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Original Article

Can Interethnic Friends Buffer for the Prejudice Increasing Effect of Negative Interethnic Contact? A Longitudinal Study of Adolescents in the Netherlands

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Abstract

This study examined interethnic prejudice among 4,238 secondary school pupils in the Netherlands. It builds upon previous research in two ways. First, it advances our understanding of the interplay between positive and negative intergroup contact experiences by testing whether positive intergroup contact serves as a buffer for the prejudice-enhancing effect of negative intergroup contact, as well as the other way around. Secondly, by using longitudinal data, it provides a stricter test of the relationship between negative contact and prejudice among adolescents. Hybrid models with two-wave panel data showed that the transition from having no friends from an ethnic outgroup to having a share of friends from an ethnic outgroup results in lower interethnic prejudice, both for Dutch majority and minority group pupils. Furthermore, we found the transition from having no foes to having one or more foes from an ethnic outgroup to be associated with higher levels of prejudice. We did not find evidence for buffering effects of intergroup contact.

Introduction

Interethnic prejudice has been widely studied using hypotheses derived from intergroup contact theory (Allport, 1954). The core proposition of the theory is that, under favourable conditions, intergroup contact reduces prejudice and empirical research generally confirms this claim (Brown and Hewstone, 2005; Pettigrew and Tropp, 2006; Paolini, Hewstone and Cairns, 2007). However, in a review of the intergroup contact literature, Pettigrew (2008) concludes that there is only scant attention for negative forms of intergroup contact. Only recently, the effects of negative intergroup contact have been studied empirically, and findings suggest that negative intergroup contact increases prejudice and xenophobia (Pettigrew, 2008; Schmid *et al.*, 2008; Dhont and Van Hiel, 2009; Bekhuis, Ruiter and Coenders, 2011; Barlow *et al.*, 2012; Graf, Paolini and Rubin, 2014; Aberson, 2015; Techakesari *et al.*, 2015).[1]

With regard to the formation of prejudice, research has found that early adolescence is a crucial period in the development of interethnic attitudes. Research shows that the socialization of individuals when they are young has a substantial impact on attitudes in later life (Markus, 1979; Sears, 1981; Krosnick and Alwin, 1989;

Alwin and Krosnick, 1991; Osborne, Sears and Valentino, 2011; Wölfer *et al.*, 2016). The current study adds to the literature by studying the effect of positive and negative intergroup contact on prejudice during this crucial developmental stage. Within the literature on the effects of negative intergroup contact on prejudice, only few studies focus on youngsters (Bekhuis *et al.*, 2011; Wölfer *et al.*, 2016). We aim to extend the existing literature by investigating how the interplay of positive and negative interethnic contact influences interethnic attitudes. To exemplify, when a youngster has some negative experiences with a member of an ethnic outgroup, this is expected to increase prejudice towards the ethnic group the foe belongs to. However, if she also has friends who belong to the same ethnic outgroup, will the negative contact experiences increase prejudice to the same extent? Put differently, can the effects of negative intergroup contact be 'buffered' by positive intergroup contact experiences? And vice versa, can the effects of positive intergroup contact be hindered by negative intergroup contact experiences? By analysing the interplay of negative and positive intergroup contact, this study contributes to the better understanding of the formation of prejudice. A second question we address concerns the difference between majority and minority adolescents in the effects of both positive and negative interethnic contact and their interplay on prejudice. Most studies on interethnic contact in Europe have focused on the effects of contact for the native majority. Although there are some important exceptions (Feddes, Noack and Rutland, 2009; Vezzali, Giovanni and Capozza, 2012), results remain inconclusive.

To answer these questions, we make use of data from two Dutch waves of the Children of Immigrants Longitudinal Survey in Four European Countries (CILS4EU) project (Kalter *et al.*, 2016a, 2016b). When it comes to (negative) intergroup contact, previous research predominantly used cross-sectional data. These studies thus looked at differences in contact and prejudice between people at a single time point. Using longitudinal data, we study variation in interethnic contact and prejudice within people over time, allowing us to control for time-invariant unobserved heterogeneity.

Theory

Interethnic contact can be both positive and negative. Contact experiences within secondary school have a socializing impact on the way pupils from different groups view each other (Alwin and Krosnick, 1991). With regard to intergroup attitudes, prejudice and antagonism, the effects of positive and negative contact experiences are opposite: whereas positive contact generally reduces prejudice, negative intergroup contact is expected to increase prejudice. Moreover, be it in opposite directions, the effects of positive and negative intergroup contact have been argued to largely operate via the same mechanisms. The integrated threat theory of Stephan and Stephan (2000) stipulates three factors that explain how prejudice is formed: feelings of symbolic and realistic threat, intergroup anxiety, and stereotyping.

Integrated threat theory differentiates between realistic and symbolic threats. In the case of adolescents, realistic threats could, for instance, be fighting, bullying, or competition over classroom status (Faris and Felmlee, 2011). Symbolic threats refer to *perceptions* of threat resulting from group differences in morals, values, standards, beliefs, and attitudes (Stephan and Stephan, 2000). For example, Stephan *et al.* (2002) examine interracial attitudes between Black and White university students and find that negative contact, such as being insulted, discriminated against, or physically harmed, relates to strong perceptions of threat. In turn, these perceptions of threat were related to negative attitudes towards the racial outgroup for both Blacks and Whites. Positive contact experiences, on the other hand, reduce the degree to which the outgroup is seen as a competitor.

