Further evidence for social projection in the classroom: Predicting perceived ethnic norms

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A B S T R A C T

This longitudinal study examines whether children in late childhood (age 7–12) project their ethnic attitudes on their classroom peer group, by using these attitudes to predict children's perceptions of the descriptive ethnic norms in their classroom. Children's norm perceptions were relatively unstable over a half year period, and their ethnic minority group attitudes in the fall uniquely predicted their perceptions of the corresponding classroom norm in the spring. This effect seemed to be unrelated to age-related cognitive limitations, because it was equally strong for younger versus older participants and absent for children's majority group attitudes. Results indicate that children can use social projection to make inferences about ethnic classroom norms, which has important implications for peer influence studies that rely on subjective norm perceptions: What seems to be a normative influence in those studies might (partly) be a perpetuation and strengthening of children's prior attitudes and beliefs via social projection.

Introduction

What do my peers think? This is a relevant question in late childhood, and one that becomes increasingly important when children approach adolescence. Numerous studies have shown the importance of social norms for various negative and risk behaviors (see Prinstein & Dodge, 2008), yet the last decades, the attention for peer group norms has also spread to the field of developmental intergroup relations (Killen & Rutland, 2011). Theoretical approaches like Social Identity Development Theory (Nesdale, Maass, Durkin, & Griffiths, 2005) and the developmental subjective in-group dynamics model (Abrams, Rutland, Cameron, & Ferrell, 2007) state that, from middle childhood on, children's group attitudes are influenced by the norms of their in-group, especially when they strongly identify with that group. Indeed, research has shown that, although other factors such as intergroup contact and threat are clearly relevant as well, children's attitudes toward ethnic, racial, gender, or sexual preference groups are affected by what their peer groups think or do (descriptive peer group norms) or expect (prescriptive peer group norms; see Killen & Rutland, 2011; Raabe & Beelmann, 2011). Whereas some of these studies have used experimental designs to examine the effects of peer norms on children's intergroup attitudes (e.g., McGuire, Rutland, & Nesdale, 2015; Nesdale & Dalton, 2011; Nowicki, 2012), other non-experimental ('real-life') research has relied on children's personal perceptions of the norms of their peer group (e.g., Brenick & Romano, 2016; Jugert, Noack, & Rutland, 2011). However, an important question is whether children perceive such norms correctly. The perceived norms of one's peer group may not fully correspond to its actual norms (Lapinski & Rimal, 2005), that is to say the objective pattern of beliefs or attitudes of the peer group members (Morris, Hong, Chiu, & Liu, 2015), and this means that developmental research that relies on children's subjective norm perceptions might produce incorrect conclusions about the importance of the *actual* norms of children's peer groups (see Stattin & Kim, 2018, for a comparable argument on parental value socialization).

An important source of normative misperception is social projection, which is the tendency to assume that others have similar opinions and ideas as the self (Robbins & Krueger, 2005). In the present study, we investigated whether this tendency could explain children's misperceptions of the descriptive ethnic norms of their classroom peer group (i.e., "What do most of the children in your class think about …?" see Morris et al., 2015). Our study took place in the Netherlands, and we examined children in Grades 3–6. Students in these grades are in late childhood (age 7–12), which is an important time for the development of group attitudes and interethnic relations (Quintana, 1998; Raabe & Beelmann, 2011). We included children from the native Dutch majority group as well as children of Moroccan or Turkish descent. Turks and Moroccans are typical minority groups in Dutch society: They face relatively much prejudice and discrimination, and children are clearly aware of this (Thijs, 2017; Verkuyten, 2014).

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Social projection and developmental psychology

The notion of social projection has a long history in psychology (Baumeister, Dale, & Sommer, 1998). Freud conceptualized social projection as a defense mechanism which allows individuals to deal with feelings and impulses that are unacceptable and therefore anxiety-provoking. By ascribing such feelings and impulses to others rather than to themselves, people can protect themselves against this anxiety (Freud, 1961). Later theorists have relinquished the Freudian conceptualization of social projection as a crude distortion of reality, by simply regarding it as "a broad tendency to assume that others are similar to oneself" (Baumeister et al., 1998, p. 1090). Relatedly, research has drawn attention to the potential cognitive and social benefits of social projection. From an informational point of view, social projection can be seen as a functional heuristic to predict social agreement when there is uncertainty about the attitudes of important others. This heuristic is not infallible and can lead to perceptions of false consensus. Yet, one's important others are often comparable to the self and therefore it is not unreasonable to assume that their attitudes resemble one's own (Krueger, 1998, 2007). Moreover, group social projection, or social anchoring, can strengthen one's in-group identification by increasing the perceived overlap between the self and one's group (Veelen, Otten, Cadinu, & Hansen, 2015; Veelen, Otten, & Hansen, 2011). Thus, social projection can also satisfy the basic human need to belong (Baumeister & Leary, 1995).

Most research on social projection has been conducted by social psychologists. However, some of the earlier studies in this field took a developmental focus by comparing children from different age groups (Higgins, Feldman, & Ruble, 1980; Wetzel & Walton, 1985). From a developmental perspective, social projection can also be examined as the product of children's (decreasing) inability to differentiate their own mental states from those of others. Although most of them have acquired theory of mind at age 4 (Carlson, Koenig, & Harms, 2013), they continue to acquire more advanced social perspective taking abilities across middle and late childhood (Abrams, Rutland, Pelletier, & Ferrell, 2009; Sierksma, Thijs, Verkuyten, & Komter, 2014). Theoretically, these cognitive developments should increase children's ability to accurately perceive the attitudes and preferences of others, and diminish the likelihood of social projection when children get older. The earlier studies found little support for this idea. Higgins et al. (1980) conducted a research in which they asked 4–5-year-olds, 8–9-year-olds, and undergraduates to rank their preference for different foods and activities, and related this ranking to the perceived choice of others. They found that there was a developmental increase in the predictive accuracy of the perceived choice of others, especially the perceived choice of non-peers. However, these findings were not paralleled by a decrease in social projection, that is less prediction of others' choice based on one's own preferences. In fact, the authors concluded that "there was no general tendency in any age group for subjects to view others as similar to themselves" (p. 535).

Similarly, Wetzel and Walton (1985) asked children to indicate their preference for one out of two activities and then estimate the number of peers who preferred each activity. Across ages 7–10 children were increasingly less likely to wrongly assume that others had similar preferences as themselves. However, this decrease in social projection and the associated increase in perceptual accuracy were only found for children whose personal preferences were in the minority. Children who had preferences that were relatively common did not overestimate the degree to which others agreed with them. These and other findings in the study indicated that childhood social projection is not simply a matter of egocentrism or limited cognitive abilities (Wetzel & Walton, 1985).

