4EU, Kalter et al., 2015, see also Kalter et al., 2018). In total, seven waves of the CILS4EU were available at the time of data analysis. Due to school-leaving, class restructuring, and non-responses in subsequent waves, only the first wave provided a reliable picture of the class size and composition. Thus, we only used the first wave (i.e., the school year 2010/2011) for our analyses, which comprised a sample of 8504 immigrant-background students from 934 classes to 479 schools in the United Kingdom (UK), Germany (GE), the Netherlands (NL), and Sweden (SE).

Schools were randomly sampled from national lists according to migrant proportion (i.e., oversampling schools with high migrant shares to achieve more than 35% migrant proportion in the total sample) and size (i.e., excluding schools with less than 25% of the country mean class size). Within selected schools, all classes of the grades usually attended at the age of 14 were considered in the sampling process. When more than two classes met this criterion, two of them were randomly sampled. Exceptions from this sampling approach affected approximately 20% of the Dutch schools, and 3% of the British and German schools. All children of a class were included, if possible. Exclusion criteria—that is., mental or physical impairments or lack of survey country language skills—applied to less than 0.1% of all cases.

2.2 | Measures

2.2.1 | Predictor

To capture the degree of classroom segregation, we calculated the overall *migrant proportion* in each classroom. We divided the number of immigrant-background students per class by the total number of students per class. Students were assigned to the immigrant-background group following criteria provided in the technical report of wave one (CILS4EU, 2016). Specifically, students were defined as having an immigrant background if they were either foreign-born themselves, had at least one foreign-born parent, or at least two foreign-born grandparents. Students who did not meet these criteria were assigned to the native group ($n = 9974$). A total of 238 students were excluded because their immigrant background could not be identified. For the formation of all subsequent measures, we used the subsample of immigrant-background students only.

We tested potential curvilinear effects of classroom segregation on students' acculturation by including the *squared term of migrant proportion* in our analyses.

2.2.2 | Covariates

We included *ethnic diversity* and *parental socio-economic status* (*SES*) as covariates as these context measures are often confounded with migrant proportion (Agirdag et al., 2011; 2012; Bubritzki et al., 2018; Geven et al., 2016; Motti-Stefanidi et al., 2012; Plenty & Jonsson, 2017; Rjosk et al., 2017; Smith et al., 2016). We calculated ethnic diversity with Simpson's D, a common measure to capture heterogeneity of

TABLE 1 Overview of the findings and classification into existing research

Acculturation outcome	Specific indicators	Association with segregation	Consistent with prior findings	Inconsistent with prior findings
Academic	Language ability	Negative	Motti-Stefanidi et al., 2012; Rjosk et al., 2017; Szulkin & Jonsson, 2007	
	Cognitive ability	Negative		
Attitude-related	Heritage culture maintenance	Positive	Vervoort et al., 2011	Birman et al., 2005; Miller et al., 2009
	Migrant culture maintenance	Positive		
	Migrant culture acceptance	Positive		
	Host culture maintenance	*ns*		
	Host culture adoption	*ns*		
	Feelings towards natives	Negative		
Identity-related	Host identity	Negative	Agirdag et al., 2011;	Birman et al., 2005; Miller et al., 2009
	Heritage identity	Positive		
	Religious identity	Positive		
Social	(Reduced) Discrimination	Positive	Jurcik et al., 2013	Asendorpf & Mott-Stefanidi, 2017; Birman et al., 2005; Jackson et al., 2006; Plenty & Jonsson, 2007; Seaton & Yip, 2009
	(Reduced) Victimization	*ns*		
	Popularity	*ns*		
	Friendship	*ns*		
	(Reduced) Rejection	*ns*		
Health-related & psychological	General health	Positive	Bécares et al., 2018; Lee & Liechty, 2015; Stafford et al., 2009; Verkuyten & Thijs, 2002	Agirdag et al., 2012; Simmons et al., 1978; Hjern et al., 2013
	(Reduced) Health problems	*ns*		
	(Reduced) Negative affect	Positive		
	Self-esteem	Positive		
	School satisfaction	*ns*		
	Life satisfaction	*ns*		

social contexts (Bagci et al., 2014; Juvonen et al., 2018; Munniksma et al., 2016; Rjosk et al., 2017; Van Geel & Vedder, 2010). Values of 0 and 1 indicated the lowest and the highest possible diversity, respectively (i.e., every individual was from the same/a different ethnic background, respectively). We derived information on students' ethnic background from their countries of origin. This information varied in specificity (e.g., Turkey vs. Southern Asia). To measure parental SES, the CILS4EU used the international socio-economic index of occupational status (ISEI), which takes values from 10 to 89 for the lowest and highest status, respectively (Ganzeboom & Treiman, 1996). As SES was measured for both parents, we considered the higher one, which is a standard approach (Agirdag et al., 2011; 2012; Bubritzki et al., 2018; Geven et al., 2016).

2.2.3 | Criteria

As outlined above, we assessed a broad spectrum of acculturation outcomes; for an overview see the first and second column of Table 1.