A second explanation for the relation between intergroup contact and prejudice is intergroup anxiety (Stephan *et al.*, 2002; Paolini *et al.*, 2004; Techakesari *et al.*, 2015). Intergroup anxiety is rooted in the anticipation of negative consequences of intergroup contact, such as negative evaluations by the outgroup member(s), or negative behavioural consequences, such as physical conflict (Stephan and Stephan, 1985). Positive intergroup contact experiences are argued to falsify these anxious anticipations. The result is a cognitive learning effect in which information that challenges preconceived negative ideas about interacting with the outgroup decreases anticipation of negative results of intergroup contact, thereby reducing prejudice towards this outgroup (Pettigrew, 2008; Pettigrew and Tropp, 2008). Negative intergroup contact, on the other hand, confirms and strengthens the anticipation of negative consequences of intergroup contact. This in turn may lead to increased prejudice.

Lastly, intergroup contact may lead to the formation of stereotypes. Both negative and positive interpersonal attitudes, resulting from contact experiences, are found to be generalized towards the ethnic group the individual belongs to (Stark *et al.*, 2013). The tendency to generalize is stronger when group membership, that is, category salience, of the outgroup member is seen as

significant (Brown, Vivian and Hewstone, 1999). Previous research shows that negative intergroup contact increases category salience (Paolini, Harwood and Rubin, 2010; Paolini *et al.*, 2014). Consequently, generalization of, for example, feelings of anxiety and perceptions of threat, increases. Positive intergroup contact, on the other hand, can decrease category salience and increase perceived outgroup variability (Islam and Hewstone, 1993; Voci and Hewstone, 2003). As generalization decreases, stereotypes are challenged, thereby decreasing prejudice.

In sum, positive and negative intergroup contact is inversely related to prejudice. We therefore expect the following:

H1:The transition from having no interethnic friends to having interethnic friends is associated with a decrease in prejudice towards the ethnic groups these friends belong to.

H2:The transition from having no interethnic foes to having interethnic foes is associated with an increase in prejudice towards the ethnic groups these foes belong to.

While there is ample research on the effects of positive and negative intergroup contact, there exists only a small but growing body of research that explicitly focusses on how the effects of positive and negative intergroup contact interact. Although findings are inconclusive, it seems likely that there is a buffering effect of positive interethnic contact (Paolini *et al.*, 2014). By buffering, we mean that positive interethnic contacts attenuate the detrimental effects of negative contact on prejudice.

When contact with an outgroup member is a new experience, or contradicts previously held beliefs about the outgroup, the perception of the outgroup becomes more heterogeneous. For example, when someone is anxious to have contact with members of a particular outgroup, a friendly encounter may challenge these anxious beliefs. As a consequence of this encounter, the individual may adopt a more nuanced view of the outgroup (Pettigrew, 2008; Pettigrew and Tropp, 2008). Furthermore, as the salience of categories, such as ethnicity or race, decreases, the tendency to generalize decreases as well (Brown, Vivian and Hewstone, 1999; Brown and Hewstone, 2005).

Paolini *et al.* (2014) test whether having previous positive intergroup contact moderates the effect of negative (imagined) intergroup contact on category salience. They argue that for those with prior positive contact with outgroup members, a negative contact experience is less likely to make the group category salient, because their contact history counteracts the general tendency of individuals to be prejudiced against outgroups. Paolini *et al.* indeed find that generalization tendencies of negative intergroup contact were smaller for those indicating having had mostly positive prior intergroup contact.

Consider, for example, the case of being picked on by a member of an outgroup. We expect this negative contact experience to increase perceptions of threat and feelings of anxiety regarding outgroup members, and consequently to increase prejudice towards this outgroup. This effect, however, may be different when a pupil also has friends from this outgroup. Having outgroup friends may have reduced this automatic tendency to have negative associations about outgroup members, and thus not trigger the generalization of this experience to the outgroup as a whole. We thus formulate the following hypothesis:

H3a:For pupils who already have interethnic friends, the effect of a new interethnic foe on prejudice is smaller than for pupils who do not already have interethnic friends.

The same argumentation can be made the other way around. For example, it has been argued that the impact of outgroup size on threat and ethnic hostility is weaker if one has positive contact (McLaren, 2003). Although there may exist general tendencies to have negative associations about outgroups (Paolini *et al.*, 2014), and to attach greater salience to negative experiences (Baumeister, 2001), the extent to which the negative–salience link occurs is dependent on how well the new contact experience fits with the history of contact. When one has prior negative interethnic contact experiences, a single positive experience will not easily make the outgroup's category salient because it fits less well with existing associations. We thus expect the following:

H3b:For pupils who already have interethnic foes, the effect of a new interethnic friend on prejudice is smaller than for pupils who do not already have interethnic foes.

