



Cascades linking school achievement and engagement to the acculturation of immigrant-origin youth

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ABSTRACT

Low academic achievement has been shown to lead to higher disengagement from school, the main acculturative arena for immigrant-origin youth. Therefore, we tested the hypothesis that their disengagement from school will lead over time to lower involvement with the national culture and higher involvement with the ethnic culture. To test this hypothesis, we examined developmental cascades linking academic achievement to school engagement and spreading to national and ethnic acculturation, in a three-wave longitudinal study of immigrant adolescents in Greece. Cross-lagged analyses revealed that lower academic achievement cascaded over time to decreases in school engagement, which in turn cascaded to decreases in national, and increases in ethnic, involvement. School engagement fully longitudinally mediated the effects of academic achievement on both national and ethnic involvement. All cross-lagged effects in the reverse direction were non-significant. The results highlight the importance of schools in immigrant-origin youth's involvement with the national culture.

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Schools are among the most important contexts for the development, acculturation, and adaptation of immigrant-origin youth. They contribute to their education and socialization, and they expose, and introduce them, to the culture of the receiving society (Horenczyk & Tatar, 2012). Positive school adjustment among immigrant-origin youth reflects that both their development and acculturation are proceeding well (Motti-Stefanidi & Masten, 2020). Doing well in school is significant because it is a harbinger for their future adaptation. They provide them the opportunity to fulfil their

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aspirations and potential, and increase their life prospects, thus, promoting their social inclusion and well-being, as well as the cohesion, stability and prosperity of the receiving country (Motti-Stefanidi & Masten, 2013).

The goal of the present study was to test cascade models linking school adjustment to the acculturation of immigrant-origin youth over the middle school years. We examined two indices of school adjustment, academic achievement and school engagement, and two indices of acculturation, involvement with the national and ethnic cultures. The goal was to test whether the academic achievement of immigrant-origin youth would spread over time to their engagement with their school and education with later consequences for their involvement with the national and ethnic cultures.

The study is anchored in a resilience framework, which offers integrated criteria for judging positive adaptation in immigrant-origin youth, encompassing both developmental and acculturation perspectives (Motti-Stefanidi & Masten, 2013; Suárez-Orozco et al., 2018). Two groups of criteria are how well immigrant-origin youth are doing with respect to age-salient developmental and acculturative tasks (Suárez-Orozco et al., 2018). The two indices of school adjustment (academic achievement and school engagement) included in the study are important developmental tasks for all youth. Involvement with the national and ethnic cultures are key acculturative tasks, which mostly immigrant-origin youth face (Berry et al., 2006; Suárez-Orozco et al., 2018). A criterion of positive adaptation with respect to these acculturative tasks is that immigrant-origin youth become involved with both the national and ethnic cultures (Berry et al., 2006). Being bicultural is linked to better long-term adaptation with respect to developmental tasks and psychological well-being, than having one culture, whether the ethnic or the host (A. -M.T. Nguyen & Benet-Martinez, 2013). According to the resilience model for the adaptation of immigrant-origin youth, adaptive functioning with respect to developmental and acculturative tasks is expected to be intricately linked over time and the direction of influence is expected to be reciprocal (Motti-Stefanidi, 2018). Thus, to address the above-mentioned research questions both directions of effect were tested.

Links between academic achievement and school engagement in immigrant-origin youth

The study builds on previous findings from the Athena Studies of Resilient Adaptation (AStRA) project, which is a large, three-cohort, three-wave

longitudinal project on the adaptation of immigrant-origin youth (Motti-Stefanidi & Asendorpf, 2017; Motti-Stefanidi et al., 2012, 2015). Results from the AStRA project revealed that during middle school immigrant-origin youth in Greece do academically significantly less well and are less engaged in school and in their education compared to their non-immigrant Greek counterparts (Motti-Stefanidi & Asendorpf, 2017; Motti-Stefanidi et al., 2012). These findings replicate findings from other European countries (Dimitrova et al., 2016), and provide further support to the argument that the immigrant paradox is not a universal phenomenon (García Coll & Marks, 2012). Furthermore, it was found that even though both groups present a decrease in academic achievement over the middle school years (Motti-Stefanidi et al., 2012), immigrant-origin students present a steeper decrease in school engagement compared to their non-immigrant classmates (Motti-Stefanidi et al., 2015).