Social projection of group attitudes

Group prejudice is generally considered to be normatively unacceptable (Crandall, Eshleman, & O'Brien, 2002), and children as young as six are clearly aware of this (De França & Monteiro, 2013; Rutland, Cameron, Milne, & McGeorge, 2005). As people may be hesitant to openly express their ethnic attitudes, it can be rather difficult for children (but adults as well) to know what others really think about specific ethnic groups. Research has shown that social projection is especially likely under such circumstances: When people are unsure about the opinions and characteristics of others they are more likely to assume that others are similar to themselves (Otten & Epstude, 2006; van Veelen et al., 2011).

The possibility that social projection plays a role in children's group attitudes and relations has been increasingly acknowledged by developmental researchers (Abrams, 2011; Degner & Dalege, 2013; McGuire, Manstead, & Rutland, 2017). Degner and Dalege (2013), for example, conducted a meta-analysis on parent-child similarity in intergroup attitudes, which is typically explained in terms of parental socialization. They found this similarity to be considerably stronger when children, as compared to their parents, reported on the parents' attitudes. Although this finding does not directly prove the existence of social projection, it led the authors to consider social projection as an important alternative interpretation. As the actual attitudes of the parents were much weaker related to children's attitudes than the perceived ones, the authors speculated that children "might simply not know their parents' attitudes very well, either because they are rarely openly expressed or discussed or because general cognitive limitations cause children not to know, misperceive, and/or misinterpret their parents' attitudes in light of their own attitudes" (p. 1286; see also Gniewosz, Noack, Wentura, & Funke, 2008). More recently, McGuire et al. (2017) discussed the potential impact of social projection in a quasi-minimal group experiment among children and adolescents. This experiment involved the explicit and unambiguous manipulation of either an in- or out-group norm, but a substantial number of the participants (31% of the children, and 23% of the adolescents) thought the group norm was different from how it was manipulated. The authors attributed this remarkable finding to a tendency for social projection (McGuire et al., 2017).

Still, systematic research on the social projection of group attitudes is very scarce. In particular, we know very little about children's projection of group attitudes on 'real-life' peers, although such knowledge is crucial to evaluate the formative role of peers in the development of intergroup relations in late childhood and early adolescence. More than twenty years ago, Aboud and Doyle (1996, Study 2) conducted a research in which they measured 8-to-11-year-olds' attitudes toward specific racial groups (White, Black, Chinese) and calculated the correlations between children's attitudes and those of their best friends in class. They found that children's own attitudes were generally unrelated to the actual attitudes of their friends, but positively and strongly to their expectations of those attitudes. Notably, these relations were largely similar for the different racial target groups. Thus, their findings convincingly showed that "children appear to assume that friends (…) hold racial attitudes similar to their own" (p. 380). More recently, in a Dutch study among ethnic minority (Turkish- and Moroccan-Dutch) and ethnic majority (native Dutch) students (grade 4–6), Thijs and Verkuyten (2016) examined preadolescents' tendency to project their own ethnic bias (the differential evaluation of their ethnic in-group relative to their ethnic out-group) on the perceived norm of their classroom peer group, which is an important normative reference group at this age (Thijs & Verkuyten, 2013). Reasoning that children are part of their classroom peer group, they first subtracted the average bias of all individual students in each class – the 'actual' descriptive classroom norm – from the bias score of each individual student. This group-mean centering procedure created individual norm deviation scores that were independent of the actual classroom norms. Next, they showed that children's descriptive norm perceptions ("How do most children in class evaluate the in-group relative to the out-group?") were strongly related to both the 'actual' descriptive norm in each classroom and children's individual deviation from this actual norm. Hence, although children's

norm perceptions were partly accurate, they were also the result of social projection because they depended on children's own unique attitudes (not shared with their classmates). This tendency to project existed among ethnic minority and majority students alike, and was independent of their age. Moreover, it was stronger for children who had a stronger sense of classroom acceptance, and hence identified more strongly with their classmates, and children who were less insecure, and thus more confident to rely on their own attitudes to make inferences about the classroom norm (Thijs & Verkuyten, 2016).

Despite their contributions, the earlier aforementioned studies (i.e., Aboud & Doyle, 1996 and Thijs & Verkuyten, 2016) are limited in a few respects. First, they relied on cross-sectional data, and were thus unfit to address the direction of the associations between the perceived norms or attitudes of others and children's own attitudes. Although their findings were interpreted in terms of social projection, some of them could also indicate the reverse process of social influence. For example, although it is highly improbable that less insecure children are more strongly affected by the perceived norms of their classmates, this is rather likely for well-accepted or popular children, as these children are more likely to identify with their classmates (Thijs & Verkuyten, 2013). Clearly, children's group norm perceptions can influence their own attitudes, even if their perceptions do not reflect the actual norms of their referent groups. Next, the aforementioned studies used the same type of measures to assess children's own attitudes and the perceived attitudes and norms of others. Doing so may have created shared method variance and thus led to inflated correlations and overestimations of the degree of social projection. Finally, the previous research did not address the combination of respondent group identities and target group identities. Although Thijs and Verkuyten (2016) compared ethnic minority to ethnic majority respondents, and although Aboud and Doyle (1996) investigated the projection of attitudes toward specific target groups, it is unclear whether the projection of group-specific attitudes depends on children's own group membership. Each of these limitations was addressed in the present study.

The present study

The present research builds on the earlier studies on children's social projection of ethnic attitudes on peers. Similar to Thijs and Verkuyten (2016), we measured children's perceptions of the descriptive ethnic classroom norms and predicted those perceptions from the actual descriptive norms in each classroom and children's individual deviations from these norms (their own attitudes minus the average attitude in their classroom). Additionally, like Aboud and Doyle (1996), we examined the projection of group-specific attitudes rather than group bias (the differential evaluation of different groups). However, we also went beyond these studies in three different ways.

First, we used cross-lagged panel modeling to unravel different directional paths: We tested whether children's unique ethnic attitudes (norm deviations) predicted their norm perceptions over time (social projection) but we also tested the reverse process whether these attitudes depended on their norm perceptions (social influence). Second, to prevent problems of shared method variance we used different types of measures for children's own attitudes and their perceptions of the descriptive classroom norms (i.e. trait evaluations versus smiley faces). Third, we examined the social projection of the attitudes of children *from* specific ethnic groups (respondent groups) *toward* specific ethnic groups (target groups). This allowed us to examine whether children have a general tendency to project their ethnic attitudes on their peers, or whether this depends on the minority versus majority positions of the ethnic groups involved. More specifically, we focused on the attitudes toward Turkish and Moroccan people and ethnic (or native) Dutch people, and we tested whether the social projection of these attitudes differed for children from these different groups.