The effects of positive and negative intergroup contact may further depend on the individual's minority status. Previous research shows that the effects of intergroup contact on prejudice are stronger for majority than for minority groups (see Tropp and Pettigrew, 2005 for a meta-analytical review). As a result of their different histories of experiences within society and related differences in group status, minority and majority groups respond differently to intergroup contact. Individuals who have had many prior experiences with outgroup members develop both a more crystallized and a more nuanced view of the outgroup as a whole

(Hewstone and Hamberger, 2000; Paolini *et al.*, 2004). A 100th experience will arguably not have a large effect on prejudice above and beyond the 99th experience with interethnic contact. Furthermore, having many prior interethnic experiences likely increases the perceived variability in the outgroup, and as a consequence decreases the generalizability of any single contact experience. Because minorities, due to their relatively smaller ingroup size, on average have more intergroup contact, we expect contact experiences to have smaller effects on intergroup attitudes for minorities compared to majority group members.[2] Furthermore, buffering effects are less likely to occur due to a smaller tendency to generalize discrete contact events for minorities. We therefore expect the following:

H4:For ethnic minority pupils, the main effects of transitions from zero to one or more positive and negative intergroup contacts on prejudice, are smaller compared to native Dutch majority pupils, and buffering is less likely to occur.

Data

To test these hypotheses, we made use of data from the CILS4EU project (Kalter *et al.*, 2016a, 2016b). Children of immigrants and their ethnic majority peers, aged around 15 years old, were surveyed in class using paper-and-pencil questionnaires. The first wave was in the school year 2010/2011, with a follow up 2 years later.

This study analysed two waves of the Dutch CILS4EU.[3] The data were gathered using a stratified three-stage sample design: schools, classes within schools, and pupils within classes. In the first stage, secondary schools were selected with a probability proportional to the size of the school. The response rate of the initial sample was 34.9 per cent. After replacement, the response rate among the schools was 91.7 per cent. The second-stage sampling units were classes within schools. Only third-grade classes were sampled. The response rate at the class level was 94.5 per cent. The students within these classes were surveyed, and the response rate at the pupil level was 91.1 per cent.

The sample in Wave 1 consisted of 4,363 respondents, distributed over 222 classes from 100 schools. Schools were asked to participate again the following year. The response rate at the school level in Wave 2, given participation in Wave 1, was 98.0 per cent and the response rate at the pupil level was 72.5 per cent.[4] The total attrition rate was 29.1 per cent, indicating that of the 4,363 respondents from Wave 1, a total of 3,093 respondents also participated, in school, in the second wave. One of the main causes of dropout was that pupils, due to class restructuring, changed classes between Wave 1 and Wave 2. Of the total sample, 125 pupils were excluded from the study due to missing values, which resulted in a total analytical sample of 4,238 pupils.

The Structure of the Data

The dependent variable was prejudice towards an ethnic outgroup. Respondents were asked about their attitudes towards each of the five largest ethnic groups in the Netherlands: Dutch, Moroccans, Turks, Surinamese, and Antilleans. Each respondent thus provided a separate prejudice score for each ethnic outgroup. Per pupil, the level of prejudice towards each of the ethnic outgroups was predicted by looking at the degree of positive and negative contact of this individual with each ethnic outgroup. In the remainder of this article, the combination of a pupil and an ethnic outgroup is referred to as a case. By clustering the data per individual, we corrected the standard errors for having multiple cases within each pupil.

Measurement

Ethnicity was measured according to the standard of Statistics Netherlands (CBS, 2015). Specifically, ethnicity was measured as the mother's country of birth, and if missing, as the father's country of birth. If the mother was Dutch but the father was non-Dutch, the ethnicity of the father was used. Five ethnic groups were distinguished: native Dutch (69.73 per cent), Turks (5.88 per cent), Moroccans (5.38 per cent), Surinamese (3.82 per cent), and Antilleans (1.68 per cent). The remaining respondents were distinguished as Western (6.06 per cent) and Other Non-Western (7.46 per cent) minority members.

Prejudice was measured using a feeling thermometer, a commonly used method when measuring prejudice (Olson, 2009; Correll *et al.*, 2010, Khan and Pedersen, 2010). Respondents were asked to indicate their feeling about a specified group on a 100-point scale, ranging from negative (0) to positive (100), with intervals of ten points. Respondents could also indicate not knowing a group. This answer was re-coded as being neutral (50) (7.50 per cent).[5]

For a more intuitive interpretation of the variable, we recoded the variable such that a zero indicated holding very positive feelings towards the ethnic outgroup and 100 indicated holding very negative feelings towards the ethnic outgroup. The average feeling of all

respondents towards all outgroups summed was neutral; 44.78 in the first wave and 48.34 in the second wave. In 71.85 per cent of the cases, a pupil's prejudice towards an ethnic outgroup changed between Wave 1 and Wave 2, indicating that there was substantial over time variation in the dependent variable (Figure 1).

Negative intergroup contact was measured using ego-centred sociometric class data. Pupils were asked to indicate which of their classmates were sometimes mean to them. Since all pupils in class filled out the questionnaires, we could retrieve the ethnicity of the nominated peers. Negative intergroup contact then was the sum of classmates nominated as foes, per ethnic outgroup. Some of these foes, however, were also nominated as best friend in class. We did not consider these friend–foes (690 nominations) to be real foes, and therefore recoded them as non-foe. In Wave 1, a total of 434 cases were reported in which pupils indicated having at least one foe from an ethnic outgroup in class. In Wave 2, these were 220 cases. In 145 cases, the number of foes transited from no outgroup foes at t1 to one or more outgroup foes at t2.