Academic acculturation outcomes

To investigate students' academic performance, we included two test performance measures provided in the CILS4EU. Specifically, students performed a native language and a cognitive test, which provided a strong and highly objectified assessment of *language ability* and *cognitive ability*, independent of school grades. The language and cognitive test consisted of 30 and 27 items, respectively, and each item had a correct/wrong answer format. A sum index indicated overall performance in each of the two tests.

Attitude-related acculturation outcomes

We used six measures provided in the CILS4EU to capture students' attitudes towards their own ethnic group, migrants in general, and natives. Although these items captured different aspects of acculturation (i.e., general attitudes about heritage and host culture behaviour vs. intergroup feelings), we subsumed them under the term 'attitude-related' acculturation outcomes for better overview.

We included the item *attitude towards heritage culture maintenance* (i.e., 'How important is it for you personally to maintain the customs and traditions of this [ethnic] group?'; 1 not at all important – 4 very important) to test how students think not only about the general migrant culture but about their specific heritage culture as well. Students were asked to answer for the ethnic group they feel they belong to most strongly (as they were allowed to tick multiple ethnic groups).

We further included the four items *attitude towards migrant culture maintenance*, *attitude towards host culture adoption* (i.e., 'Immigrants should do all they can to keep their customs and traditions', 'Immigrants should adapt to the [British, German, Dutch, Swedish] society'; 1 strongly disagree–5 strongly agree), as well as *attitude towards host culture maintenance* and *attitude towards migrant culture acceptance* (i.e., 'The [British, German, Dutch, Swedish] people should do all they can to keep their customs and traditions', 'The [British, German, Dutch, Swedish] people should be open to the customs and traditions of immigrants'; 1 strongly disagree–5 strongly agree). These four items

reflected students' attitudes towards the cultural behaviour of both sides (i.e., not only on how they as migrants should behave, but also how natives should act in face of migrant culture in turn). Scholars often measured acculturation preferences by explicitly asking about culture maintenance and culture adoption attitudes of the migrant group, and culture maintenance and openness of the native group (cf. Zagefka et al., 2002; 2012).

Finally, we also included the item *feelings towards natives* ('How do you feel about the [White British, German, Dutch, Swedish]'; 1 negative – 10 positive) as a measure of students' intergroup attitudes which is an important indicator of acculturation as well (cf. Berry, 2001; Bubritzki et al., 2018).

Identity-related acculturation outcomes

Three measures captured students' identity-related acculturation. Specifically, we investigated students' *host identity* and *ethnic identity* (i.e., 'How strongly do you feel [British, German, Dutch, Swedish]?', 'How strongly do you feel you belong to this [ethnic] group?'; 1 not at all strongly – 4 very strongly). Regarding ethnic identity, students were asked to answer for the ethnic group they feel they belong to most strongly (as they were allowed to tick multiple ethnic groups). We also included an item capturing students' *religious identity* (i.e., 'How important is religion to you?'; 1 not at all important–5 very important), which we consider to be another important aspect of their heritage group.

Social acculturation outcomes

To assess students' social acculturation, we included one item referring to experiences of *discrimination* and three items referring to *victimization* (i.e., 'How often do you feel discriminated against or treated unfairly at school', and, e.g., 'I was teased by other students', $\alpha = 0.77$; 1 never – 4 always) as self-reported measures.

In turn, socio-metric data on peer ratings of *popularity* (i.e., 'who are the most popular students in class?'), *friendship* (i.e., 'who are your best friends in class?') and *rejection* (i.e., 'who do you not want to sit by?') provided objective information about immigrant-background students' social acculturation. Students could nominate up to five classmates on each of these questions. We calculated students' popularity, friendship, and rejection scores by counting all nominations a student had received from peers (i.e., both native and immigrant-background peers). We divided the number of received nominations on each sociometric measure by the total number of students per class who had given nominations on that measure (cf. Asendorpf & Motti-Stefanidi, 2017; Jackson et al., 2006). By doing so, we accounted for class-level 'eagerness to nominate' and thus, chances of becoming a nominee.

Peer ratings were surveyed in a separate classmates session of the CILS4EU. To obtain valuable information, we excluded all classes in which fewer than 75% of the students attended the additional session and in which more than two children did not nominate anyone on the respective sociometric measure (cf. Smith et al., 2016). For the UK and GE, some classmates sessions were conducted outside the classroom context, and in some classes, absent students were excluded from the nomination process. We excluded these classes to represent the actual classroom context as accurately as possible. Our exclusion approach yielded sample sizes of 614 students (99 classes, 83 schools), 4464 students (509 classes, 334 schools), and 1628 students (201 classes, 156 schools) to test effects on students' peer popularity, friendship, and rejection.

Health-related and psychological acculturation outcomes

To measure students' health-related acculturation, we included measures of *general health* (i.e., 'How good is your health compared to others of your age?'; 1 very bad – 5 very good) and more specific *health problems* (three items, e.g., 'In the last 6 months, how often have you had a headache?', $\alpha = 0.67$; 1 never – 5 every day).