Motti-Stefanidi et al. (2015) also examined the direction of effects between immigrant-origin students and their non-immigrant counterparts' academic achievement and school engagement. Based on the bidirectionality principle, they expected both directions to be significant. However, based on the engagement hypothesis (Fredricks et al., 2004) they expected the path from school engagement to academic achievement to be stronger. Instead, they found that lower academic achievement led youth over time to becoming more disengaged from their school and education. The opposite direction also held but it was significantly weaker.

Schools are the main acculturative context for immigrant-origin youth (Horenczyk & Tatar, 2012). If they disengage from their school and education, one could hypothesize that they may also distance themselves from the culture of the receiving society and in parallel become more involved with their ethnic culture. This may be considered a negative outcome, since the optimal goal for their acculturation is that they become bicultural. The hypothesis that greater disengagement from school may lead over time to lower involvement with the national culture and greater involvement with the ethnic culture becomes particularly relevant because immigrant-origin youth do not differ from their nonimmigrant classmates in psychological well-being (Motti-Stefanidi et al., 2012). These findings suggest that they might protect themselves by becoming detached from school-related life and experiences (Eccles, 2004).

Participants were in early adolescence which is a period of life characterized by many and significant changes in neurobehavioral

development as well as by new educational and social challenges (Roeser et al., 1998). Immigrant-origin youth, in addition, face the acculturative challenges of having to learn to navigate between at least two cultures, and to develop, not only their personal, but also their ethnic and national identities (Suárez-Orozco et al., 2018). Immigrant-origin youth need to address these developmental and acculturative challenges in the context of schools which are not well equipped to meet their needs (Suárez-Orozco, Pimentel, et al., 2009). The lack of congruence between students' needs and the social context could partially explain the declining trajectories in school engagement (e.g., Wang & Eccles, 2012) and the finding that lower academic achievement leads over time to lower school engagement among immigrant-origin youth (e.g., Motti-Stefanidi et al., 2015).

To test these links, we examined two potential developmental cascades linking over a one-year period academic achievement to school engagement and spreading in the next year to involvement, first, with the national culture and, second, with the ethnic culture. We also tested the opposite cascade effects.

Links between school adjustment and acculturation in immigrant-origin youth

The path from immigrant-origin youth acculturation to adaptation with respect to developmental tasks and to psychological well-being has received the lion share of attention by researchers. Drawing on conceptual models of acculturation it is expected that immigrants' acculturation orientation towards the national and/or the ethnic cultures will differentially predict different domains of their adaptation in the receiving society (e.g., Arends-Tóth & van de Vijver, 2006; Berry et al., 2006), including how well they do in school. A large body of the relevant literature suggests that higher involvement with the national culture promotes higher academic achievement and school engagement (e.g., Alvarez Valdivia et al., 2016; Makarova & Birman, 2016; Schachner et al., 2016). In contrast, higher involvement with the ethnic culture often predicts better psychological well-being but is not linked to school adjustment (e.g., Schachner et al., 2016). Thus, doing academically well in school and being actively engaged in their education signal that immigrant-origin youth have acquired sufficient competence in the academic language of the receiving society and that they are well integrated in their school, having

learned its norms and expected behaviours (Suárez-Orozco et al., 2010, 2018).

The opposite direction suggesting that immigrant adolescents' school adjustment will affect over time their involvement with the national and ethnic cultures has not been the focus of researchers' attention.

One could argue that this is partly a reflection of the lack of opportunities to do well, offered to them by the school system, and by extension by the receiving society. Feeling unimportant, rejected, or excluded from school may result in a feeling of alienation and in the disengagement from school life and activities (Suárez-Orozco, Pimentel, et al., 2009). According to the rejection-identification model (Branscombe et al., 1999), individuals' motivation to maintain positive self-esteem shapes their reactions to perceived threat against the self with regards to group identification. Extending this assumption to immigrant-origin youth, we argue that academic underachievement may pose a personal threat since school success is a key developmental task for adolescents (Motti-Stefanidi, 2018). Therefore, disengagement from school can be viewed as a strategy to protect one's self-esteem in the context of academic underperformance or even failure. This can subsequently lead to lower involvement with the national culture (Jasinskaja Lahti et al., 2009), which is directly related to school as a context of national socialization, and to higher involvement with the ethnic culture, which provides them with a sense of belonging (e.g., Dimitrova et al., 2015). However, disengaging from the national culture and moving closer to the ethnic culture, moves immigrant-origin youth away from the optimal goal, which is to become bicultural.