Aboud and Doyle (1996) did not find different levels of projection for different target groups, but the projection of minority attitudes

might be more likely than the projection of majority attitudes, particularly among minority children. Prejudice is typically directed against minority groups, and especially majority children may be reluctant to discuss their minority group attitudes with their minority peers because they do not want to come across as prejudiced (Rutland et al., 2005). Consequently, minority children might lack clear knowledge about what their classmates think about minorities, and therefore be more likely to project their own minority group attitudes on their classmates to resolve this lack of clarity (Otten & Epstude, 2006; van Veelen et al., 2011).

We also explored the role of age by comparing 7–9-year-olds to 10–12-year-olds. If social projection in childhood is (partly) due to less advanced social perspective taking abilities, older children should be more able to correctly perceive the descriptive ethnic norms in their classroom (see Abrams, 2011; Sierksma, Thijs, Verkuyten, & Komter, 2014), and consequently less dependent on their own ethnic attitudes to predict these norms. Yet at the same time, almost all children have acquired theory of mind by middle childhood (Carlson et al., 2013), and therefore even 7-year-olds may be sufficiently able to assess what their peer groups thinks about different ethnic groups. Moreover, to the extent that social projection is the result of peer social belonging (Thijs & Verkuyten, 2016) it might be even stronger among older children for whom the peer group increases in relevance (Berndt, 1979; Mrug & Windle, 2009). Given these different possibilities we did not have a clear expectation for the moderating role of age. We did not have information on the socioeconomic status (SES) of the participant children, which is unfortunate as there tends to be a confound between ethnicity and SES (Thijs, 2017). Still, although Moroccan- and Turkish-Dutch children had lower SES compared to their native Dutch peers in the research by Thijs and Verkuyten (2016), SES was unrelated to the degree of social projection found in that study.

Method

Participants

Participants were 305 students (150 boys and 155 girls, $M_{age} = 9.97$ years, $SD = 0.99$) from 28 third-to sixth-grade classrooms in the Netherlands. After ethical approval by the institutional Ethics Review Board (project no. 2015-CDE-4482), we contacted approximately 600 regular elementary schools (10% of the total number of schools) located in urban and rural areas across the Netherlands. Of these schools, 17 agreed to take part in this study. Non-participation was mainly due to schools' already full agendas.

Originally, 514 students took part, but for the present study, we only selected those students whose ethnic background was either Dutch ($n = 221$), Turkish ($n = 31$) or Moroccan ($n = 53$). To be included, students had to identify themselves as ethnic Dutch and indicate that both of their parents had the Dutch ethnicity or had to self-identify as (partly) Turkish or Moroccan and to indicate that at least one of their parents had the same ethnic background. It is important to note, however, that we used the larger sample to calculate the individual norm deviation scores (see below). The ethnic classroom composition ranged from 0% to 100% Dutch students ($M = 69.0\%$, $SD = 38.7\%$). Based on teacher reports of parents' education and employment statistics for 4.2% to 40.7% of participating students, approximate socioeconomic status (SES) for each school could be calculated. In 88.9% of the families of students within participating schools, at least one parent was employed (range = 54.2%–100.0%). Additionally, teachers indicated 19% of the parents (range = 0.0%–25.0%) to have finished primary education, 58.2% (range = 25%–87.5%) senior vocational education, and 22.9% (range = 12.5%–66.7%) higher education. Based on these statistics, the SES of most schools could be considered as average to high.

Instruments

Students' perceived descriptive ethnic classroom norms

Students used the 'seven-faces' scale (Yee & Brown, 1992) to indicate how most of their classmates evaluated Dutch, Turkish, and Moroccan people. Students were asked to answer the question "How do you think most kids in your class feel about Dutch people (item 1), Turkish people (item 2), and Moroccan people (item 3)?" These three items were presented on a single page, and children could respond to them by choosing one of seven faces, ranging from a big smile (score of 7) to a big frown (score of 1). The seven-faces scale has been successfully used to examine group attitudes and perceived norms in late childhood (Sierksma, Thijs, & Verkuyten, 2014; Thijs & Verkuyten, 2012).

Actual classroom norms and individual norm deviations

To assess the actual classroom norms and children's individual norm deviations we first measured children's individual attitudes toward, respectively, Moroccan, Turkish, and Dutch children with three trait evaluation items per group (e.g., Brown & Bigler, 2002; Thijs, 2017). Participants estimated whether most of the children in each group were, "honest", "fun to play with", and "eager to help you". The response scale ranged from 1 (*NO, certainly not!*) to 5 (*YES, certainly!*). As with the perceived norms all evaluation measures were presented on a single page in each questionnaire. To assess the *actual classroom norms,* we first aggregated each of the group-specific evaluations (9 items in total) per classroom by calculating the mean score on each item across all students who were present at both occasions. Next, we calculated the average of the three aggregated evaluations per group (for the Moroccan target group: $\alpha = 0.92$ at T1 and $\alpha = 0.93$ at T2; for the Turkish target group: $\alpha = 0.91$ and $\alpha = 0.92$; and for the Dutch target group children: $\alpha = 0.85$ and $\alpha = 0.97$). To create scores for children's *individual deviations* from the classroom norms, we first centered the individual item scores on the classroom means (using all students present at both occasions), and then separately averaged the centered scores for the evaluations per group (for the Moroccan target group: $\alpha = 0.80$ at T1 and $\alpha = 0.88$ at T2; for the Turkish target group: $\alpha = 0.81$ and $\alpha = 0.88$; and for the Dutch target group children: $\alpha = 0.73$ and $\alpha = 0.81$)[1] (see Gasser, Grütter, Torchetti, & Buholzer, 2017).

Procedure

Students and their classmates took part in a longitudinal study that involved two planned school visits held in the fall (T1) and spring roughly half a year later (T2). Prior to data collection, participating schools were asked to distribute information letters about the nature and purposes of the study to the parents of students in participating classrooms, and a form to refuse permission. This consent form could be returned to school. At the start of data collection, all parents voluntarily gave their consent to their child's participation in this study. At both time points, students completed questionnaires on their perceived classroom norms, individual attitudes, and background characteristics (gender, age, ethnic self-identification) in their classrooms during school hours, under the supervision of a test assistant. At T2, students' response rate was 96.4%. Nonparticipation was due to absence or sickness during data collection.

Data analysis

To investigate the longitudinal associations among students' individual norm deviations (INDs), their descriptive classroom norm perceptions (CNPs), and actual classroom norms (ACNs), we conducted cross-lagged panel modeling using M*plus* 7.11 (Muthén & Muthén, 1998-2012). This technique enabled us to specify covariances among the predictors in our models and to include multiple outcome variables (Kline, 2011). As such, we could estimate within-time and across-time associations between the INDs, CNPs, and ACNs in one model, and specify autoregressive paths between time-adjacent measures of each construct (Little, 2013).