To measure students' psychological acculturation, we included four items referring to *negative affect* (e.g., 'I feel anxious', $\alpha = 0.71$;1 never true – 5 often true), and *self-esteem* (e.g., 'I have a lot of good qualities', $\alpha = 0.82$; 1 strongly disagree – 5 strongly agree), respectively, as well as one item referring to *school satisfaction* and *life satisfaction*, respectively (i.e., 'How satisfied are you with school in general?', 'How satisfied are you with life in general?'; 1 very unsatisfied – 10 very satisfied).

2.3 | Analysis strategy

We applied linear mixed-effects modelling with R's (3.6.1) *lme4* package (Bates et al., 2015) to investigate the impact of class-level migrant proportion on student-level acculturation outcomes. Following the approach of maximum complexity (Barr et al., 2013), our models consisted of three levels (students nested in classes nested in schools) with random intercepts and random slopes. If models became too complex and thus failed to converge or resulted in singular fits, we proceeded in the following order: we (1) defined random intercepts and random slopes as uncorrelated, (2) excluded random slopes of the covariates, and (3) excluded random slopes of the predictor.

We *z*-standardized our predictor and all covariates, allowing for better interpretation of the coefficients (Snijders & Bosker, 2012). In this section, we refer to them as standardized point estimates (*zPE*). We considered fixed effects significant if their probability to differ from zero is 95% or larger. Stated otherwise, we relied on 95% confidence intervals. By standardizing our predictor and all covariates, we effectively grand mean centred them, which is required when focusing on the effect of a higher-level (classroom) predictor on a lower-level (individual) criterion (cf. Enders & Tofighi, 2007). For the squared term of migrant proportion, we standardized the variable before squaring it to reduce multicollinearity of the linear and quadratic term (Rjosk et al., 2017).

Regarding expected effect sizes, we relied on recent recommendations to use the average effect sizes in social science (Entringer et al., 2021) instead of Cohen's (1992) convention, which scholars have repeatedly criticized (e.g., Cafri et al., 2010; Funder & Ozer, 2019). Following these average effect sizes in social sciences, we interpreted *zPE*s of 0.05, 0.10, and 0.20 as small, medium, and large, respectively.

TABLE 2 Descriptive sample statistics

Variable	Mean	St. Dev.	Min	Max
Individual level, N = 8540				
Parental SES	47.00	21.72	11.74	88.96
Class level, N = 943				
Migrant proportion	0.48	0.28	0.03	1.00
Ethnic diversity	0.65	0.23	0.00	1.00

Due to the small number of survey countries, it was not warranted to include a separate country level in the model. Instead, to test for potential differences in segregation effects between countries, we conducted a separate analysis in which we included dummy variables at the individual level. As we formulated no specific hypotheses regarding country differences, this analysis was exploratory. To foreshadow the results of those country-specific analyses (which are presented after the main results): in only a few cases, segregation effects were country-specific and turned non-significant in some countries. In one case, the segregation effect was weaker or stronger in some countries but remained significant in all countries. In most cases, segregation effects were comparable across countries.

Additionally, we included *school-level design weights* to account for the overrepresentation of schools with high migrant proportions. Specifically, schools with larger and smaller migrant proportions were given smaller and larger weights, respectively.

All analyses were conducted both with and without the covariates. As results did not change conceptually, the main text only reports analyses with covariates. Results for the same models without covariates are provided in the Online Supplement.

3 | RESULTS AND DISCUSSION

3.1 | Descriptive statistics

Sample characteristics for the predictor and the covariates in the immigrant-background subsample are provided in Table 2. Overall, the average migrant proportion in classrooms was 48%, which is considerably higher than the actual share of individuals with an immigrant background in all four countries (e.g., 25.5% in GE and 4.7% in the entire European Union; BPB, 2019). This result reflects the intentional oversampling of immigrant-background populations in the CILS4EU project and illustrates the need to use a weighing approach to account for the overrepresentation of highly segregated classrooms.

We calculated bivariate Pearson correlations between classroom migrant proportion and the covariates (for correlations with the criteria, see Online Supplement, Table S1–Table S5). As expected, classrooms with larger migrant proportions were more ethnically diverse, $r = 0.14$, *95% CI* [0.12, 0.16], and immigrant-background students in these classrooms had lower SES, $r = -0.16$, *95% CI* [-0.18, -0.14]. Interestingly, the correlation of migrant proportion and ethnic diversity in our sample was noticeably smaller than in prior studies (e.g., Rjosk et al., 2017: $r = 0.49$). This discrepancy was probably caused by the broad categories that were used for some ethnic backgrounds in the CILS4EU (e.g., Southern Asia). Thus, true ethnic diversity was probably underestimated to some degree in this sample.

3.2 | Multi-level analyses

Tables with all fixed effects of the predictor and the covariates (Table S6–Table S10) and tables with results from the analyses excluding the covariates (Table S11–Table S15) can be found in the Online Supplement. Table 1, third to fifth column, provides a content-wise overview of the findings and a classification into existing research.