The present study contributes to the literature in two ways. First, it examines longitudinally over the middle school years bidirectional influences and progressive effects within the domain of school adjustment and across domains including school adjustment and acculturation. Its results provide a more comprehensive picture than the current conceptualization which focuses on the effect of acculturation on adjustment (e.g., Arends-Tóth & van de Vijver, 2006; Berry et al., 2006). Second, most earlier studies were either cross-sectional or examine longitudinally the effect of acculturation on concurrently measured adaptation (e.g., academic achievement, school engagement, self-esteem) outcomes (Suárez-Orozco et al., 2010). They offer no clues for the direction of effects. In contrast, the present study is based on cross-lagged cascade models that test directional effects.

The context of the study and the immigrant groups

Greece has generally negative attitudes towards the presence of immigrants. According to an OECD (2016) report, 60% of Greek citizens indicate that they view immigrants unfavourably and more than two thirds of the Greek population believes that immigrants do not contribute to the country's collective wellbeing. According to a joint operation and Development and European Union (2015) report, 35% immigrants report feeling discriminated against, which ranks Greece first in terms of immigrants' perceived discrimination. Furthermore, the acculturation expectations of Greeks are that immigrants assimilate into the Greek culture, even though this expectation is limited to Greek education, competence in the Greek language and contribution to the economy, leaving out private-domain cultural elements (Pavlopoulos & Motti-Stefanidi, 2017).

A large majority of immigrants have come to Greece from Albania and the former Soviet Union, the latter particularly from the Greek diaspora. These are the two largest immigrant groups in the country and in the sample of the present study. The immigrants of the diaspora retained their Greek culture for many centuries, but never lived in Greece before migrating. Although the Greek government accorded them full citizenship status, native Greeks refer to Pontic Greeks as the 'Russians' and do not view them as 'real Greeks'. In contrast, immigrants from Albania, who at first entered the country as undocumented economic immigrants, were considered guest workers. The remaining immigrants came mostly from other Eastern European countries.

Most of the participants in this study were second generation immigrant-origin youth, i.e., they were born in Greece to immigrant parents. However, except for the Pontic Greeks, the other immigrant groups in the sample, whether first or second generation, did not have Greek citizenship at the time of data collection. The Greek State considers them children from immigrant families. They are not considered to be minorities. Independently of their official social status, they are all discriminated against even though to a different degree based on their "Greekness", with Pontic Greeks, who are of Greek descent, being least discriminated against (Triandafyllidou, 2000).

Hypotheses

Two cascade models were tested. In both models we examined whether the academic achievement of immigrant-origin youth affected their

school engagement a year later. In the first cascade model we examined the subsequent spread of school engagement to involvement with the national culture, in the second model the spread of school engagement to involvement with the ethnic culture. We also tested the opposite direction. This design allows also to test whether school engagement mediates the effect of academic achievement on national and/or ethnic acculturation, or vice versa.

School underperformance can pose a threat for self-esteem of youth with immigrant background (e.g., Kao, 1999). Based on previous findings from the AStRA data (Motti-Stefanidi et al., 2015) and on the rejection-identification conceptual model (Branscombe et al., 1999), we expected that the lower academic achievement among immigrant-origin youth would lead one year later to lower school engagement as a protective mechanism, i.e., to prevent their self-esteem from being compromised. In turn, disengagement from school, which is a pillar of socialization and acculturation, would lead the next year into lower involvement with the national culture. Extending the literature on social stigma (Crocker et al., 1998), although disengagement from a domain or context where identity is threatened may have positive implications for self-esteem, it can be costly in terms of undermining motivation. At the same time, the need to maintain positive self-esteem would lead to higher involvement with the ethnic culture, in a way that is analogue to the acculturation strategy of separation in Berry's conceptualization (Berry et al., 2006). This pattern may then be mistakenly interpreted as reflecting a lack of ability or interest for intergroup contact from the side of immigrant-origin youth, rather than blocked opportunities. Thus, we expected to find a cascade from low academic achievement via low school engagement to low involvement with the national culture, and a cascade from low academic achievement via low school engagement to high involvement with the ethnic culture. Based on acculturation theory and empirical findings discussed earlier, we expected the path from involvement with the national culture to school engagement to be significant, and the path from involvement with the ethnic culture to school engagement not to be significant.