The dependency among the sampled observations (students) within clusters (classrooms) was taken into account by employing the complex analysis option in M*plus*. This feature handles the nested data structure by adjusting both chi-squares and standard errors of the estimated coefficients (Muthén & Muthén, 1998-2012). In this study, the agreement among of children within the same classroom, or intraclass correlations (ICC) for students' INDs and ACNs ranged between 0.00 and 0.03. Notably though, the ICCs for their CNPs were far more substantial, ranging between 0.15 and 0.36. Although we were not particularly interested in similarities across classrooms in this study, these relatively high ICCs seem to indicate that there was moderate agreement among students' norm perceptions across classrooms. Missing data ($< 5\%$) were handled using full information maximum likelihood.

The IND-scores for the Turkish and Moroccan target groups were strongly related among the native Dutch majority respondents ($r = 0.65$ at T1 and $r = 0.70$ at T2, $p < .001$), suggesting that these 'typical minority groups' were rather interchangeable from the Dutch majority perspective (see Thijs, 2017). The same held for majority children's perceptions of the norms toward those groups ($r = 0.66$ at T1 and $r = 0.70$ at T2, $p < .001$). However, to keep the analyses comparable for all respondent groups, we did not average the minority group evaluations for the native Dutch respondents but instead only included two target groups in our analyses: the Dutch ethnic majority group and an ethnic minority group, which randomly involved one of the two minority groups (Turks or Moroccans) for the Dutch respondents and the ethnic in-group for the Turkish and Moroccan respondents.[2] In the rest of our paper, we refer to these two target groups rather than the original three.

To examine the direction of associations between students' IND, CNP, and ACN with respect to the Dutch group and the ethnic minority group (as defined above), we fitted a series of cross-lagged panel models to the data. Using a model building approach (Kline, 2011), we first tested a stability model to the full sample, which only included autoregressive paths, and subsequently added covariates and cross-lagged associations among students' IND, ACN, and CNP. Given the relatively small sample size, we run separate analyses for each of the two groups.

Next, we examined whether the associations among the study's main constructs differed across Dutch majority and non-Dutch minority students, and across age (7–9-year-olds versus 10–12-year-olds). We started with a baseline model, in which all parameters were freely estimated across groups. Next, we fitted a fully constrained model, in which all parameters were fixed to be equal across groups, and subsequently freed the cross-lagged and autoregressive paths for these groups one by one. Technically, moderation exists when the difference in chi-square between the constrained and unconstrained models is statistically significant.

The overall goodness-of-fit of the models was evaluated by the mean-adjusted χ^2 test, with non-significant chi-squares indicating satisfactory fit. The model's approximate fit was determined using the root mean square of approximation (RMSEA), with values below 0.05 reflecting close fit, and below 0.08 signifying reasonable fit (Brown, 2017), and the Comparative Fit Index (CFI), with values ≥ 0.90 indicating satisfactory fit, and values ≥ 0.95 indicating close fit (Bentler, 1992). To evaluate component fit, we used the model's modification indices, residual correlations, and their associated summary statistic SRMR (standardized root mean square residual). Values ≤ 0.08 indicate good model fit (Kline, 2011). Last, we tested differences in model fit with the Satorra–Bentler scaled chi-square difference test (TRd; Satorra, 2000; Satorra & Bentler, 2010), with nonsignificant chi-squares indicating equivalent fit, and the CFI-difference, with CFI changes ≥ 0.02 being indicative of model non-equivalence (Cheung & Rensvold, 2002).

Table 1
Means, standard deviations, and zero-order correlations.

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
Actual classroom norms																
1. ACN Majority Group W1	1.00															
2. ACN Majority Group W2	0.73**	1.00														
3. ACN Minority Group W1	−0.14*	−0.30**	1.00													
4. ACN Minority Group W2	−0.27**	−0.20**	0.73**	1.00												
Individual norm deviation																
5. IND Majority Group W1	−0.01	−0.03	−0.03	0.01	1.00											
6. IND Majority Group W2	−0.04	0.03	−0.09	−0.04	0.46**	1.00										
7. IND Minority Group W1	−0.05	−0.06	0.03	−0.01	0.25**	0.15*	1.00									
8. IND Minority Group W2	−0.08	−0.07	−0.05	−0.04	0.05	0.18**	0.62**	1.00								
Classroom norm perceptions																
9. CNP Majority Group W1	0.33**	0.24**	−0.05	−0.06	0.26**	0.17**	−0.06	−0.06	1.00							
10. CNP Majority Group W2	0.42**	0.55**	−0.28**	−0.24**	0.14*	0.32**	−0.06	−0.06	0.32**	1.00						
11. CNP Minority Group W1	−0.31**	−0.28**	0.29**	0.29**	0.02	−0.02	0.44**	0.36**	−0.03	−0.27**	1.00					
12. CNP Minority Group W2	−0.30**	−0.29**	0.27**	0.26**	0.03	−0.01	0.43**	0.51**	−0.12*	−0.18**	0.52**	1.00				
Background characteristics																
13. Gender	0.12*	0.14*	−0.01	0.01	0.01	−0.00	0.04	0.06	0.05	0.15**	−0.01	−0.06	1.00			
14. Age	0.06	0.13*	0.14*	0.15**	−0.05	−0.01	−0.05	−0.07	0.04	0.07	−0.09	0.00	0.17**	1.00		
15. Ethnicity	−0.67**	−0.56**	0.21**	0.31**	−0.10	−0.05	0.19**	0.21**	−0.34**	−0.47**	0.43**	0.42**	−0.08	−0.14*	1.00	
16. Classroom Composition	−0.81**	−0.68**	0.21**	0.34**	−0.03	−0.02	0.04	0.08	−0.39**	−0.49**	0.39**	0.37**	−0.10	−0.13*	0.82**	1.00
Descriptive statistics																
Mean	4.12	4.03	3.56	3.65	0.04	0.05	0.08	0.12	6.21	6.07	5.15	5.19	–	9.97	–	0.28
Standard Deviation	0.28	0.45	0.34	0.33	0.65	0.69	0.83	0.88	1.20	1.42	1.61	1.70	–	0.99	–	0.37

Note. ACN = Actual classroom norm; CNP = descriptive classroom norm perception; IND = individual norm deviation. Gender: 0 = boys. 1 = girls; Ethnicity: 0 = Dutch. 1 = non-Dutch. Classroom composition = % of final participants in each classroom with a non-Dutch background.