3.2.1 | Academic acculturation outcomes

As expected, immigrant-background students in classrooms with larger migrant proportions showed poorer performance in both the language ability test, *zPE* = −0.14, *95% CI* [-20, −0.08], and the cognitive ability test, *zPE* = −0.16, *95% CI* [−0.22, −0.11], than those in classrooms with smaller migrant proportions. We further found a curvilinear effect of migrant proportion on language skills, *zPE* = 0.07, *95% CI* [0.02, 0.11], suggesting that very small and large proportions of migrants in classrooms tended to be more favourable for immigrant-background students' host language skills than medium migrant proportions. It is possible that classrooms with few or many immigrant-background students (i.e., many natives or potentially many different ethnic groups, resp.; cf. Rjosk et al., 2017) provide few opportunities to speak one's heritage language and therefore motivate host language usage. The finding that immigrant-background students' language abilities increased when classrooms became more ethnically diverse supports this assumption, *zPE* = 0.09, *95% CI* [0.06, 0.13].

In sum, our findings replicated previous findings (e.g., Baysu et al., 2014; Motti-Stefanidi et al., 2012; Rjosk et al., 2017; Szulkin & Jonsson, 2007) by showing predominantly unfavourable associations of classroom segregation with academic acculturation outcomes, with the exception, however, that positive effects of extremely high segregation occurred regarding students' language ability.

3.2.2 | Attitude-related acculturation outcomes

In line with our hypotheses, immigrant-background students in classrooms with larger migrant proportion felt less positively about natives, *zPE* = −0.19, *95% CI* [−0.24, −0.14], considered it more important to maintain their heritage culture, *zPE* = 0.15, *95% CI* [0.09, 0.21], and agreed more strongly that migrants in general should maintain their culture, *zPE* = 0.15, *95% CI* [0.10, 0.20], compared to those in classrooms with smaller migrant proportions.

Interestingly, the association of segregation with heritage culture maintenance was similar in size to the one with migrant culture maintenance. One might have expected that heritage culture maintenance

might be more strongly linked to a classroom's specific ethnic composition. However, the link to classroom ethnic diversity was not significant, *zPE* = −0.04, *95% CI* [−0.09, 0.003]. This points to the additional value of conceptualizing segregation as overall migrant shares.

Unexpectedly, classroom migrant proportion was not significantly linked to immigrant-background students' agreement on whether migrants should adopt the host culture, *zPE* = −0.05, *95% CI* [−0.10, 0.005], and whether natives should maintain their culture, *zPE* = 0.05, *95% CI* [−0.000, 0.10], or accept migrants' culture, *zPE* = 0.04, *95% CI* [−0.01, 0.10].

In sum, our findings did not unequivocally replicate previous findings (e.g., Agirdag et al., 2011; Miller et al., 2009; Vervoort et al., 2011) with regard to immigrant-background students' acculturation attitudes. Although we observed a more positive attitude of immigrant-background students towards cultural maintenance of their ethnic group and the migrant group in general in more segregated settings, we did not find a simultaneously more negative attitude towards adopting the native culture, towards natives maintaining their culture, nor a stronger inclination to wish for more cultural openness among natives. The notably strong negative link with students' feelings towards natives–which is in line with prior research (e.g., Bubritzki et al., 2018; Burgess & Platt, 2018)–suggests that a one-sided tendency in favour of the ingroup might occur among immigrant-background students in segregated classrooms.

3.2.3 | Identity-related acculturation outcomes

In line with our hypotheses, immigrant-background students in classrooms with larger migrant proportions identified more strongly with their own ethnic group, *zPE* = 0.11, *95% CI* [0.05, 0.17] and religious group, *zPE* = 0.34, *95% CI* [0.29, 0.40], but more weakly with the host society, *zPE* = −0.09, *95% CI* [−0.14, −0.04], than those in classrooms with smaller migrant proportions.

The effect on religious identity was surprisingly large. It is possible that classrooms with many immigrant-background students constitute environments in which religiosity is embraced as social value (cf. Gebauer et al., 2017) as immigrant-background families often stem from religious countries. Such environments might encourage immigrant-background students to identify strongly with their religion. This might be especially the case when immigrant-background students' religious affiliations are different from those of natives.

Moreover, a curvilinear effect of migrant proportion on host identity, *zPE* = 0.10, *95% CI* [0.06, 0.14], suggested that both very small and very large shares of migrants led to stronger identification with the host society among immigrant-background students than medium migrant shares. One explanation might be that classrooms with medium migrant proportions render the two groups (i.e., native vs. immigrant-background students) especially salient and motivate immigrant-background students to differentiate themselves from the native group (cf. Brewer & Miller, 1984; Leonardelli et al., 2010), thus leading to reduced outgroup identification. Interestingly, prior research has so far only described how this need for differentiation relates to increased ingroup identification (Leonardelli et al., 2010), for which we found no support in our sample (i.e., non-significant curvilinear effects on ethnic and religious identity, *zPE* = −0.02, *95% CI* [−0.07, 0.03], and *zPE* = -0.001, *95% CI* [−0.04, 0.04], respectively).

In sum, our findings were consistent with previous studies (cf. Agirdag et al., 2011; Miller et al., 2009; Postmes & Branscombe, 2002; Sidanius et al., 2004; Szulkin & Johnsson, 2007). However, as we observed that extremely high levels of segregation were in fact positively linked to students' host identification, our findings did not unequivocally support the assumption of a one-sided tendency in favour of the ingroup among immigrant-background students in segregated classrooms.

