

# Extended intergroup friendships within social settings: The moderating role of initial outgroup attitudes

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## Abstract

The current study hypothesized that extended intergroup friendships improve outgroup attitudes in particular for people with initially unfavorable outgroup attitudes, and for those without direct intergroup friendships. In contrast, building on structural balance theory, it was hypothesized that extended contact in small social settings may also be related to *less* favorable outgroup attitudes. Hypotheses were tested longitudinally among Dutch students ( $n = 661$ ) who just entered multiethnic middle schools. Adopting concepts from social network analysis, an extended intergroup friendships measure was proposed which excludes direct intergroup friendships. Multilevel panel analyses showed that the effect of extended intergroup friendships with Turkish peers did not depend on whether adolescents had direct Turkish friends. Extended intergroup friendships were only related to improved outgroup attitudes for students with relatively unfavorable outgroup attitudes. Additional analyses show, in line with structural balance theory, that extended friendships within classrooms can also be related to outgroup attitudes negatively for students with favorable initial attitudes.

## Keywords

extended intergroup friendships, intergroup friendships, outgroup attitudes

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Research on intergroup contact (Allport, 1954) repeatedly found that positive contact with members of a different group is related to more favorable outgroup attitudes (Pettigrew & Tropp, 2006). This relation appears to be stronger for more intimate forms of intergroup contact, like friendships (Davies, Tropp, Aron, Pettigrew, & Wright, 2011). The potential of intergroup friendships to improve outgroup attitudes raises concerns about the lack of intergroup friendships that is typically found in friendship networks at

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schools (Baerveldt, van Duijn, Vermeij, & van Hemert, 2004; Moody, 2001). However, research on extended intergroup contact (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997) indicates that direct contact is not necessary for the reduction of prejudice. Even people who do not have outgroup friendships themselves may develop more favorable outgroup attitudes as a result of the mere knowledge that their ingroup friends have outgroup friends (Feddes, Noack, & Rutland, 2009; Turner, Hewstone, Voci, Paolini, & Christ, 2007).

The current study adds to previous research on extended contact in four ways. First, this study gives more insight into the conditions under which extended contact improves outgroup attitudes. Whereas several studies have been devoted to the questions of whether and why extended intergroup contact improves outgroup attitudes, a smaller number of studies examined individual characteristics that moderate extended contact effects (Christ et al., 2010; Paolini, Hewstone, & Cairns, 2007; Tausch, Hewstone, Schmid, Hughes, & Cairns, 2011). The current study contributes to this emerging body of research by examining whether initial outgroup attitudes and having direct intergroup friendships, moderate the effect of extended intergroup contact on outgroup attitudes over time. Second, taking a social network perspective, this study elaborates upon existing measurements of extended contact. We assess the entire social network in which extended contact takes place. This allows avoiding misclassification of situations where extended contact is not truly extended, because individuals who have this type of contact also have direct contact. Previously used measures do not exclude this possibility. Third, the network perspective also suggests that the effect of extended intergroup friendships might be context dependent. We argue that extended contact in a small social setting may sometimes be associated with more rather than less prejudice. Fourth, whereas most studies have tested the extended contact effect with a cross-sectional design, the current study tests the effects of direct and extended contact with a

longitudinal panel design. To this end, we investigate the effects of extended intergroup friendships of Dutch students with Turkish origin classmates during the first year at middle school.

## Extended Intergroup Contact Theory

Wright et al. (1997) proposed that the mere knowledge of an ingroup member having a close relationship with an outgroup member improves outgroup attitudes. Extended contact would have positive effects because it reduces intergroup anxiety, signals positive ingroup and outgroup norms regarding intergroup relations, and leads to the inclusion of the outgroup in the self (Turner, Hewstone, Voci, & Vonofakou, 2008). Thus, extended contact provides new information about (interaction with) the outgroup, by which students adapt their attitudes.

The literature on direct intergroup contact as well as on extended intergroup contact examined different intimacy levels of intergroup contact, ranging from sharing the same social context to more intimate relations like friendships. Pettigrew (1998) argued that particularly more intimate interpersonal relationships (like friendships) are effective in reducing prejudice. Intimate relationships are more likely than superficial contacts to promote the processes that underlie prejudice reduction, that is, learning about the outgroup, changing behavior, generating affective ties, reduction of intergroup anxiety, and ingroup reappraisal.