Method

Sample

The initial sample consisted of adolescent students living in neighbourhoods with a high proportion of immigrant families in Athens, Greece,

who were assessed after the first trimester in secondary school amidst a major economic crisis (in 2013). Assessed were 1,118 students who attended 57 secondary-school grade 1 classes in 14 schools (age $M = 12.6$ years, $SD = 0.57$; 53% male). The present study includes only the 705 students from immigrant families (22% first generation, 78% second generation); first-generation immigrants had spent 60% (range 1%-99%) of their lifetime in Greece. More than 90% of the immigrant families came originally from Eastern Europe, particularly from Albania (50%) and the former Soviet Union (20% Pontic Greeks). The sample was reassessed 1 year later (attrition rate 8%) and two years later (additional attrition rate also 8%). Because of the total attrition rate of 16% and additional missing values in particular measures, effects of missing values were statistically controlled with appropriate procedures (see Results).

Measures

Ethnicity was defined in terms of Albanians, Pontic Greeks, and other immigrants. *Immigrant generation* was coded as 1 for first-generation immigrants who were not born in Greece and as 0 for second-generation immigrants, who were born in Greece to immigrant parents.

Academic achievement was obtained from school records. Grade points in Greek secondary schools are rated by teachers on a 20-point scale, with higher points indicating better performance. The grade point average (GPA) of each student was based on the judgements of at least four different teachers and five core subjects for the first trimester (Mathematics, Ancient Greek, Modern Greek, Biology/Geography, and History). GPA was the mean across these subjects on the 20-point scale. The GPA score showed excellent internal consistencies across the five school subjects (alpha above .90 in all waves).

School engagement was rated by Greek language teachers, who knew best these students, on six items, each rated on a 5-point scale, ranging from 1 (*not at all*) to 5 (*very much*). These items assessed the degree to which the student was motivated and engaged in schoolwork. Sample items are: 'concentrates in class', 'participates in class', 'is cooperative'. The scale had excellent internal consistencies (alpha above .85 in all waves).

Acculturation. Using an adaptation of H. H. Nguyen and von Eye's (2002) bi-dimensional measure of acculturation, we assessed among the immigrant students both the level of involvement with the national culture and the level of involvement with their ethnic (heritage) culture.

Each subscale consists of 11 identical statements regarding participants' attitudes, behaviours, and values in three life-domains: everyday lifestyles (food, music, language, e.g., 'How often do you listen to Greek [own ethnic] music?'), group interactions (friends, peers, events, e.g., 'Most of my closest friends are Greeks [from my own ethnic group]'), and global involvement (e.g., 'As far as behaviours and values, I am a Greek [own ethnicity]').

Respondents were asked to rate the items on a 5-point Likert-type scale, ranging from *never* to *always*. A confirmatory factor analysis showed an acceptable fit to the two a priori factors of involvement (RMSEA = .08 [90%CI .08–.09], correlation between factors $-.07$, *ns*). Therefore, we used the 11-item subscales as measures of *National involvement* and *Ethnic involvement*. Internal consistencies were excellent (alphas above .85 for both scales).

Results

Descriptive information

The initial means, standard deviations and intercorrelations, and the longitudinal stabilities of students' raw scores in the eight main variables are reported in Table 1. Because changes in means and *SDs* are not the topic of the study and the concurrent intercorrelations of the variables were highly similar across the three waves of the study, we do not report them for Waves 2 and 3 here. The intercorrelations were high enough to allow for discriminant validity. As expected, in most cases the stabilities increased from the first to second year in school to the second to third year, and the stabilities over two years were somewhat lower as those over one year.

Table 1. Initial means, standard deviations and intercorrelations, and stabilities of the main variables.

Variable (score range)		<i>n</i>	<i>M</i>	<i>SD</i>	Intercorrelations			Stabilities		
					ENG	NAT	ETHN	T12	T23	T13
Academic achievement	GPA	703	13.63	2.84	.73	.18	<i>-.13</i>	.88	.88	.83
School engagement	ENG	677	3.22	1.16		.14	<i>-.13</i>	.50	.54	.50
National involvement	NAT	625	3.60	0.92			<i>-.07</i>	.55	.53	.43
Ethnic involvement	ETHN	623	3.50	0.95				.48	.55	.48

Note. Intercorrelations and stabilities are Pearson correlations. The correlation in italics is non-significant ($p = .07$, two-tailed).