3.2.4 | Social acculturation outcomes

As hypothesized, immigrant-background students in classrooms with larger migrant proportions reported less discrimination, *zPE* = −0.06, *95% CI* [−0.11, −0.01], than those in classrooms with smaller migrant proportions. Contrary to our hypotheses, they did not experience less victimization, *zPE* = −0.03, *95% CI* [−0.08, 0.03], or rejection, *zPE* = −0.02, *95% CI* [−0.16, 0.12], and were not more popular among their peers, *zPE* = 0.11, *95% CI* [−0.15, 0.37], or more frequently nominated as friends, *zPE* = 0.08, *95% CI* [−0.01, 0.18].

As to discrimination, prior findings have been inconsistent regarding associations with segregation. This might be due to diverging operationalizations of segregation (e.g., ethnic diversity: Seaton & Yip, 2009). Contrary to Seaton and Yip (2009) we found no significant link between ethnic diversity and perceived discrimination in our sample, *zPE* = −0.03, *95% CI* [−0.07, 0.002]. This points to the importance of testing various compositional aspects simultaneously (note that the authors did not include migrant proportion as covariate when testing ethnic diversity effects).

With regard to all other social acculturation outcomes, our null findings deviated from prior findings in the school context that revealed positive associations of classroom migrant proportion with either comparable (Asendorpf & Motti-Stefanidi, 2017; Jackson et al., 2006) or even almost identical social acculturation measures (Plenty & Jonsson, 2017). Differences might have occurred due to, for example, the inclusion of other control variables, the allowing of different amounts of nominations, or the fact that some of these studies used longitudinal data.

Non-linear effects of migrant proportion on friendship nominations, *zPE* = −0.08, *95% CI* [−0.16, −0.002], and perceived discrimination, *zPE* = −0.05, *95% CI* [−0.10, −0.01], suggested that immigrant-background students were more frequently nominated as friends but concurrently experienced more discrimination in classrooms with medium migrant shares compared to classrooms with very small and very large proportions of migrants. Building on the concept of *ethnic homophily*, it is possible that classrooms with few and many immigrant-background students (i.e., probably few same-ethnic others, respectively) might provide immigrant-background students with few chances to make

friends. The observation that students' friendship rates decreased as classrooms became more ethnically diverse supports this assumption, *zPE* = −0.11, *95% CI* [−0.17, −0.06]. At the same time, classrooms with medium migrant shares might render groups especially salient (cf. Leonardelli et al., 2010; Leszczensky et al., 2018), which might foster differentiation between groups and thus discrimination.

In sum, classroom segregation was rather inconsistently associated with social acculturation outcomes among immigrant-background students in our sample, therefore not unequivocally replicating prior findings.

3.2.5 | Health-related & psychological acculturation outcomes

In line with our hypotheses, immigrant-background students in classrooms with larger migrant proportions reported better general health, *zPE* = 0.05, *95% CI* [0.001, 0.10], lower negative affect, *zPE* = −0.05, *95% CI* [−0.10, −0.001], and higher self-esteem, *zPE* = 0.14, *95% CI* [0.09, 0.19], than those in classrooms with fewer migrant proportions. Contrary to our hypotheses, they did not report fewer health problems, *zPE* = −0.03, *95% CI* [−0.08, 0.02], or more satisfaction with school, *zPE* = 0.04, *95% CI* [−0.01, 0.09], or life in general, *zPE* = 0.04, *95% CI* [−0.01, 0.09].

The effect on self-esteem was surprisingly large given that prior studies in the school context reported non-significant associations between classroom migrant proportion and migrants' self-esteem (Agirdag et al., 2012; Simmons et al., 1978). Diverging results might have occurred because these previous studies, for example, calculated the proportion of only non-Western migrants, included school-level instead of classroom-level migrant proportion, or used other control variables.

As to health problems, the null finding might have been due to the restricted range of health issues addressed in the questionnaire. However, a non-linear effect of migrant proportion on health problems suggested that very small and very large share of immigrant-background students might be more beneficial than medium migrant proportions, *zPE* = −0.04, *95% CI* [−0.08, −0.001].

Regarding school satisfaction, prior studies in the school context did not find any significant association with segregation as well (Verkuyten & Thijs, 2002). As to immigrant-background students' life satisfaction, one study in the school context found a positive association with segregation in Swedish classrooms (Hjern et al., 2013). We found this positive link in Swedish classrooms as well (view Table S20 in the Online Supplement); however, it did not significantly differ from the null findings in the remaining three countries of our sample. This points to the importance of testing and comparing segregation effects across a broader range of countries. We address this issue in the following section.

In sum, classroom segregation was only partly linked to favourable health-related and psychological acculturation outcomes among immigrant-background students, and we were only partly able to replicate prior findings (Bécares et al., 2018; Lee & Liechty, 2015; Stafford et al., 2009; 2010). However, our findings suggested that the ethnic density effect (Bécares et al., 2018; Geven et al., 2016) might in parts extend to an overall migrant density effect.