Like studies on direct intergroup contact, the extended contact literature examined intergroup contact in terms of the number of ingroup members *one knows* (i.e., acquaintances) that have outgroup friends (Turner et al., 2008) and in terms of the number of ingroup *friends* that have outgroup friends (Feddes et al., 2009; Turner et al., 2007). In line with Pettigrew (1998) it can be argued that in particular when friends have outgroup friends, rather than when acquaintances have outgroup friends, the new information about the outgroup is salient and convincing.

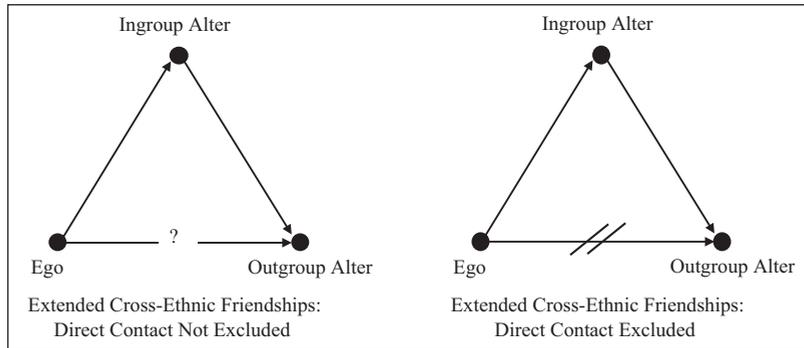
Hence, the current study focuses on extended intergroup friendships.

Whereas many studies found support for the extended contact effect (see for an overview Dovidio, Eller, & Hewstone, 2011), there are also exceptions (e.g., Feddes et al., 2009; Paolini et al., 2007, Studies 1 and 2). For example, Paolini et al. (2007), when controlling for direct friendships, did not find an additional effect of having extended intergroup friendships with three outgroups to which prejudice was relatively low (elderly people, mature-aged students, and vegetarians). Yet, they did find an effect of extended intergroup friendships with an outgroup to which prejudice was higher (engineering students). To explain this finding, Paolini et al. (2007) argued that the attitude towards this latter outgroup was more cognitively (as opposed to affectively) based, and cognitively based attitudes are more likely to be improved by indirect forms of contact (e.g., extended contact). Thus, whereas direct friendships might be more effective at improving affectively based attitudes (Tropp & Pettigrew, 2005), extended (indirect) friendships seem more effective at improving cognition-based attitudes.

The findings of Paolini et al. (2007) also indicate that extended intergroup friendships might be of particular importance for people who initially hold unfavorable outgroup attitudes. For a positive effect of extended intergroup friendships on outgroup attitudes, the information about the outgroup gained through ingroup friends needs to be more positive than the information that is already available. This implies that in particular for people who initially hold unfavorable outgroup attitudes, additional information from extended intergroup friendships should improve their outgroup attitudes. Consistent with this interpretation, direct intergroup contact effects have been shown to be strongest among people with initially intolerant attitudes (see for an overview Hodson, 2011). If people already have favorable outgroup attitudes, additional positive information about an ingroup friend's intergroup friendships is not likely to change one's

outgroup attitudes. Based on this, we expect that the degree to which people's outgroup attitudes are positive prior to acquiring information through extended intergroup friendships moderates the effect of extended intergroup friendships on outgroup attitudes. Accordingly, we hypothesize not only that extended intergroup friendships are related to improved outgroup attitudes (Hypothesis 1) but also that this effect is stronger for those who initially have a relatively unfavorable outgroup attitude compared to those who initially have a relatively favorable outgroup attitude (Hypothesis 2).