* $p < .05$.
** $p < .01$.

Results

Descriptive statistics

Prior to main analysis, we inspected the means, standard deviations, and zero-order correlations of the study's main constructs (see Table 1). The stability in students' INDs, CNPs, and ACNs was weak to moderate, with correlations between time-adjacent variables ranging from 0.32 to 0.73 across the measures for the majority and minority target groups. Notably, all constructs were most stable for the minority target group. Additionally, the CNPs for the majority target group were positively associated with the INDs and ACNs for that group. Similar, but again somewhat stronger patterns of association were found for the minority target group. Of the background characteristics, both ethnicity and classroom composition (the percentage of native Dutch students) were significantly associated with students' ACNs and CNPs, and, to a lesser extent, their INDs. Moreover, both variables were strongly related to each other indicating considerable ethnic segregation across classrooms.

The means of students' CNPs (see Table 1) were significantly higher for the majority target group than for the minority target group, both at T1 (t(298) = 8.96, $p < .001$) and T2 (t(298) = 6.31, $p < .001$). Similarly, students' ACNs were significantly higher for the majority target group than for the minority target group at both time points (t(304) = 20.90, $p < .001$ and t(304) = 11.09, $p < .001$, respectively). Students' INDs did not differ significantly for the two target groups.

Longitudinal associations among Students' INDS, CNPs, and ACNs

Majority target group

We first fitted a stability model to the full sample, which only included the autoregressive paths and within-time correlations among students' IND, CNP, and ACN for the majority target group (cf. Kline, 2011; Little, 2013). This model had a poor fit to the data, χ^2(6) = 41.78 $p < .001$, RMSEA = 0.140 (90% CI [0.102–0.181]), CFI = 0.856, SRMR = 0.145. To improve the model's fit, we successively added statistically significant covariates and cross-lagged paths to the model. Only the moderate positive path from majority students' ACN to their CNP ($\beta = 0.37$. $p < .001$) reached the significance threshold. Adding this path resulted in a better fitting model, χ^2(5) = 5.69, $p = .337$, RMSEA = 0.021 (90% CI [0.000–0.085]), CFI = 0.997, SRMR = 0.026. Of note, inclusion of Classroom Composition and Ethnicity, though statistically significant, deteriorated the model's overall fit significantly. This decrement in fit might possibly be due to multicollinearity among the predictors and covariates in the model. Importantly, however, adding the background factors did not change the magnitude and direction of the paths in this model[3]. Therefore, the model with the cross-lagged path from students' ACN to their CNP was chosen as the final model. Overall, this model accounted for 19% of the variance in the majority group's IND, 21% of the variance in their CNP, and 54% in their ACN. The final model is displayed in Fig. 1.

Next, we explored whether the stability coefficients and cross-lagged paths between the majority-group-related variables varied across, respectively, Dutch and non-Dutch students, and younger versus older children (7–9-years-olds versus 10–12-year-olds). To this end, we
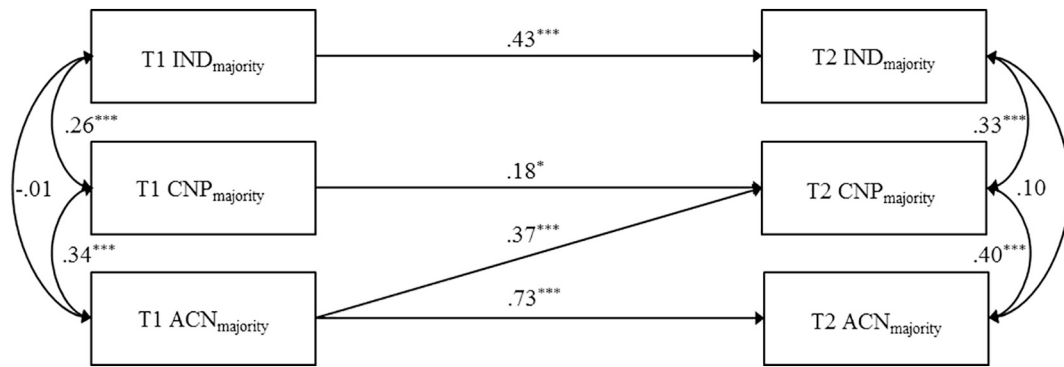
Fig. 1. Cross-lagged path model of students' IND, CNP, and ACN for the Dutch target group.

first compared the (saturated) baseline models, in which all parameters were freely estimated, with the fully constrained models, in which all parameters were fixed to be equal across groups. Subsequently, we freed the parameters one by one to test for potential moderation effects.

Ethnicity

Improvement of fit in the model for Ethnicity was first established by freeing the stability path of students' ACN, TRd(1) = 6.52, $p < .01$, ΔCFI = 0.074. Students' ACN appeared to be more stable in the Non-Dutch Group than in the native Dutch Group ($\beta_{Dutch} = 0.53$, $p < .001$; $\beta_{Non-Dutch} = 0.64$, $p < .001$). Next, the path from students' IND at T1 to their ACN at T2, TRd(1) = 24.34, $p < .001$, ΔCFI = 0.015, and from their CNP at T1 to their ACN at T2, TRd(1) = 6.29, $p < .01$, ΔCFI = 0.012, significantly improved the model's fit. Students' IND negatively and longitudinally predicted their ACN but only in the Non-Dutch Group ($\beta_{Dutch} = 0.01$, *ns*; $\beta_{Non-Dutch} = -0.10$, $p < .05$). Cross-lagged associations between CNP and ACN did not reach the significance threshold ($\beta_{Dutch} = 0.12$, *ns*; $\beta_{Non-Dutch} = -0.06$, *ns*). Last, the within-time association between students' IND and ACN at T1 appeared to vary across Ethnicity, TRd(1) = 18.57, $p < .001$, ΔCFI = 0.008, indicating that this association was only statistically significant in the Dutch Group ($\beta_{Dutch} = -0.15$, $p < .05$; $\beta_{Non-Dutch} = -0.08$, *ns*). Fit statistics for the baseline, fully constrained, and partially constrained models are displayed in Table 2.