3.3 | Country-level effects

We explored whether the observed associations between segregation and the domains of acculturation generalized across all survey countries, that is, the UK, GE, NL, and SE. An overview of all country-level effect sizes and segregation by country interactions can be found in the Online Supplement (Table S16–Table S20).

In most cases, segregation effects were comparable across countries. This concerned all social, health-related and psychological acculturation outcomes, three attitude-related outcomes, and one identity-related acculturation outcome.

One attitude-related acculturation outcome (migrant culture maintenance) was more strongly linked to segregation in some countries but still remained significant in all countries. Two attitude-related acculturation outcomes (migrant culture acceptance and host culture adoption) were not significantly linked to segregation in the total sample but turned significant in some countries.

In only few cases, segregation effects were country-specific and turned non-significant in some countries. Specifically, both academic acculturation outcomes and one identity-related acculturation outcome (ethnic identity) turned non-significant in one country, and one identity-related acculturation outcome (host identity) turned non-significant in two countries.

In sum, segregation effects differed across countries with respect to only seven out of 22 acculturation outcomes. Three of these seven country-dependent effects remained significant in all countries or did not turn significant in the total sample in the first place. Thus, in the vast majority of the cases segregation effects were comparable across countries.

4 | GENERAL DISCUSSION

In combination, the findings of the present study reflect that segregation indeed is a 'mixed bag' that relates differently to a wide spectrum of acculturation domains. The study replicates and substantiates several previous findings, but it also adds to the extant literature in several important ways (see Table 2). Consistent with prior research, we observed that fewer opportunities for contact with natives and more opportunities for contact with other immigrant-background students, that is, higher levels of segregation, were linked to lower levels of academic acculturation among immigrant-background students. Interestingly, and inconsistent with prior research, we observed no to rather small relations with immigrant-background students' social acculturation. Only discrimination experiences were less frequent in classrooms with fewer natives and more immigrant-background students. In turn, immigrant-background students in such classrooms showed predominantly higher levels of health-related and psychological acculturation,

specifically, higher levels of general health, self-esteem and reduced negative affect.

With regard to attitude-related and identity-related acculturation, our findings provide mixed results. On the one hand, and consistent with prior research, immigrant-background students in classrooms with fewer natives and more immigrant-background students expressed more positive attitudes towards heritage and migrant culture maintenance, and higher levels of ethnic and religious identity. On the other hand, and inconsistent with prior research, the native-migrant share of classrooms did not significantly affect immigrant-background students' attitudes towards host culture adoption and maintenance. Although there still was a negative link to immigrant-background students' feelings towards natives and their host group identification, the latter was relativized by a significant curvilinear effect of classroom migrant proportion. Thus, in sum, our findings are inconclusive regarding immigrant-background students' attitude-related and identity-related acculturation.

With regard to several aspects, this study goes beyond prior research investigating the link between segregation and immigrant-background students' individual acculturation. Studies in this domain (a) mostly focused on restricted sets of acculturation outcomes (e.g., only social or only psychological aspects), (b) surveyed different and partly restrictedly diverse migrant samples (e.g., only Latinos, Blacks, or Russian migrants) in (c) different social units (e.g., neighbourhoods, or schools). Furthermore, different studies (d) employed different operationalizations of segregation (e.g., same-ethnic group proportion, overall migrant proportion, ethnic diversity, subjective perceptions of segregation) and (e) have been conducted in different countries. This considerably restricts the comparability, generalizability, and replicability of prior findings on positive versus negative consequences of segregation.

In contrast, the present study (a) included a broad range of acculturation outcomes in one single study and thus held constant other aspects that might have led to mixed findings on the effects of segregation. It used (b) a large and ethnically diverse migrant sample, and (c) classrooms as clearly definable and, most important, highly relevant social units for immigrant-background youth. Moreover, this study (d) conceptualized segregation as classroom migrant proportion while also controlling for other aspects related to segregation (i.e., ethnic diversity, SES). Finally, it (e) investigated segregation effects across four European countries using a sample of over 8500 immigrant-background students from over 900 classrooms. With this equipment, the findings from this study offer a unique and comprehensive picture of the 'mixed bag' of segregation and establish comparability across a wide spectrum of acculturation domains for the first time.

From a theoretical perspective, our findings underpin the notion that different mechanisms might be at work in segregated contexts. From the perspective of intergroup contact theory and acculturation theory (cf. Berry, 1997; Brewer & Miller, 1984; Brown & Hewstone, 2005; Pettigrew, 1998), our findings support the assumption that segregation might have negative associations with academic acculturation outcomes, and partly suggest also that some negative associations with attitude-related and identity-related acculturation outcomes might occur in the form of a rather one-sided orientation towards the heritage group. A one-sided heritage orientation has been operationalized as reduced interest in the host culture and increased interest in the heritage culture (Paulhus, 2013) or reduced host identity and increased heritage identity (Berry & Hou, 2017), which at least partly matches the patterns found in the present sample (e.g., positive associations with attitudes towards heritage culture maintenance and ethnic identification vs. negative associations with feelings towards natives and host identification). Migrants with a tendency for a one-sided heritage orientation tend to show poorer academic performance in turn (Nguyen & Benet-Martínez, 2013), and reduced intergroup contact further leads to more negative feelings towards the outgroup (Wölfer et al., 2016) which might lead to even stronger one-sided tendencies. However, as some research suggests that a one-sided heritage orientation can be in fact beneficial, for example, for migrants' psychological well-being (Vedder et al., 2006), and even school performance under certain circumstances (Baysu et al., 2011), our findings cannot be unequivocally interpreted as a negative consequence of segregation in this regard.