Moreover, existing direct friendships with outgroup members may moderate the effect of extended intergroup friendships. When people already have intergroup friendship experiences, extended friendships might not provide them with new positive information about the outgroup. Therefore, we expect extended intergroup friendships to be related to improved outgroup attitudes in particular for those who do not have direct intergroup friendships (Hypothesis 3). This expectation is in line with a recent quasi-experimental study among 6- to 11-year-old children. Cameron, Rutland, Hossain, and Petley (2011) found that an extended outgroup contact story intervention improved intergroup friendship intentions in particular for those children who had fewer direct intergroup friendships. Similarly, a cross-sectional study among Dutch adults showed that the effect of extended contact on outgroup prejudice, trust, and threat was only significant for those who did not have direct outgroup contact (Dhont & van Hiel, 2011). Furthermore, Christ et al. (2010) showed with a cross-sectional study among German adults that direct intergroup friendships moderated the effect of extended intergroup friendships on prejudice. In addition, they showed in a longitudinal study among Irish adults that direct interreligious contact moderated the effect of extended interreligious contact on outgroup attitudes. Yet, to our knowledge, the moderating effect of direct contact has not been examined longitudinally among adolescents.



**Figure 1.** Configurations of extended intergroup friendship measures. Dots represent people in a social network, arrows depict unidirectional friendship relationships.

### The Extended Intergroup Contact Measure

To measure extended intergroup friendships, previous studies (e.g., Dhont & van Hiel, 2011; Tausch et al., 2011) relied on survey questions like “how many of your [ingroup] friends have [outgroup] friends?” The left-hand configuration in Figure 1 depicts the basic configuration in a social network that this conventional measurement taps into. Extended intergroup friendships are measured as the number of times that an individual (ego) has a distinct ingroup friend (ingroup alter) who in turn has one or more outgroup friend(s). What is not explicitly excluded by this conventional measure is whether ego also has a direct friendship with the same outgroup alter. However, for extended intergroup friendships to be truly “extended,” that is, to have the potential to add new positive information about the outgroup, there should be no direct contact with the outgroup alter. Otherwise an effect of a larger number of extended intergroup friendships might actually be an effect of the number of direct intergroup friendships that the respondent has with outgroup alters. Thus, to examine the effect of extended contact it is important to disentangle the effects of direct and extended intergroup friendships.

Previous studies on extended contact acknowledge that it is necessary to control for direct contact because these two constructs are

related (Cameron et al., 2011; Pettigrew, Christ, Wagner, & Stellmacher, 2007). However, controlling for the number of direct contacts in a linear statistical model (such as linear regression) is not sufficient to examine the separate effects of direct and extended contact. Because extended intergroup relationships can consist of direct relationships to the exact same outgroup members, the two constructs can be closely associated. Thus, including both extended and direct relationships in regression analyses might result in multicollinearity problems. If this is the case, the effect of direct contact in regression results can wrongly be attributed to extended contact, or vice versa. Pettigrew et al. (2007) addressed this issue with additional analyses on two subgroups: the first subgroup without direct outgroup contact but with extended contact, the second subgroup with direct contact but without extended contact. Although this is informative to partial out the specific effects, comparing groups that only have direct or only extended contact neglects contact effects for those who have both direct and extended contact.

Another way to disentangle direct versus extended contact effects was proposed by Tausch et al. (2011). They examined extended contact across contexts by asking respondents how many of their ingroup colleagues at work, close ingroup friends, and family members had outgroup contacts in other contexts (outgroup neighbors/work colleagues/close friends/marriage partners).

Outgroup contacts of the ingroup member in the same context (e.g., whether ingroup colleagues had outgroup colleagues) were not included in the measurement of extended contact because these extended outgroup contacts would likely also be direct contacts of the respondents (Tausch et al., 2011). This method, which focuses on direct and extended contact in different contexts, is another approach to disentangle effects of direct and extended contact but is limited in its ecological validity. It cannot be used, for example, to examine extended contact *within* ethnically diverse contact situations, like ethnically diverse work organizations or schools. However, because people are likely to have both direct and extended intergroup friendships *within* the same everyday social setting, it is necessary to disentangle their effects also here.

To our knowledge there is no measurement of extended contact that explicitly excludes direct contact and can be used to measure extended contact within a particular social context. That is, there is no measure of extended intergroup contact in which triads (see Figure 1) including a direct relation with the outgroup alter are excluded.