Positive intergroup contact was measured in two ways. In the sociometric class data, pupils were asked to name their five best friends in class. For each ethnic outgroup the number of friends could thus range between zero and five, with a five indicating that all five best friends in class were from that particular ethnic outgroup. In the first wave 2,011 pupils and in the second wave 1,108 pupils indicated having at least one best friend in class from an ethnic outgroup. In 1,211 cases (10.39 per cent), a pupil indicated a change in the number of ethnic outgroup friends in class between Wave 1 and Wave 2. In 279 cases, the number of outgroup friends in class transited from no outgroup friends at t1 to one or more outgroup friends at t2.

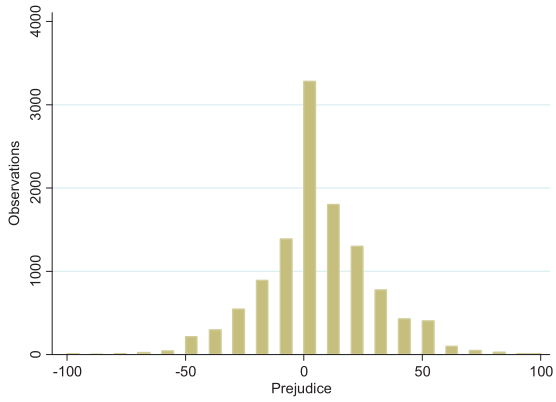

Figure 1. Change in prejudice between Wave 1 and Wave 2.

A second measure of positive interethnic contact was provided by an item asking pupils to indicate what share of their total friends, including friends outside class, consisted of native Dutch, Moroccans, Turks, Antilleans, and Surinamese. For each subsequent group, the answer category ranged from *none or almost none (1)* to *all or almost all (5)*. Having a high proportion of friends from a particular outgroup was considered a proxy for more positive contact with outgroup members. The average value was 1.67 in Wave 1 and 1.58 in Wave 2. In 3,447 cases (31.06 per cent), a pupil indicated a change in the proportion of his or her friends belonging to an ethnic outgroup between Waves 1 and 2. In 932 cases, a pupils' proportion of friends from the outgroup transited from none or almost none at t1 to more than almost none at t2. The two measures of positive contact are moderately correlated ($r = 0.49$). To check for multicollinearity we also estimated our models including one positive contact variable at the time. Outcomes affected by multicollinearity are discussed in the results section.

Control Variables

At the class level, we control for the contact opportunity structure by including the percentage of outgroup pupils in class per pupil. This means that, depending on their own ethnic group pupils in the same class score differently on this variable. By controlling for contact opportunity in the class we test whether it is changes in just number of outgroup individuals in class or changes in outgroup friends/foes in class that affect prejudice. A second control variable at the class level is the proportion of realized interethnic friendships out of all possible interethnic friendships in class. Exposure to outgroup members may affect prejudice. When there are many interethnic friendships in class, personal contact with outgroup members may be seen more as an exception. Controlling for interethnic friendships in class may thus give a clearer picture of the role of actual personal contact in the formation of prejudice. At the pupil level, we controlled for gender and educational track.

Missing Values

The number of observations and respondents in our analytic sample was smaller than the original sample due to missing values. Twenty-seven pupils were deleted due to missing data on ethnicity. Furthermore, 21 pupils were deleted due to missing values on the dependent variable prejudice for both waves. From the 4,363 pupils in the original sample, 77 pupils could not be linked to sociometric data due to missing identifiers and were therefore excluded from the using data. The final sample size was

4,238 pupils and a total of 17,500 cases. Descriptive statistics of the dependent and independent variables are provided in Table 1. Additional descriptive statistics can be found in Supplementary Table A2.

Method

The data were characterized by a four-level hierarchical structure in which time points were nested within cases, cases within individuals, and individuals within classrooms. The aim of the analysis was testing whether changes in intergroup contact were predictive of changes in intergroup attitudes over time. We used hybrid models to estimate coefficients for both the within-person variation and the between-person variation. Based on the within-person variation (fixed effects estimator), we tested whether changes in intergroup contact of pupils correlated with changes in prejudice. Using the between-person variation (between effects estimator), we estimated whether pupils with more negative/positive outgroup contact were also more/less prejudiced about the outgroup. Finally, combining the within and between effects allowed us to test whether the effect of negative/positive intergroup contact on prejudice was smaller for pupils with outgroup friends/foes. The equation read as follows:

$$y_{ct} = \beta_0 + \beta_1(x_{ct} - \bar{x_c}) + \beta_2 d_c + \beta_3 \bar{x_c} + \mu_c + \varepsilon_{ct}$$

Where subscript c denoted Level 2 (cases) and subscript t denoted Level 1 (time points within cases). x_{ct} represented the Level 1 variables that varied between and within cases, and d_c represented the Level 2 variables that only varied between cases. μ_c is the Level 2 error, and ϵ_{ct} the Level 1 error. β_0 gives the intercept. β_1 gives the within-effect estimate. This fixed-effect part is calculated as a deviation from the personal mean score $x_{ct} - \overline{x}_c$. The between-effect β_3 is calculated as the case mean $\overline{x}_c$ (see Schunck, 2013 for details). The fixed-effect part of the equation is based on variation in individual scores over time only. In doing so, the model controls for all time-constant unobserved heterogeneity, thereby reducing bias in estimating the effect of Level 1 variables (Allison, 2009).