Age

The fully constrained model had an extremely poor fit to the data (see Table 2). Therefore, we successively freed the individual parameters across the two age groups (group 1 = 7–9 years old; group

2 = 10–12 years old). Statistically significant improvement of fit was established by freeing the stability paths of students' ACN, TRd (1) = 6.66, $p < .01$, ΔCFI = 0.339. Students' ACN were more stable for 7–9-year-olds than for 10–12-year-olds ($\beta_{younger} = 0.85$, $p < .001$; $\beta_{older} = 0.59$, $p < .001$). Additionally, the cross-lagged path from students' ACN to their IND differed significantly across the two age groups, TRd(1) = 7.95 $p < .01$, ΔCFI = 0.028, but it was not significant in both cases ($\beta_{younger} = -0.17$; $\beta_{older} = 0.03$). Last, the within-time association between CNP and ACN at T1 differed across age, TRd (1) = 61.72 $p < .001$, ΔCFI = 0.075, with stronger positive associations for younger students than for older students ($\beta_{younger} = 0.48$, $p < .01$; $\beta_{older} = 0.35$, $p < .001$). Fit statistics for the baseline, fully constrained, and partially constrained models are displayed in Table 2.

Minority target group

The stability model for the minority target group did not fit the data well, $\chi^2(6) = 71.23$, $p < .001$, RMSEA = 0.189 (90% CI [0.151–0.229]), CFI = 0.755, SRMR = 0.072. Improvement of model fit was reached by successively adding cross-lagged paths from students' ACN to their IND ($\beta = -0.11$, $p < .01$) and CNP ($\beta = 0.15$, $p < .05$), from students' IND to their CNP ($\beta = 0.27$. $p < .001$) and ACN ($\beta = -0.09$, $p < .01$), and from students' CNP to their IND ($\beta = 0.13$. $p < .05$) and ACN ($\beta = 0.12$. $p < .05$). This final, saturated model had a perfect fit to the data (see Fig. 2) and accounted for 40% of the variance in the minority group's IND, 34% of the variance in their CNP, and 54% in their ACN. Again, none of the background factors improved the model's fit, or changed the magnitude and direction of the paths in this model[3].

Next, we evaluated potential differences in the stability coefficients

Table 2
Summary fit statistics for the multigroup analyses.

Model	χ^2 (df)	CFI	RMSEA (90% CI)	SRMR	TRd (df)	Δ CFI
Models Majority Group						
Baseline Model Ethnicity	0.00	0.00	0.00	0.00	–	–
Fully Constrained Model Ethnicity	32.00 (12)**	0.891	0.105 (0.061–0.149)	0.168	32.00 (12)***	0.891
Partially Constrained Model Ethnicity	3.45 (8)	1.00	0.000 (0.000–0.040)	0.034	32.83 (4)***	0.109
Baseline Model Age	0.00	0.00	0.00	0.00	–	–
Fully Constrained Model Age	119.44 (12)***	0.596	0.243 (0.205–0.284)	0.333	119.44 (12)***	0.596
Partially Constrained Model Age	15.68 (9)	0.975	0.070 (0.000–0.126)	0.040	30.49 (3)***	0.379
Models Minority Group						
Baseline Model Ethnicity	0.00	0.00	0.00	0.00	–	–
Fully Constrained Model Ethnicity	18.03 (12)	0.977	0.057 (0.000–0.109)	0.189	18.03 (12)	0.189
Partially Constrained Model Ethnicity	–	–	–	–	–	–
Baseline Model Age	0.00	0.00	0.00	0.00	–	–
Fully Constrained Model Age	19.68 (12)	0.974	0.065 (0.000–0.115)	0.119	19.68 (12)	0.974
Partially Constrained Model Age	–	–	–	–	–	–

Note. TRd = Satorra-Bentler corrected chi-square difference test; df = degrees of freedom.
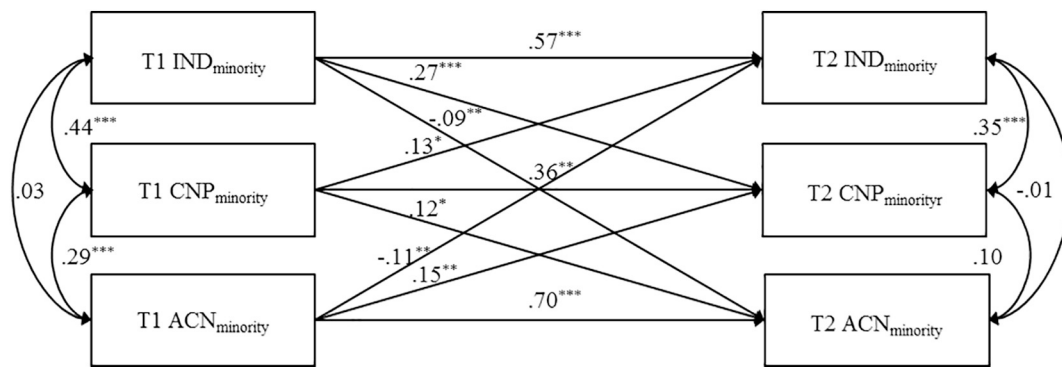
** $p < .01$.

*** $p < .001$.

Fig. 2. Cross-lagged path model of students' IND, CNP, and ACN for the minority target group.

and cross-lagged paths across Dutch and non-Dutch students and across grade level by comparing the fit of baseline, fully constrained, and partially constrained models, respectively. Differences in model fit are displayed in Table 2.

Ethnicity

Comparison of the baseline model's fit indices with those of the fully constrained model suggested that there were no statistically significant differences among the model's parameters across Dutch and Non-Dutch students.

Age

The fully constrained model had a reasonable fit to the data (see Table 2) and approximated the fit of the baseline model (see Table 2). We can therefore conclude that students' age did not act as a moderator in the associations among the ACN, IND, and CNP for the minority target group.

Discussion

Although the impact of third variables in longitudinal designs can never be ruled out, this study is the first to provide longitudinal support for the idea that children's perceptions of the descriptive ethnic norms in their classroom can be the product of social projection. We showed that children's descriptive norm perceptions were relatively unstable over a half-year period, and that their ethnic minority group attitudes in the fall uniquely predicted their perceptions of the descriptive classroom norm about the minority group in the spring. It is crucial to note that this result was obtained for children's unique attitudes, that is to say their attitudes not shared with their classmates. Consequently, we can rule out an important alternative interpretation: In addition to social projection, any effect of children's individual attitudes on their group norm perceptions could partly reflect an accurate perception of the actual group norms. The reason for this is that children are members of their peer group, and as such contribute to its shared norms. However, in our study we made the distinction between the actual norms in each classroom (average or shared attitudes) and children's individual deviations from these norms (non-shared), and in doing so we could distinguish effects of, respectively, perceptual accuracy and social projection (see Thijs & Verkuyten, 2016). Children's perceptions of the shared descriptive classroom norms toward both the majority and the minority target group were partly accurate as they could be predicted from the actual norms in the classroom. And this suggests that children are able to make the distinction between the shared group perspective and their own unique attitudes, which is consistent with research from the Social Reasoning Developmental approach (see Rutland & Killen, 2017). Yet at the same time, there was also important additional individual variation in children's perceptions of the classroom norms. Thus, children (partly) 'disagreed' about these norms, and in the case of the minority target group social projection appeared to be

the source of this disagreement. We also found a reversed effect of children's perceptions of the classroom norm about the minority group on their unique attitudes toward that group half a year later. However, this effect was smaller than its opposite, which supports the unidirectional interpretations made in the previous cross-sectional projection studies (Aboud & Doyle, 1996; Thijs & Verkuyten, 2016).