### Extended Contact From a Network Perspective

Research on social networks suggests that extended intergroup friendships within small social settings (like school classes) are likely to include, or result in, direct intergroup friendship as well. Members of a social network share the same social context and are directly, indirectly, or not linked to one another at all (e.g., Knoke & Yang, 2008). If such a social setting is sufficiently small, people are likely to meet and know each other directly, even if they are not intimately related. This means that outgroup contacts of ingroup friends within the same social context (i.e., extended intergroup contact) can be observed, and that it is possible to establish direct friendships to the intergroup friends of ingroup friends.

Particularly in small social contexts, the concept of extended contact can be related to

balance theory (see also Turner et al., 2007). Heider's (1946) original formulation of balance theory states that people strive for cognitive balance in their attitudes and interpersonal relationships. That is, if two people like each other, they should agree on their attitude toward a third entity. When a triad is imbalanced, for example if two people who like each other do not agree in their attitude, they will try to (re)instate balance by changing their attitude or their relationship. Extended intergroup friendship can be interpreted as a triad that is in an unbalanced state.

A person has an ingroup friend who is friends with an outgroup member. Due to the direct intergroup friendship, it is likely that the person's friend also has positive attitudes towards the outgroup. Yet, the first person has no direct friendship with his or her friend's outgroup friend. Original balance theory would suggest that cognitive balance within an extended contact triad could be restored if the person develops favorable attitudes towards the outgroup. The positive affect the person holds toward the ingroup friend will then match the positive attitude both friends hold toward the outgroup.

Whereas Heider originally focused on cognitive balance in terms of attitudes and relations, later scholars extended this idea to structural balance according to which people avoid imbalanced friendship triads in which they are not friends with their friends' friends (Cartwright & Harary, 1956; Heider, 1958; Newcomb, 1956) or not foes of the foes of their friends, or friends of the foes of their friends. Based on structural balance theory (Cartwright & Harary, 1956), balance in an extended contact situation can also be restored if a person closes the open triad by forming a direct friendship with the outgroup friend of his or her ingroup friend. In fact, research on social networks repeatedly showed that friendship networks are typically characterized by "transitivity," the tendency of people to close "open triads" (Stark & Flache, 2012; Wimmer & Lewis, 2010).

The latter implies that extended intergroup friendships within a social setting are likely to be accompanied by direct friendships between a focal individual and indirectly connected

outgroup members. From this perspective, it is not surprising that many of the previous studies on extended contact, which used measures that did not specifically exclude direct contact from extended contact triads, found that direct and extended intergroup friendships are strongly related (Paolini, Hewstone, Cairns, & Voci, 2004; Turner & Brown, 2008). When examining extended contact within a social setting, an extended contact measure should be used that separates direct and indirect contact.

We propose to assess the entire social network in a given setting to infer an individual's number of extended friendship relationships that are not simultaneously part of direct friendships. This approach is particularly suitable to study extended intergroup friendships in relatively small social settings in which all individuals are aware of each other. Here, people can be asked who their direct friends are. It is not necessary to ask for their friends' friends because this information can be obtained from the answers of the friends. Because the friends of the friends are known in a complete network, it is also possible to determine whether the first person is really only indirectly related to an ingroup friend's outgroup friend or whether the first person also has a direct friendship with this outgroup member. That is, this approach allows identification of the number of "true" extended intergroup friendships a person has.

### **Extended Contact and Less Positive Attitudes**

Taking a social network perspective also allows a more unintuitive prediction of how extended intergroup friendships are related to outgroup attitudes. Since structural balance theory predicts that people close open triads (Cartwright & Harary, 1956; Heider, 1958), the question arises why extended intergroup friendships would exist at all in small social settings. After all, everybody knows each other and could easily establish direct friendships.

One possible explanation for an "unbalanced" extended intergroup friendship triad may be that

this is a deliberate choice of the individuals involved. The fact that a person does not close the triad and thus accepts a state of cognitive dissonance might be an indication of a (very) negative relationship between the person and the outgroup friend of his or her ingroup friend. In other words, in small contexts extended intergroup friendships might in fact signal interpersonal rejection between ingroup and outgroup members. This rejection may subsequently be generalized into more unfavorable attitudes towards the outgroup as a whole because negative intergroup relations have been shown to lead to less favorable outgroup attitudes (Stark et al., 2013). Accordingly, extended intergroup friendships that exist *within* a social setting can be hypothesized to be related to *less* favorable outgroup attitudes instead of to more positive attitudes (Hypothesis 4).