The effect of gaining foes or friends on prejudice is likely to differ from the effect of losing friends or foes. When gaining a foe or a friend, we expect an increase or decrease in prejudice. However, when losing a foe or a friend, the contact may cease, but the memories of these experiences can be longer lasting (Paolini *et al.*, 2014). In other words, contact experiences may continue to affect prejudice after the actual contact has taken place. However, in a conventional regression model, the effect of a within-person increase and decrease is estimated in a single coefficient. Consequently, the effect of increase and decrease in contact on prejudice is assumed inverse and equal in size. The focus of this article is on the effect of gaining negative and positive intergroup contact on prejudice, and not on the effect of diminished intergroup contact on prejudice. Therefore, to estimate the effect of increasing contact, we carry out an analysis with specific origin states (following Lancee and Radl, 2014). We selected the origin state in which pupils indicated to not have positive/negative contact, so that within-person variation captures the transition from not having contact at t1 to having contact at t2. First, to estimate the effect of gaining outgroup friendships in class, we

Table 1. Descriptive statistics of dependent and independent variables

	Wave 1				Wave 2				Changing between Waves 1 and 2	
Variables	Mean	(SD)	Min	Max	Mean	(SD)	Min	Max	Observations	Per cent[a]
Prejudice	44.78	(23.72)	0	100	48.34	(24.21)	0	100	8,376	71.85
Interethnic friendships in class	0.20	(0.67)	0	5	0.15	(0.56)	0	5	1,211	10.39
Proportion of friends belonging to outgroup	1.67	(0.98)	1	5	1.58	(0.93)	1	5	3,447	31.06
Interethnic foes	0.03	(0.22)	0	6	0.03	(0.25)	0	15	389	3.34
Case selections at Wave 1 and transitions between Waves 1 and 2									**Observations**	**Per cent**
No outgroup friends in class at t1									10,305	88.40
Transitioning to having one or more outgroup friends in class at t2									279	2.71
Not having a proportion of friends from the outgroup at t1									6,313	56.89
Transitioning to having a proportion of friends from the outgroup at t2									932	14.76
No outgroup foes in class at t1									11,374	97.57
Transitioning to having one or more outgroup foes at t2									145	1.27
Total									**17,500**	**100**

[a]Percentages are calculated from the total number of non-missing observations.

selected the cases in which a pupil indicated to not have any outgroup friends in class at t1. Secondly, we followed the same procedure to estimate the effect of an increase in the proportion of outgroup friends. Thirdly, to estimate the effect of gaining outgroup foes, we selected the cases in which a pupil indicated not having any outgroup foes in class at t1, such that variation between t1 and t2 implied an increase in outgroup foes.

Please note that, to not over-complicate the model, this modelling strategy excludes transitions in which a pupil already has one or more foes/friends at Wave 1 and gains even more foes/friends at Wave 2. We thus focus on the 'first' contact experience. This likely affects prejudice more than a contact experience preceded by previous experiences of the same kind. As a robustness check, we explore this claim by performing additional analyses in which all forms of contact increase over time are included (see results section).

For each origin state, we estimated two models. In Model 1, we include the positive/negative contact variables and all control variables. In Model 2, we added the interaction term between negative/positive contact. Both models include a dichotomous variable indicating wave, thereby controlling for external shocks and general over time trends in prejudice (Allison, 2009).

Results

In Table 2, we report the results for the hybrid model estimating the effect of making outgroup friends in the classroom on prejudice towards the outgroup. Inspecting the coefficients based on the within-person variance, the effect of gaining one or more outgroup friends in class at t2 is not statistically significant (Model 1). With regard to the between effect, we see that having outgroup friends is associated with lower prejudice, but only for minority group pupils. Thus, based on the within-effect making outgroup friends, we find no support for the hypothesis that positive interethnic group contact, measured as in-class friends, decreases prejudice towards the ethnic group these in-class friends belong to. Model 2 estimates the interaction effect between an increase in outgroup friends and having outgroup foes, but the coefficient is not statistically different from zero.

Table 3 reports the results for the hybrid model for making outgroup friends, such that a larger share of all your friends now belongs to the ethnic outgroup, on prejudice towards the ethnic group these friends belong to. In line with our Hypothesis 1, we find that an increase in the share of friends from the outgroup relates to decreased prejudice, even when we control for outgroup friends and outgroup foes in class. Also, the between-effect is significant: pupils with a higher share of outgroup friends have lower levels of prejudice compared to pupils who have a lower share of outgroup friends. In Model 2, the interaction between gaining outgroup friends and having foes from the outgroup is estimated. Rejecting Hypothesis 3, none of the interaction terms is statistically significant.

To test the effect of gaining outgroup foes on prejudice, in Table 4, we select pupils who did not have any outgroup foes at t1. Looking at Model 1, we find increases in outgroup foes in class to relate to increased prejudice for both majority and minority pupils. To test for the buffering effect of interethnic friendships, we include the interaction terms in Model 2. As only one of the interaction terms is statistically significant, there is no substantial support for the buffering hypothesis.