Although we did not measure children's cognitive abilities, it seems safe to conclude that our social projection findings are not due to age-related cognitive limitations. We did find some age differences (to be discussed below) but the degree to which children projected their minority attitudes on the classroom peer group was similar for our younger and older participants. Moreover, we did not find evidence for the social projection of majority group attitudes. Apparently, our participants were relatively accurate in their perception of the descriptive norm about the majority group and able to separate their own unique perspective from that of the peer group (see Rutland & Killen, 2017). Taken together, these findings indicate that children do not indiscriminately base their norm perceptions on their own unique attitudes, and thus, that their projection of minority group attitudes cannot be explained in terms of egocentrism or the inability to take the perspective of others (cf., Wetzel & Walton, 1985).

Instead, it is more likely that children were uncertain about the descriptive classroom norm about the minority group, and that they relied on social projection as a heuristic to estimate this norm. In the Netherlands, there is much debate about the positions of ethnic minorities versus that of the ethnic majority group, and both minority and majority children in this country are clearly aware of status differences between ethnic groups (Thijs, 2017; Verkuyten, 2014). Children might not refrain from openly stating their opinions about a majority group which has a secure and high-status position. Hence, there might have been little uncertainty regarding the classroom norm about Dutch children, and no need for social projection to resolve this uncertainty (see Otten & Epstude, 2006; van Veelen et al., 2011). By contrast, children (especially majority ones) may be hesitant to express what they really think about ethnic minority groups because they do not want to come across as prejudiced (see Rutland et al., 2005). Hence, in the case of the Turkish and Moroccan target groups, there may have been uncertainty about the classroom norm, and thus a need for social projection. Our hypothesis was that this uncertainty would be larger for ethnic minority as compared to ethnic majority children, as their classmates would be least likely to discuss minority group attitudes with them. Yet there were no ethnic group differences in the degree of social projection. A possible explanation for this absence is that, although other children may be motivated to hide their minority attitudes from them, ethnic minority children are also more likely to experience ethnic peer discrimination (Brown, 2017). These experiences clearly indicate what peers think about minority groups, and thus provide more rather than less clarity about the norm. Clearly, future research is needed to further test these interpretations.

Our finding that children used their own attitudes to make

inferences about the classroom norm about the minority group has interpretational consequences for studies that rely on children's subjective perceptions to examine the normative influence of their peer groups (e.g., Jugert et al., 2011; Palmer, Rutland, & Cameron, 2015; Sierksma, Thijs, & Verkuyten, 2014) and perhaps even for research that seeks to manipulate children's norm perceptions (see McGuire et al., 2017). What seems to be a normative influence in such studies might (partly) be a perpetuation and strengthening of children's prior attitudes and beliefs via social projection. And this means that researchers who want to study the impact of actual peer group norms should not exclusively rely on subjective perceptions and that experimental research on the effect of group norms should always include manipulation checks. Yet it is important to note that the possibility of social projection is not necessarily a pessimistic one: It allows children to maintain their ethnic biases, but it also allows them to remain unprejudiced in a prejudiced environment. And this, in turn, could have important implications for practical interventions to improve children's interethnic relations. Several school-based interventions have been proposed for this (e.g., Beelmann & Heinemann, 2014; Turner & Brown, 2008) but to our knowledge the notion of social projection is not considered in them. However, one implication of the present findings is that, in seeking to improve the minority attitudes of their majority students, teachers should first take stock of children's individual ethnic attitudes before addressing the classroom as a whole. Next, they could selectively target those majority children who are more prejudiced than their classmates, and make them aware of what their peers actually think and believe.

Although they were not the focus of our study, our results yielded a few additional findings worthy of discussion. First, at both time points, there were considerable relations between the ethnicity of the target and respondent groups on the one hand, and the perceived and actual norms on the other hand. Turkish and Moroccan children perceived a more positive norm about their ethnic group but also attended classes where the actual norm about their group was relatively positive – which was probably due to the higher proportion of co-ethnic students in these classes. Conversely, Dutch children were in classes with a more positive norm about the Dutch majority group and also perceived this. These findings indicate that children were positively inclined toward their in-group, which is typically found in intergroup research and consistent with Social Identity Theory (Tajfel & Turner, 1979).

Second, in the fall, the cross-sectional relation between the perceived and the actual norm about the majority group was larger for the younger versus the older participants. This suggests that the former perceived the norm more rather than less accurately, and further supports our interpretation that age-related cognitive limitations did not play a role in the present results.

Next, we found that the actual classroom norms about the majority group were more stable among the 7-to-9-year-olds as compared to the 10-to-12-year-olds. This might have to do with the high and secure status position in of the Dutch majority in Dutch society. Younger children may take this position for granted, but older children might put it into question and thereby create more opportunities for the classroom norm to change (see Thijs, 2017).

Fourth, in the case of the minority target group, the perceived norm in the fall had a unique, positive effect on the actual classroom norm in the spring. This finding indicates that children's subjective norm perceptions can alter the aggregated attitudes of the peer group, and – because these perceptions are based on children's own attitudes – it also suggests that social projection might ultimately play a role in the formation of actual norms. Future research could examine this interesting possibility by including more than two time-points. Such research could also investigate whether some children (for example, secure or accepted children; see Thijs & Verkuyten, 2016) are more likely to influence the norms than others. Additionally, there were a number of negative effects that are difficult to interpret. Children's unique attitudes about the minority group in the fall had a negative impact on the actual norm about this group in the spring indicating that the actual classroom norm

about Turkish and/or Moroccan children became more (or less) positive over time if individual students were less (or more) positive about these children compared to their classmates. There was a comparable negative cross-lagged effect for the majority group attitudes of minority children. Thus, when individual Turkish and Moroccan students were relatively positive about Dutch children, the actual classroom norm about this group became less positive over time. Additionally, we found that the actual norm about the minority group had a negative cross-lagged effect on children's unique attitudes toward that group indicating that individual children became less positive compared to their classmates if the actual norm became more positive. More research is needed to clarify these complex relations.