The network perspective suggests that extended intergroup friendships may be context dependent and have different meanings in different contexts. When extended intergroup friendships cross the boundaries of social settings, a person may gain new (positive) information about an outgroup. The person may also alter his or her attitude toward the outgroup to match the attitudes of his or her friends who have direct friendships with outgroup members in order to avoid cognitive dissonance. However, extended intergroup friendships within a social setting (like a classroom or a work group) may also indicate negative interpersonal relationships between members of different groups. In such a context, extended intergroup friendships may have the opposite effect and be related to less favorable outgroup attitudes.

### **The Present Study**

Building on the original extended contact hypothesis, the current study hypothesizes that extended intergroup friendships improve outgroup attitudes and that this is particularly strong for students who held relatively unfavorable initial outgroup attitudes, and for students who do not have direct intergroup

friendships. However, building on a network perspective, it was hypothesized that extended intergroup friendships within a social setting are associated with less positive outgroup attitudes instead of more positive ones.

Using a newly developed measure of extended intergroup friendships, these hypotheses are tested longitudinally among Dutch students who just entered ethnically diverse middle schools. We use a lagged design in which direct and extended intergroup friendships 3 months after the transition to middle school predict outgroup attitudes at the end of the first middle-school year, controlling for initial outgroup attitudes right after the transition to middle school. This school transition was accompanied by a complete reallocation of students to school classes, which means that most students encountered their classmates for the first time. For many students this meant new or first-time encounters with students from other ethnic groups. Also, at the beginning of middle school many new friendships are formed (Hardy, Bukowski, & Sippola, 2002) which is likely to affect outgroup attitudes (Poteat, 2007). The hypotheses are tested for Dutch majority group students' friendships with and attitudes toward Turks, because people of Turkish origin form the largest (Statistics Netherlands, 2010) and one of the least liked immigrant groups in the Netherlands, also among adolescents (Verkuyten & Kinket, 2000).

### Method

*Participants.* Data for this study come from The Arnhem School Study (TASS; see for more information Stark & Flache, 2012). This is a Dutch longitudinal study in which 1,197 students, within 61 classrooms of 12 middle schools, filled out questionnaires at the beginning of the first school year (T1, September 2008), 3 months later at winter (T2, December 2008), and then 6 months later at the end of the first school year (T3, June 2009). The total sample consisted of 68% Dutch, 9% Turkish, 3% Moroccan, and 20% of students with other

ethnic backgrounds and students' age was 12–13. Students who participated in all three waves and of whom both parents were born in the Netherlands were selected for the current study. Of the Dutch students who participated at T1 ( $n = 807$ ), 82% also participated in T2 and T3 ( $n = 661$ ). Attrition analyses showed that outgroup attitudes at T1 did not differ significantly between students that did and students that did not participate in the study at T2 and T3,  $F(1, 783) = .003, p = .95$ . The ethnicities of classmates who were not selected for the analyses were taken into account in the calculations of classroom ethnic diversity and the coding of (extended) intergroup friendships.

*Procedure.* After schools agreed to participate, parents were given the possibility to deny consent for their children to participate in the study. In addition, participating students were assured confidentiality and were informed that they were free to discontinue participation. Per school class, students simultaneously completed online questionnaires in their school's computer lab. Teachers read instructions to the students and supervised the completion of the questionnaires, which took on average 30 minutes.

### Measures

*Ethnicity.* Ethnic background was based on the reported countries of birth of both their parents. Following the definition of Statistics Netherlands (Statistics Netherlands, 2010) students were classified as Dutch when both parents were born in the Netherlands. If at least one parent was born outside the Netherlands, the student was assigned the ethnicity of this parent. If both parents were born outside the Netherlands, the student was assigned the ethnicity of the mother. This data was used to code (extended) contact and the number of Turkish classmates.

*Direct intergroup friendships at T2.* At all waves participants were asked "Who of your classmates are your best friends?" Students nominated their

best friends on a list showing names of all their classmates. Based on the ethnicity of the nominator and the nominee, the number of unidirectional friendships with Turkish classmates was coded. Friendships at T2, 3 months after entering the new contact situation, were selected because friendships are likely to have developed by this time (Hardy et al., 2002). The number of direct intergroup friendships was dummy coded (0 = *no Turkish friends*, 1 = *at least one Turkish friend*) for the model in which we test the interaction of having direct intergroup friendships with extended intergroup friendships (Hypothesis 2).