Data analysis strategy

The longitudinal links between achievement, engagement, and acculturation were studied separately for national involvement and ethnic involvement with cross-lagged regression analyses where a predictor variable X in wave W predicts an outcome variable Y in wave $W + 1$, controlling for the indirect path via the outcome variable in wave W (see e.g., Little, 2013). Compared to cross-lagged correlations, this approach controls for spurious effects due to the indirect paths and thus better informs about causal effects of between-individual variation in X on between-individual variation in Y and the relative strength of the effects of X on Y and Y on X .

Following recommendations by Little (2013) for cross-lagged models, we applied a latent variable approach (see Asendorpf & Motti-Stefanidi, 2017; Reitz et al., 2016, for a similar approach). All main variables were implemented as a latent variable with two item parcels (given the relatively short scales, more parcels would lead to poor model fit). These parcels correlated above .72 for each latent variable for each wave of the study. The measurement errors of a parcel were allowed to correlate across waves in order to capture parcel-specific stability (Marsh & Hau, 1996).

Mplus 7.0 (Muthén & Muthén, 1998–2012) was used for the cross-lagged analyses. Missing values and attrition effects were controlled using full maximum likelihood (FIML) estimation. Because the data showed a nested structure (students were nested in classrooms) we followed the approach by Reitz et al. (2016) and corrected all standard errors for cluster effects, using the Mplus option TYPE=COMPLEX. Moderations by the categorical variables gender, ethnicity, and immigrant generation were studied with multi-group analysis.

All analyses used robust standard errors (MLR estimator) which is a requirement in Mplus for the TYPE=COMPLEX option. Therefore, relative model fit could not be evaluated with the conventional χ^2 difference test which would be too strict anyway due to the large sample. Following recommendations by Kline (2016), we used the CFI difference as a measure of relative model fit. Differences up to .01 can be considered ignorable. Absolute model fit was evaluated in terms of RMSEA and CFI.

In addition to studying cascades across the three time points in terms of connected cross-lagged effects, we tested whether school engagement longitudinally mediated the effects of academic achievement on acculturation and *vice versa*, following the suggestions by Cole and Maxwell (2003) for longitudinal mediation (see also Motti-Stefanidi et al., 2018). We

report effect sizes for the paths in terms of standardized regression coefficients.

Measurement equivalence

In a first set of analyses, we studied measurement equivalence over time in terms of factorial invariance for the four parcelled measures. An unconstrained longitudinal model was compared with a model where the factor loadings for each latent factor were constrained to be equal across the three waves. In all cases, factorial invariance was assured ($\Delta\text{CFI} < .002$). Therefore, we used models with invariant factor loadings in all following analyses.

Stationarity

Stationarity of the cross-lagged effects (identical parameters for the two observation intervals T1-T2 and T2-T3) was tested by comparing an unconstrained model with a model where the autoregressions and cross-lagged effects were constrained to be equal across the two observation intervals. Because the fit of the constrained model was not worse than the fit of the baseline model ($\Delta\text{CFI} = .000$ for both national and ethnic involvement), all further analyses used the constrained models. Because standardized regressions can slightly vary even if the effects are fixed equal, we report averages of standardized regressions, their *SEs*, and their *p*-values across the two observation intervals.

Overall effects

The results of the two cross-lagged analyses without moderators are reported in [Table 2](#); the main effects are illustrated with [Figure 1](#). Model fit was excellent for both the model including national involvement, $\text{RMSEA}[90\%\text{CI}] = .025[.015, .033]$, $\text{CFI} = .994$, and the model including ethnic involvement, $\text{RMSEA}[90\%\text{CI}] = .030[.022, .038]$, $\text{CFI} = .991$. The cross-lagged effects reported in [Table 2](#) show two developmental cascades from achievement to acculturation through engagement, one for national involvement and one for ethnic involvement (bold arrows in [Figure 1](#)). The main difference was the sign of the paths from engagement to the two acculturation variables: Engagement predicted increases in national involvement and decreases in ethnic involvement. The effect sizes were

Table 2. Cascade effects from achievement to acculturation via engagement.