In addition to studying the interrelations between individual attitudes and actual group norms, future studies could also examine the consequences of attitude projection. As social projection increases the overlap between the self and the group, it can strengthen the identification with the in-group (van Veelen et al., 2011). Thus, it would be interesting to examine whether children who project their attitudes on their classmates also have a stronger sense of classroom or school belonging. Additionally, experimental research has shown that the effect of social projection, or self-anchoring, is particularly strong for minorities in diverse groups. For minorities it is often more difficult to identify with such groups, because unlike majorities, they are no prototypical members of them. However, social projection is one way to increase their sense of group belonging (Veelen, Otten, & Hansen, 2013). Although ethnic minority children do not always constitute the numerical minority in their school environments, similar effects might be expected for them. Most schools are institutions of the majority culture (Vedder & Horenczyk, 2006), and the social projection of attitudes on their classmate peers might help minority students to feel at home there.

Our study has a number of strong features, including a longitudinal design and different measures for attitudes and perceived norms to prevent shared method variance. Still, there are some limitations and qualifications to consider. One limitation pertains to the issue of causality. Specifically, causality requires not only that variables are significantly related across time, but also that other potential sources of influence are accounted for. Although we did take gender and age difference into account, there may be other variables that might have influenced the results, and therefore we cannot make any causality claims. Still, our social projection findings pertained to the within-classroom level, which means that rival explanations involving contextual classroom factors cannot account for them. Moreover, from a theoretical perspective, it is difficult to come up with third variables, that is to say variables that could explain the link between children's own attitudes and norms perceptions. Clearly, children can be exposed to the same kinds of influences as their classmates, both inside (e.g. teacher norms) and outside their classrooms (e.g. media exposure). It is very hard to envisage, however, how these influences could affect both children's attitudes and their peer norm perceptions independently. Suppose, for example, that children perceive a strong multicultural norm in their teacher, have positive attitudes toward minority children themselves, and assume that their classmates have such positive attitudes as well. In that case, children might base their assumption about the classroom norm on the perceived norm of their teacher, but the most likely explanation for this would be that those perceived attitudes would have a positive effect on children's *own* attitudes. Thus, there would be mediation rather than a third-variable problem. Indeed, the earlier cross-sectional research by Thijs and Verkuyten (2016, Study 2) found that children's peer norm perceptions were unrelated to the perceived multicultural norm of their teacher, and thus that this norm could not explain away the impact of children's own attitudes. Of course, it is possible that children might not be affected by the perceived norm of their teacher and still conclude that their classmates are, but in that case, there would be no social projection, and no need to control for the teacher norm.

Next and related to this, there was still unexplained variance in our models, which suggests that there are other factors that could potentially affect children's ethnic peer norm perceptions in addition to their own ethnic attitudes (social projection) or the ethnic actual norms of their peer group. Identifying such factors is an important task for future research. More specifically, peer researchers have provided ample evidence for the so-called pluralistic ignorance effect (see Prinstein & Dodge, 2008), which is the tendency to be influenced by misperceived norms that go against one's own (initial) attitudes or preferences (Prentice & Miller, 1996). Although pluralistic ignorance has been mainly examined in relation to youths' problem or risk behaviors (see Prinstein & Dodge, 2008), it could play an important role in children's intergroup relations by promoting or sustaining discriminatory behaviors (see Aboud & Doyle, 1996).

Third, our study focused on the norms of the classroom peer group. Although classmates are an important normative reference group for preadolescent children (Thijs & Verkuyten, 2013), future research could examine the social projection of ethnic attitudes in other and smaller groups such a as friendship cliques inside or outside of the classroom, and also examine the projection of attitudes on influential persons within the peer group network (norm setters). To the extent that friendships are characterized by personal disclosure, it could be expected that children are more aware of their friends' attitudes, and this would diminish the need to project their own attitudes on their friends. Still, the communication of ethnic attitudes is not self-evident and, as Aboud and Doyle (1996, Study 2) showed, even best friends can misperceive each other's attitudes.

Finally, analytic techniques such as cross-lagged panel analysis are bound by several specific assumptions, including stationarity and equilibrium. Yet, as we included only two time-points, we cannot be sure whether the measured variables were invariant over time and whether the associations found were unchanging in terms of their (co) variances (Hamaker, Kuiper, & Grasman, 2015; Little, 2013). Therefore, future studies in which at least three time-points are used could further advance the understanding of the present study's results. These future studies should also include more students from different ethnicities: Unfortunately, we could not compare children of Turkish versus Moroccan descent, because the sizes of these groups were too small for this. Still, there could be important differences in social projection tendencies between specific ethnic minority respondents.

Despite its limitations, we think this study makes a unique contribution to the literature. We have shown that children's perceptions of minority peer norms can be predicted from their own unique minority attitudes, and this has important implications for studies that rely on subjective norm perceptions to examine peer influence. We hope that our study inspires other researchers, both inside and outside the field of intergroup relations, to consider the possibility of social projection in their work.

Notes

1. Analyses of the non-centered individual scores averaged across both waves indicated that the group attitudes of all respondents were relatively positive ($M > 3.0$). Whereas Dutch children were more favorable toward their own group ($M = 4.28$, $SD = 0.53$) versus Moroccan ($M = 3.50$, $SD = 0.81$) and Turkish ($M = 3.53$, $SD = 0.80$) children, the minority children made little evaluative distinctions between the target groups ($M_{Moroccan} = 3.78$, $SD_{Moroccan} = 0.85$; $M_{Turkish} = 3.99$, $SD_{Turkish} = 0.79$; $M_{Dutch} = 3.73$, $SD_{Dutch} = 0.75$).
2. This randomization was accomplished by generating a binomial distribution with a probability value of 0.5 in SPPS. Moreover, as a validity check, we conducted additional analyses in which we included the Dutch ethnic majority group and an ethnic minority group that involved the Turkish group for Moroccan respondents, and the Moroccan group for the Turkish group, respectively. Results

are very similar to the ones reported in the text and available on request.
3. To account for variation in classroom composition, we also conducted a multigroup analysis to examine whether the associations among the study's main constructs differed across classrooms with less minority than majority final participants and classrooms with more minority than majority final participants. Regarding the majority target group, students' ACN was less stable in classrooms with a smaller percentage of minority final participants ($\beta = 0.38$, $p < .05$) than in classrooms with a larger percentage of minority final participants ($\beta = 0.65$, $p < .001$). Regarding the minority target group, we found that students' CNP at T1 negatively and longitudinally predicted their ACN at T2, but only in classroom with $\geq 50\%$ minority final participants ($\beta_{low} = 0.06$, *ns*; $\beta_{high} = -0.18$, $p < .01$). The within-time association between students' IND and CNP at T1 also depended on classroom composition. It was stronger in classrooms where the proportion of minority final participants was lower ($\beta = 0.51$, $p < .001$) versus higher ($\beta = 0.29$, $p < .001$).

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