Considering the ethnic density effect (Bécares et al., 2018; Geven et al., 2016) and the person–environment fit effect (Fulmer et al., 2010; Gebauer et al., 2017), our findings support the assumption that segregation might have positive associations with immigrant-background students' (reduced) discrimination experiences, (reduced) negative affect, general health, and self-esteem. Indeed, prior studies suggest that being surrounded by same-ethnic others protects migrants against discrimination experiences and improves their physical and mental health (Bécares et al., 2018; Jurcik et al., 2013; Stafford et al., 2009, 2010). We found this pattern even for the overall migrant proportion in classrooms, suggesting the presence of a migrant density effect. Furthermore, experiencing a 'fit' with others nearby due to similarity relates to higher self-esteem and positive emotions as well (Fulmer et al., 2010; Gebauer et al., 2017).

Interestingly, we found no direct evidence for homophily (McPherson et al., 2001), which should have been reflected in increased social inclusion of immigrant-background students (i.e., friendship and popularity rates, reduced rejection rates) in classrooms with many immigrant-background students. Thus, in our study, the preference to connect with similar others did not extend to the similarity aspect 'having an immigrant background'. Instead, homophily might only refer to other characteristics such as ethnicity (note that immigrant-background students in ethnically homogeneous classrooms indeed had higher friendship rates in our study; see also Table S9 in the Online Supplement), gender, or interests. Note, however, that none of the social acculturation measures specifies with whom (i.e., natives or other migrants) migrants have positive or negative social experiences.

4.1 | Caveats and future research

This research comes with some caveats and open issues that need to be addressed by future research. First and most importantly, the cross-sectional design does not allow for causal conclusions. Self-selection mechanisms might still interfere with the assumed segregation

effects—for example, parents who speak the host language very well and have strong identification with the host group might be more likely to send their children to desegregated rather than segregated schools. Consequently, immigrant-background children with a priori good host language skills and strong identification with the host group (which they might have been passed on by their parents) would be more likely to end up in desegregated classrooms. Thus, it remains unclear whether the observed findings are really due to an effect of classroom segregation on children's acculturation outcomes. In this regard, longitudinal data might be helpful (e.g., to test whether class changes from desegregated to more segregated classrooms lead to changes in certain acculturation outcomes).

Second, longitudinal data would also allow for testing whether long-term effects differ from short-term effects, which we were not able to investigate here. For example, acculturation research suggests that a one-sided orientation towards the heritage culture leads to lower well-being than a balanced orientation towards both heritage and host culture (Berry & Hou, 2017; Nguyen et al., 2013; Zheng et al., 2004). If anything, we found a tendency towards a one-sided orientation, but still moderately higher well-being among immigrant-background students in segregated classrooms. Thus, one might speculate that segregation leads to the observed positive effects on well-being only in the short term. In the long term, an isolation from the host group might result in unfavourable effects on immigrant-background students' well-being.

Third, the age of migrants might play an important role in terms of the consequences of segregation. In the present study, we focused on 14-year-old adolescents with an immigrant background in the classroom context. One might speculate that segregation effects might be different when investigating adults with an immigrant background. Participants in our sample were in a crucial period of their lives in which identity develops and peer influence is especially strong (e.g., Santos, 2017; Sumter et al., 2009). As we focused on segregation as opportunity for contact to native and immigrant-background peers, one might speculate that segregation effects were particularly strong in the setting we chose.

Fourth, we readily acknowledge that the consideration of underlying processes might also have contributed to the explanation of mixed findings on segregation effects. For example, segregation most likely leads to reduced intergroup contact, which might explain both negative as well as positive effects on acculturation (e.g., negative feelings towards natives but at the same time fewer discrimination experiences). However, as outlined before, it is likely that many different processes (e.g., not only reduced intergroup contact but also fit experiences, etc.) drive segregation effects. Relatedly, also some of our criteria might function as mediators (e.g., negative feelings towards natives leading to weaker host identification, limited language skills leading to poorer cognitive test performance, etc.). Such complex interdependencies and mechanisms are beyond the scope of our study. Instead, the focus rests on taking a first step towards shedding light on the 'mixed bag' of segregation by comparing various different acculturation domains under constant ecological conditions (i.e., same migrant sample, social unit, operationalization of segregation).