Comparing contact effects for Dutch majority and minority pupils in Tables 2–4, we find intergroup contact to affect prejudice in similar ways across both groups. Furthermore, we do not find having friends/foes to buffer the effect of positive and negative contact, neither for majority pupils nor minority pupils. Concluding, we find no evidence for Hypothesis 4.

We performed additional analyses to test whether the effect of increases in outgroup foes/friends differs for pupils who already had foes/friends at Wave 1. For pupils who already have outgroup foes at t1, gaining one or even more outgroup foes at Wave 2 was not associated with increased prejudice. Likewise, for pupils who already had outgroup friends at t1, an increasing share of outgroup friends was not associated with decreasing prejudice. The estimates are presented in Supplementary Tables A3, A4, and A5.

Conclusion and Discussion

The goal of the current study was 3-fold: First, to further investigate the effect of negative interethnic group contact on prejudice among young adolescents. Secondly, to advance our understanding of the interplay between positive and negative intergroup contact experiences by testing whether positive contact experiences serve as a buffer for the (possible) prejudice-enhancing effect of negative contact experiences for both majority and minority adolescents. Thirdly, to provide a stricter test of the relationship between negative contact and prejudice by using longitudinal data. To our knowledge, previous research on the effects of negative interethnic contact among adolescents is based on cross-sectional data only. While with two waves of panel data at our disposal we could not analyse the direction of causality, the data

Table 2. Hybrid regression model of prejudice of pupils towards an ethnic outgroup for cases in which a pupil indicated to not have any outgroup friends in class at Wave 1 (standard errors in parentheses)

	Majority group pupils		Minority group pupils	
	Model 1 b	Model 2 b	Model 1 b	Model 2 b
Within effects				
Increase in friends from the ethnic outgroup in class	0.206	0.684	−4.304	−4.242
	(2.775)	(2.894)	(2.320)	(2.471)
Proportion of friends from the ethnic outgroup	−4.635***	−4.624***	−4.518***	−4.515***
	(0.697)	(0.697)	(0.731)	(0.732)
Number of foes from the ethnic outgroup in class	0.103	−0.360	2.119	2.081
	(1.849)	(1.912)	(1.443)	(1.482)
Percentage outgroup members in class	−0.115	−0.116	0.000	0.000
	(0.076)	(0.076)	(0.091)	(0.091)
Percentage interethnic friendships in class	0.006	0.005	0.033	0.033
	(0.062)	(0.062)	(0.088)	(0.088)
Between effects				
Number of friends from the ethnic outgroup in class	−0.968	−0.139	−7.642*	−5.159
	(3.508)	(3.588)	(3.335)	(3.464)
Proportion of friends from the ethnic outgroup	−10.660***	−10.653***	−7.530***	−7.525***
	(0.579)	(0.579)	(0.468)	(0.467)
Number of foes from the ethnic outgroup in class	3.282	3.768	7.577***	10.176***
	(2.178)	(2.251)	(2.247)	(2.584)
Percentage outgroup members in class	0.032	0.033	−0.031	−0.028
	(0.059)	(0.059)	(0.029)	(0.028)
Percentage interethnic friendships in class	−0.040	−0.040	0.024	0.019
	(0.041)	(0.041)	(0.051)	(0.051)
Level of education	−2.414***	−2.414***	−1.551***	−1.562***
	(0.200)	(0.200)	(0.267)	(0.267)
Female	−4.351***	−4.351***	−3.570***	−3.566***
	(0.618)	(0.618)	(0.940)	(0.939)
Wave 2	3.583***	3.577***	2.759***	2.763***
	(0.477)	(0.477)	(0.834)	(0.834)
Interaction terms				
Increase in friends from the ethnic outgroup (within)*		−11.628		−0.602
Number of foes from the ethnic outgroup (between)		(9.626)		(3.080)
Number of friends from the ethnic outgroup (between)*		−24.889		−30.315**
Number of foes from the ethnic outgroup (between)		(14.698)		(9.790)
R^2	0.099	0.099	0.109	0.111
N	11,159	11,159	4,104	4,104

*$P < 0.05$; **$P < 0.01$; ***$P < 0.001$ (two-tailed tests), standard errors allow for intragroup correlation.
Source: CILS4EU.

allowed us to control for all time-constant unobserved heterogeneity, thereby reducing potential bias.

In line with our first hypothesis, we found that an increase in the share of interethnic friendships (positive contact) was related to a decrease in prejudice. Gaining interethnic friendships in class, however, did not significantly affect changes in prejudice. A possible explanation why we do find increases in the share of outgroup friends to decrease prejudice, may be that, as suggested by Christ *et al.* (2014), there is a difference in the effects of the larger (class and beyond) and the local context (class). They find that in social contexts where positive intergroup contact is commonplace, norms support positive interactions. Moreover, they find that people are influenced by the behaviour of others in their social context. Pupils that indicate having a proportion of outgroup friends may be influenced by positive norms and positive intergroup contact of others within this friend group, which may explain why we find increases in the share of outgroup friends to reduce prejudice in

Table 3. Hybrid regression model of prejudice of pupils towards an ethnic outgroup for cases in which a pupil indicated not having a share of friends from the outgroup at Wave 1 (standard errors in parentheses)