Achievement X → acculturation Y					Acculturation Y → achievement X				
Effect	National involvement		Ethnic involvement		Effect	National involvement		Ethnic involvement	
	β (SE)	<i>p</i>	β (SE)	<i>p</i>		β (SE)	<i>p</i>	β (SE)	<i>p</i>
X → M	.592(.050)	.001	.596(.049)	.001	Y → M	.025(.021)	.221	-.046(.025)	.072
M → Y	.068(.031)	.026	-.067(.030)	.026	M → X	.059(.032)	.066	.058(.032)	.072
X → M → Y ^a	.039(.018)	.031	-.039(.019)	.042	Y → M → X ^a	.001(.001)	.340	-.002(.002)	.225
X → Y ^b	.001(.039)	.979	-.040(.040)	.314	Y → X ^b	.034(.019)	.069	-.014(.022)	.516

N = 705. M is moderator school engagement. Reported are standardized regression coefficients β along with their two-tailed significance based on robust standard errors SE. The SEs are corrected for the nesting of students in classrooms. Leading zeros are ignored.

a Mediation effect. b Remaining path after controlling for mediation.

large for the paths from achievement to engagement (close to $\beta = .60$). Note that this cannot be attributed to a high similarity of the constructs which often threatens the interpretation of cross-lagged effects because the effects in the opposite direction (engagement to achievement) were small.

In terms of longitudinal mediation, engagement mediated the effect of achievement on both acculturation outcomes because for both acculturation outcomes both the achievement to engagement and the engagement to outcome paths were significant. The overall mediation was tested in terms of the indirect effect of the predictor via the mediator on the outcome. Mediation was significant for both acculturation outcomes (see Table 2). Both were full mediations because the direct paths from achievement to acculturation were non-significant (see Table 2). The effects from engagement and the mediation effects were highly similar for national versus ethnic involvement except for the sign of the effects (see Table 2). This result is not trivial because the two acculturation variables were not significantly correlated in Wave 1 (see Table 1). In contrast, all cross-lagged and mediation effects for the opposite direction from acculturation to achievement were non-significant. Thus, all significant effects were unidirectional.

Moderations

Potential moderations of the cross-lagged findings reported in Table 2 by gender, ethnicity (Albanians, Pontic Greeks, other), and immigrant generation (first, second) were studied with 3(moderators) × 2(national/ethnic involvement) = 6 multi-group analyses. In each case, an unconstrained model where all coefficients were allowed to vary across the groups was compared