Fifth, migrants most likely encounter different contexts of segregation in their daily lives. Adolescents in our sample are not only exposed to classroom segregation, but also segregation in their schools as a whole and in their neighbourhoods. Regarding the school-level, we were not able to draw a direct comparison with the class-level due to multicollinearity (see the Online Supplement for a detailed elaboration on this issue). Thus, we reran all analyses including school-level instead of class-level migrant proportion. Results can be viewed in the Online Supplement and were not conceptually different from those of our main analyses. Regarding the neighbourhood-level, we had no information about students' place of residence. Thus, we used an item pertaining to students' perceived residential segregation, and reran all analyses including this approximate measure as covariate. Results did not conceptually change—if anything, they became even more pronounced in the sense that positive and negative associations with segregation became slightly stronger, respectively.

Finally, we did not focus on potential moderators, for example, generation effects, differences between ethnic groups, and differences between countries. Regarding generation effects, we included first- to third-generation migrants, while some studies only included first- and second-generation migrants (e.g., Asendorpf & Motti-Stefanidi, 2017; Plenty & Jonsson, 2017). Regarding differences between ethnic groups, including same-ethnic group proportions and an ethnic group-level in the models would have been the best approach. However, many ethnic groups in our sample were too small to follow this approach, and the allocation process moreover crucially differed across the four countries (e.g., the category 'Western Asia' existed for GE but not for the UK). Although controlling for ethnic diversity does not fully account for specific ethnic group effects, the higher predictive value of migrant proportion compared to ethnic diversity for almost all acculturation outcomes in our study points to the importance of this measure beyond specific ethnic compositions. With regard to differences between countries, the restricted number of countries in our sample did not warrant an investigation of country-level moderators or the inclusion of country-level covariates. Although most of our findings were consistent across the four countries, a larger multinational context is needed to test whether segregation effects systematically differ between countries. One might speculate that the public opinion about immigration or immigration policies might play a role in aggravating or buffering consequences of (de)segregation (see e.g., Kogan et al., 2018, regarding effects of a climate of welcome in a country on migrants' well-being).

4.2 | Implications

Many researchers and practitioners consider segregation, that is, the spatial separation of individuals along ethnic or socio-economic boundaries, a common and major obstacle to migrants' acculturation in host societies (Agirdag et al., 2012; Bolt et al., 2010a; Danzer & Yaman, 2013; Putnam, 2007; Smith et al., 2016). In line with this approach, desegregation has become an important subject of integration policies (Bolt et al., 2010a; 2010b).

The results of the present study, however, indicate that segregation is a 'mixed bag'. Segregation was negatively linked to immigrant-background students' academic acculturation, but not clearly negatively associated with their attitude-related and identity-related acculturation. In turn, segregation was partially positively linked to immigrant-background students' social acculturation, and predominantly positively associated with their health-related and psychological acculturation.

Our findings suggest that, on the one hand, desegregation policies might be important to foster migrants' achievements in the educational system and to enable positive attitudes between migrants and natives. On the other hand, desegregation might expose migrants to discrimination experiences and alienation from their heritage culture, and lead to reduced well-being. Thus, desegregation is not a guarantee for successful acculturation on the whole spectrum of acculturation domains when diversity policies and practices at school fail to foster positive contact between migrants and to include multiculturalist approaches.

Importantly, the observed positive segregation effects might be an accelerator of segregation: apart from structural problems, such that affordable living space is only available in certain (presumably highly segregated) areas, migrants might self-select into segregated contexts because they anticipate positive effects for their well-being there (cf. Knies et al., 2016). This might further drive segregation tendencies observed in many societies (see also the above-mentioned potential of diverging short-term and long-term effects). Future research is needed to differentiate different forms of segregation, such as structurally imposed versus self-selected segregation.

To implement sustainable and successful desegregation policies, practitioners might need to compensate for potential losses of protective effects of segregation, in particular, to close the well-being gap between natives and migrants (Kanazawa & Li, 2015). In this regard, the school and classroom climate might be of particular importance to buffer such losses. Schools and classrooms might, even when desegregated, foster intragroup contact, that is, an exchange among immigrant-background students. Schools and classrooms might thus be suitable environments to encourage immigrant-background students to maintain and value their heritage culture and identity, even in the face of desegregation, which might lead to enhanced well-being in turn. Furthermore, although migrants encounter more intergroup contact opportunities in desegregated contexts, these contacts might not necessarily be close and supportive. Discrimination experiences especially might thus result in reduced well-being in the long term. Again, schools and classrooms might be especially promising environments to enable positive contact between natives and migrants, to sensitize for prejudices, to teach tolerance and mutual esteem, and thus to foster successful acculturation in culturally diverse societies in all domains.

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ETHICAL STATEMENT

The authors declare that the manuscript adheres to ethical guidelines specified in the APA Code of Conduct. Accordingly, results are reported honestly, the submitted work is original and not (self-)plagiarized, and authorship reflects individuals' contributions.

CONFLICTS OF INTEREST

The authors declare that there are no potential conflicts of interest with respect to research, authorship, and publication of this article.

DATA AVAILABILITY STATEMENT

All data and research materials are available at GESIS Data Archive for the Social Sciences at https://dbk.gesis.org/dbksearch/GDesc2.asp?no=0103&tab=&ll=10&notabs=&db=E. The data analytic methods and codes used in this study are available at https://osf.io/m2zaq/?view_only=c6d1e7f48b48429391382e65ffc2522f

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