	Majority group pupils		Minority group pupils	
	Model 1 b	Model 2 b	Model 1 b	Model 2 b
Within effects				
Increase in proportion of friends from the ethnic outgroup	−5.572***	−5.641***	−7.715***	−7.938***
	(1.335)	(1.344)	(2.156)	(2.173)
Number of friends from the ethnic outgroup in class	−3.678	−3.701	−4.085	−4.213
	(2.756)	(2.756)	(2.410)	(2.422)
Number of foes from the ethnic outgroup in class	1.067	2.197	0.078	0.831
	(2.241)	(2.408)	(2.442)	(2.886)
Percentage outgroup members in class	−0.063	−0.067	−0.035	−0.035
	(0.102)	(0.103)	(0.167)	(0.167)
Percentage interethnic friendships in class	0.012	0.012	0.050	0.050
	(0.072)	(0.072)	(0.131)	(0.131)
Between effects				
Proportion of friends from the ethnic outgroup	−20.084***	−19.895***	−9.456**	−8.944**
	(1.905)	(1.906)	(3.043)	(3.061)
Number of friends from the ethnic outgroup in class	−7.313***	−7.305***	−5.373**	−5.385**
	(2.024)	(2.025)	(1.796)	(1.790)
Number of foes from the ethnic outgroup in class	2.919	4.147	5.355	6.584
	(2.963)	(2.778)	(2.768)	(3.381)
Percentage outgroup members in class	0.112	0.112	0.047	0.050
	(0.089)	(0.089)	(0.068)	(0.067)
Percentage interethnic friendships in class	−0.076	−0.075	0.046	0.044
	(0.052)	(0.052)	(0.073)	(0.073)
Level of education	−2.525***	−2.523***	−1.706***	−1.712***
	(0.231)	(0.231)	(0.388)	(0.387)
Female	−4.994***	−5.002***	−5.067***	−5.045***
	(0.739)	(0.739)	(1.417)	(1.417)
Wave 2	3.765***	3.768***	3.229*	3.231*
	(0.547)	(0.547)	(1.348)	(1.349)
Interaction terms				
Increase in friends from the ethnic outgroup (within)*		6.939		5.553
Number of foes from the ethnic outgroup (between)		(5.701)		(6.588)
Number of friends from the ethnic outgroup (between)*		−16.740		−13.599
Number of foes from the ethnic outgroup (between)		(14.614)		(11.130)
R^2	0.068	0.068	0.045	0.045
N	7,702	7,702	1,840	1,840

*$P < 0.05$; **$P < 0.01$; ***$P < 0.001$ (two-tailed tests), standard errors allow for intragroup correlation.
Source: CILS4EU.

particular. Another possible explanation is that in the sociometric measure pupils are only asked to list their best friends in class without making reference to ethnicity. In the item enquiring pupils' proportion of outgroup friends, pupils are explicitly being asked about the ethnicity of their friends. It may be that the item on the share of outgroup friends already carries an attitudinal component, which may explain why we find it to be more strongly related to prejudice.

Our second hypothesis stipulated that gaining interethnic foes (negative intergroup contact) increases interethnic prejudice. In line with previous research on negative intergroup contact, we find support for this hypothesis, both for Dutch majority and minority group pupils.

Our third hypothesis stated that interethnic friendships function as a bulwark against the prejudice-enhancing effect of having outgroup foes, and inversely,

Table 4. Hybrid regression model of prejudice of pupils towards an ethnic outgroup for cases in which a pupil indicated not having any foes from the outgroup at Wave 1 (standard errors in parentheses)

	Majority group pupils		Minority group pupils	
	Model 1 b	Model 2 b	Model 1 b	Model 2 b
Within effects				
Increase in foes from the ethnic outgroup in class	6.206*	16.177*	5.394*	8.172
	(3.127)	(7.311)	(2.429)	(7.189)
Number of friends from the ethnic outgroup in class	−1.704	−1.715	−0.426	−0.483
	(1.314)	(1.330)	(0.556)	(0.558)
Proportion of friends from the ethnic outgroup	−4.547***	−4.550***	−4.713***	−4.718***
	(0.676)	(0.678)	(0.643)	(0.642)
Percentage outgroup members in class	−0.148*	−0.150*	−0.037	−0.037
	(0.070)	(0.071)	(0.052)	(0.052)
Percentage interethnic friendships in class	0.016	0.016	0.009	0.011
	(0.061)	(0.061)	(0.080)	(0.080)
Between effects				
Number of foes from the ethnic outgroup in class	9.364	38.017**	6.896	19.420
	(5.613)	(12.107)	(4.111)	(11.091)
Number of friends from the ethnic outgroup in class	−3.990***	−4.033***	−1.708***	−1.623***
	(1.032)	(1.034)	(0.469)	(0.478)
Proportion of friends from the ethnic outgroup	−10.380***	−10.319***	−7.280***	−7.234***
	(0.565)	(0.566)	(0.393)	(0.395)
Percentage outgroup members in class	0.030	0.032	−0.041*	−0.042*
	(0.052)	(0.052)	(0.018)	(0.018)
Percentage interethnic friendships in class	−0.039	−0.041	0.002	0.000
	(0.040)	(0.040)	(0.044)	(0.044)
Level of education	−2.387***	−2.384***	−1.263***	−1.262***
	(0.198)	(0.198)	(0.241)	(0.241)
Female	−4.155***	−4.156***	−3.016***	−2.999***
	(0.613)	(0.613)	(0.842)	(0.843)
Wave 2	3.586***	3.584***	1.818*	1.822*
	(0.475)	(0.475)	(0.739)	(0.739)
Interaction terms				
Increase in foes from the ethnic outgroup (within)*		2.662		−2.378
Number of friends from the ethnic outgroup (between)		(6.008)		(2.402)
Increase in foes from the ethnic outgroup (within)*		−6.568		−0.001
Proportion of friends from ethnic outgroup (between)		(3.968)		(2.567)
Number of foes from the ethnic outgroup (between)*		14.747		−0.862
Number of friends from the ethnic outgroup (between)		(16.929)		(3.431)
Number of foes from the ethnic outgroup (between)*		−20.607***		−4.051
Proportion of friends from ethnic outgroup (between)		(5.786)		(4.227)
R^2	0.106	0.107	0.174	0.175
N	11,544	11,544	5,319	5,319