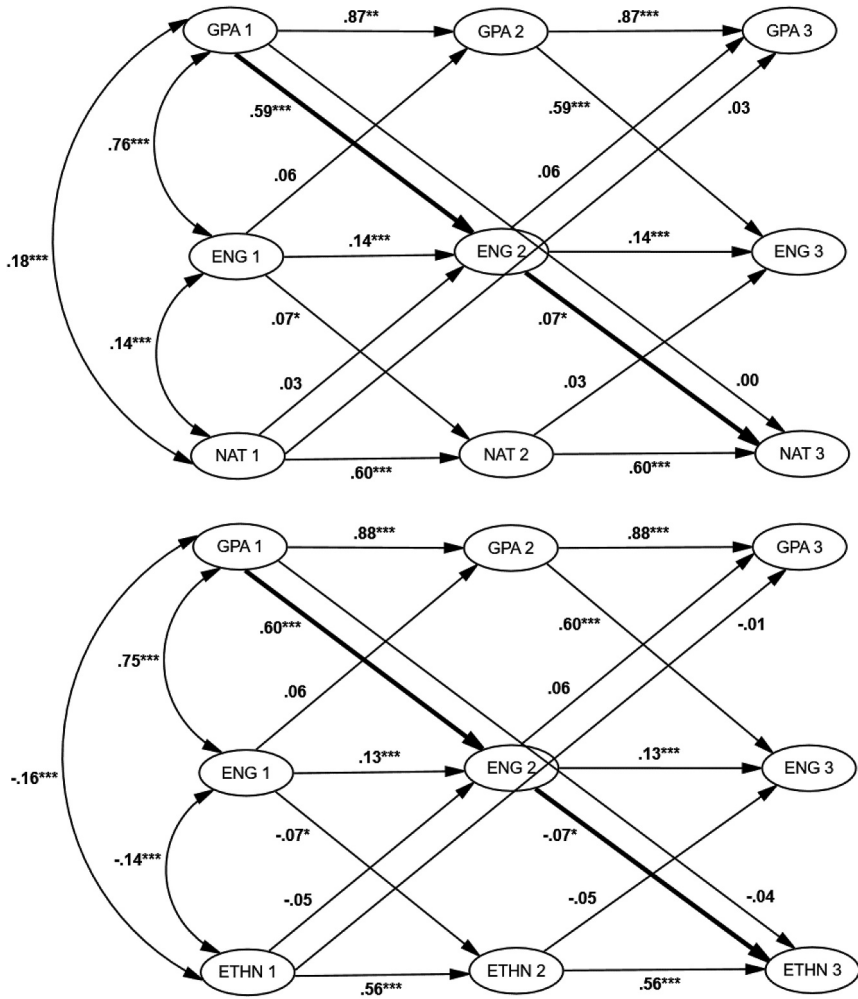


Figure 1. Cascade effects (bold arrows) from achievement to acculturation via engagement. Note. Numbers in variable names refer to the wave of assessment. Manifest indicators of the latent variables and correlations between measurement-specific errors across waves and between residuals within waves are not shown. GPA: School achievement. ENG: School engagement. NAT: National involvement. ETHN: Ethnic involvement.

with a constrained model where the stabilities and cross-lagged coefficients were constrained to be equal across groups. In each case, ΔCFI was not larger than .001. Therefore, it can be concluded that the cross-lagged findings reported in Table 2 were robust regarding variations in gender, ethnicity, and immigrant generation.

Discussion

This study was conducted based on the premise that schools are an important developmental and acculturative context for immigrant-origin youth. Following previous findings, which link longitudinally academic achievement to school engagement (Motti-Stefanidi et al., 2015), it was hypothesized and shown that lower academic achievement led over time into lower school engagement, which in turn led later into lower involvement with the national, and higher involvement with the ethnic, cultures. Based on findings that a bicultural orientation (e.g., A. -M.T. Nguyen & Benet-Martinez, 2013; Berry et al., 2006), or a higher orientation towards the national culture (e.g., Makarova & Birman, 2016), are linked to better adjustment outcomes, an increasing disengagement from the national culture, and a parallel increasing engagement with the ethnic culture, may have negative long-term consequences for their future adaptation and well-being, as well as for the receiving society's social cohesion and stability (Motti-Stefanidi & Masten, 2013). Thus, the results of this study have significant educational and public policy implications for the integration of immigrants in receiving societies.

Cascades from school adjustment to immigrant-origin youth acculturation

Two potential longitudinal cascades between academic achievement, school engagement, and involvement of immigrant-origin youth with the national and ethnic cultures were tested. In both cascades, academic achievement was, as expected, linked over time to school engagement. Immigrant-origin youth with lower academic achievement were less engaged in their school and education. This finding replicates a virtually identical finding in an earlier cohort from the AStRA project (Motti-Stefanidi et al., 2015). Also, in line with this earlier study, the opposite paths, from school engagement to academic achievement, were positive but much smaller. They did not reach significance which may be attributed to the very high stability of achievement in the present study.

As expected, low school engagement was shown to spread in the next year to low national involvement and high ethnic involvement. Unexpectedly, the opposite directions failed to reach significance although the size of the cross-lagged effects was not much smaller. The effects of school engagement on involvement with the national and the ethnic cultures were exactly opposite, which was not necessarily expected

because national and ethnic involvement were uncorrelated in Wave 1. The results were robust regarding variations in gender, ethnicity, and immigrant generation. The effects for the cross-lagged paths between school engagement and acculturation were not large but are particularly trustworthy because they were based on different informants (academic achievement was retrieved from school records, school engagement was reported by teachers and acculturation was reported by immigrant youth) and cannot be explained by shared method variance. Interestingly, the analyses further revealed that school engagement fully mediated the effect of academic achievement on both national and ethnic involvement. This finding shows that school engagement explains the link between academic achievement and both national and ethnic involvement.

Significant concurrent correlations between academic achievement, school engagement and, separately, national and ethnic involvement were found in Wave 1 of the study. Immigrant-origin youth who had lower academic achievement, tended to have lower school engagement, as well as lower national, and higher ethnic, involvement. The first wave corresponds to the first year of middle school. Immigrant-origin youth have recently transitioned from primary to middle school and placed in a new school context. They arrive to their new school with a baggage of educational and social experiences and a record of adaptive success or failure. The concurrent correlation between the two school adjustment indices and the acculturation indices suggests that the start of the cascades linking school adjustment to acculturation, which were documented in this study, may date back to the years of primary school.