*$P < 0.05$; **$P < 0.01$; ***$P < 0.001$ (two-tailed tests), standard errors allow for intragroup correlation.
Source: CILS4EU.

that having outgroup foes neutralizes the prejudice decreasing effect of gaining outgroup friends. However, contrary to what we expected, new positive/negative contact experiences seem to be associated with adolescents' attitudes independently of the (recent) presence of foes/friends. Furthermore, we did not find contact effects to be stronger for minority group pupils, refuting Hypothesis 4. A possible explanation for these findings may be that we studied young adolescents specifically. Research finds that individuals who have had many prior experiences with outgroup members develop both a more crystallized and a more nuanced view of the

outgroup as a whole (Hewstone and Hamberger, 2000; Paolini *et al.*, 2004). As youngsters' history of contact experiences are likely to be shorter, they have less experience to contrast new experiences with. Moreover, adolescents' interethnic attitudes are still very susceptible to change (Krosnick and Alwin, 1989). A possible explanation for the absence of a buffering effect may be adolescents' high sensitivity towards new experiences. We would like to see the buffering hypothesis tested with older respondents before rejecting the hypothesis as a whole. Furthermore, as histories of contact experiences are still relatively small, the impact of new contact experiences may still be quite similar for minority and majority pupils, which may explain why we find no substantial differences in contact effects between minority and majority group pupils. A measurement-related explanation for the absence of buffering may be that friend and foe nominations are interdependent. Increases in positive contact with outgroup members may cause a pupil to be less likely to interpret following contact experiences with members of this outgroup as negative. Similarly, a pupil who gains outgroup foes may be less likely to nominate other outgroup pupils as friends. Thus, there may be buffering effects embedded in the measurements. For example, if having outgroup friends makes nominating a foe less likely, then the foes who are nominated by pupils with outgroup friends may be the more serious foes. This would decrease the likelihood of finding buffering effects.

A strength of using two-wave panel data is that we were able to account for all time-invariant unobserved heterogeneity. However, while providing a stricter test of the relation between intergroup contact and prejudice, we cannot rule out reversed causality. It could thus be that changes in prejudice caused interethnic contact to become more positive/negative. We furthermore acknowledge the possibility that external shocks between two waves may have influenced both levels of prejudice and interethnic positive or negative contacts. However, to our knowledge, no major national and international events occurred during the fieldwork period, and the large number of schools provides some protection from this possible confounder.

Another shortcoming of the current study was that the measure of negative contact provided little insight into the frequency and nature of the contact between pupil and foe. Pupils were asked to indicate who in class were sometimes mean to them. We are, however, unsure whether 'being mean' involved actual physical abuse, verbal abuse, or whether this contact more had the likes of teasing or mocking behaviour. Therefore, the effect of negative interethnic contact has to be interpreted as an average effect, keeping in mind that there likely is variation in effect size, depending on foes being repeatedly physically abusive, or merely mocking.

Future research may improve on these shortcomings using experimental designs. For example, an experiment allows one to hold the objective positive and negative contact experiences constant, which may prevent buffering effects to occur in the measurement. Furthermore, controlling contact experiences in an experimental setting allows for a better monitoring of the validity of the contact measures. Finally, being able to control whether contact precedes changes in attitudes provides a stricter test of causality.

Notes

1 Studies on interethnic contact use varying dependent variables, such as prejudice, interethnic attitudes, and xenophobia. Although there are slight differences in definitions and operationalizations between the various dependent variables, it has been argued and found that these different measures strongly correlate (Pettigrew and Tropp, 2006; Olson, 2009; Khan and Pedersen, 2010). Therefore, and in line with previous research (Pettigrew and Tropp, 2006), these measures were considered interchangeable in the current study.

2 See Supplementary Table A1 for a comparison of proportions of outgroup friendships between majority and minority pupils.

3 We only analyse the Dutch data because only the Dutch pupils were asked about their interethnic attitudes in the questionnaire.

4 The cross-classified nature of the data complicates calculation of the class-level response rate. For further details, please see the fieldwork report of Wave 2 (CILS4EU, 2015).

5 Recoding these cases did not substantially alter the findings.

Supplementary Data

Supplementary data are available at *ESR* online.

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