The results need to be interpreted in the Greek societal and school context. According to the Migrant Policy Integration Index (MIPEX 2020), Greece's approach to integration of immigrants falls in the category of equality on paper, which means that immigrants enjoy equal rights and long-term security, but not equal opportunities. What MIPEX calls an 'Equality on Paper' approach to immigrant integration, encourages the Greek public to see immigrants as foreigners, subordinates, not as equal potential citizens.

Regarding education, MIPEX 2020 (<https://www.mipex.eu/greece>) reveals that little is done to address the diverse needs of pupils, teachers and schools, suggesting institutional discrimination against immigrant-origin social groups. Curricula are not adapted to the needs of an ethnically diverse student body, little support is provided to address the educational needs of immigrant-origin youth, including the need to

promote their competence in the 'academic' language of the country, educational programs addressing issues related to cultural pluralism are not universally implemented in the school system, and issues of ethnic discrimination are not recognized as a grave problem that needs to be addressed by society and the schools in a concerted way.

This societal and educational reality signals to immigrant-origin youth that they do not belong. Despite these challenges, some immigrant-origin youth exhibit resilience and do well in school, suggesting the presence of strong protective factors possibly in the individual (e.g., intelligence) or in the family (e.g., a supportive, cohesive family) (Motti-Stefanidi, in press). However, in this non-supportive context a significant number of immigrant-origin youth do academically significantly less well than their non-immigrant counterparts. The lack of support and acknowledgement of their educational needs may lead them to feeling unimportant, rejected, or excluded from school, which may explain their increasing disengagement during middle-school from their education (Suárez-Orozco, Pimentel, et al., 2009), and over time their lower national and higher ethnic involvement (Branscombe et al., 1999).

Strengths and limitations

The present study focuses only on one phase of the process of bidirectional influences between academic achievement, school engagement, and acculturation to the national and ethnic cultures. The longitudinal interplay between school adjustment and acculturation starts already in the first year of primary school and ends when youth leave academic settings. Future studies need to test such cascades earlier in development and acculturation. The link between school adjustment and acculturation is expected to be transactional (Motti-Stefanidi & Masten, 2013, 2020). It will be enlightening to test such cascades in primary school in order to better understand the direction of influences. Nevertheless, it was possible to detect two significant cascades from achievement via engagement to national and ethnic acculturation within a period of two years. The implications of these findings are particularly important since during this period adolescents face the developmental and acculturative tasks of identity formation, including cultural identity formation.

The results are limited because the assessment of school engagement was based solely on the evaluations of the teachers of Greek language. The reason was that they have most classes with middle school students

and as a result know them best. However, teachers' evaluations of students' school engagement might be affected by their views about diversity, in general, and their attitudes towards immigrants and students' school engagement may vary for different academic subjects.

The results are also limited by the adoption of the variable-focused approach to data analysis. A person-focused approach could complement the results from this variable-oriented study and provide a more comprehensive understanding of the link between academic achievement, school engagement and bicultural orientation among youth of immigrant background.

Finally, the results are also limited by the ethnic groups studied, the receiving society, which is highly assimilatory, and the historical period of the study which took place during a major economic recession. Future studies of such cascades need to be conducted in receiving societies where societal institutions and school systems are more adapted to immigrant-origin youth's needs, and multicultural climate and policies are more supportive of cultural diversity.

Conclusions

The unique contribution of the present study is that it draws attention to the bidirectionality of the link between school adjustment and the acculturation of immigrant-origin youth. Whereas acculturation models and extant evidence mostly focus on the way involvement with the national and ethnic cultures affect different domains of their adaptation with respect to developmental tasks (e.g., academic achievement, school engagement, conduct) and their psychological well-being (e.g., self-esteem, psychological symptoms), this study shows that how well immigrant-origin youth do academically is consequential for their engagement in their school and education, which in turn affects their involvement with the national and ethnic cultures. A possible explanation is that the educational context does not promote immigrant-origin youth's sense of belonging in their school, which gradually leads immigrant-origin youth to an increasing disengagement from the national culture and further engagement with the ethnic culture. This is particularly the case for immigrant-origin youth who do not have sufficient support from personal or family sources to do academically well. The results have public policy implications. Educational programs that address immigrant-origin youth's needs for competence may promote their sense of belonging and ultimately their social inclusion into society.

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Data availability statement

Data and materials that support the results and/or analyses presented in this paper will be made freely available upon request.

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