*Extended intergroup friendships at T2.* Whereas previous studies measured extended intergroup contact (Paolini et al., 2007; Turner et al., 2008; Wright et al., 1997) by asking how many of the respondents' ingroup friends have intergroup friendships, the current study used peer nominations to measure extended intergroup friendships. To disentangle direct and extended intergroup friendships only triads in which a direct friendship between ego and the outgroup alter was not present were counted as extended intergroup friendships (see the right-hand configuration in Figure 1). Thus, extended intergroup friendships are the number of ego's ingroup (Dutch) friends who nominated Turkish friends that were not nominated by ego. In our descriptive analyses we compare this measure of extended intergroup friendships with the measure including triads with direct intergroup friendships. We refer to the latter as the "conventional measure" because it is based on the extended contact configuration that is assessed with the typically used survey questions. We distinguish these measures as "conventional extended friendships T2" and "network extended friendships T2."

*Ethnic outgroup attitudes at T1 and T3.* A four-item social stereotyping scale was used to measure students' outgroup attitudes toward Turks. Students indicated on a scale from 1 (*totally disagree*) to 7 (*totally agree*), how much they agreed with the statements: "All Turks are ([a] honest, [b] friendly, [c] smart, [d] helpful)" (cf. Vervoort, Scholte, &

Scheepers, 2011). Only positive traits were included in this scale because children older than 7 tend not to discriminate between groups with negative traits, but are more inclined to do so with positive traits (Bigler, Brown, & Markell, 2001; Rutland et al., 2007). Higher scores indicate a more positive outgroup attitude. The scales were internally consistent with a Cronbach's  $\alpha = .95$  at T1, and  $\alpha = .97$  at T3.

*Background variables.* Gender was assessed by self-report and coded as 0 for boys, and 1 for girls. Because the Dutch middle-school system is tracked, we controlled for whether students were in the lower (35%: VMBO, preparatory secondary vocational education), the middle (38%: HAVO, senior general secondary education), or the higher (27%: VWO, preuniversity education) educational track. Dummies were created for the middle and the lower educational track (coded as 1), and the lower track served as the reference category. Last, to control for intergroup friendship opportunities, the number of Turkish classmates was included as a control variable.

### *Analytical Strategy*

To test the hypotheses we performed lagged multilevel regression analysis in MLwiN 2.23 (Rasbash, Browne, Healy, Cameron, & Charlton, 2011). This allowed us to control for the fact that students (Level 1) were nested within classrooms (Level 2; Snijders & Bosker, 1999). Classroom-level variables included in the models were the number of Turkish classmates and education level of the school class. All other variables were measured at the individual level. All metric variables were standardized (Snijders & Bosker, 1999).

The lagged multilevel analyses were built up in three steps (see Table 3). The first model included the control variables at the classroom and the individual level, as well as individual-level outgroup attitudes at T1 to predict outgroup attitudes at T3. In the second model we tested the main effects of having direct and extended intergroup friendships with Turkish classmates at T2 on outgroup

**Table 1.** Descriptive statistics for main study variables.

	<i>n</i>	Range	Mean	<i>SD</i>
Turkish classmates	661	0–16	1.38	2.15
Direct intergroup friendships T2	661	0–5	0.18	0.56
Conventional extended friendships T2	661	0–5	0.39	0.85
Network extended friendships T2	661	0–3	0.23	0.58
Outgroup attitudes at T1	645	1.00–7.00	3.97	1.21
Outgroup attitudes at T3	649	1.00–7.00	3.96	1.20

*Note.* The conventional extended friendships measure does not exclude triads with direct intergroup friendships. These triads are excluded in the network extended friendship measure.

**Table 2.** Bivariate correlations between study variables.

	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Sex (1 = girls)									
2. Education level low	-.05								
3. Education level middle	.07	-.58**							
4. Education level high	-.02	-.44**	-.47**						
5. Turkish classmates	.00	.45**	-.27**	-.19**					
6. Direct friendships T2	-.03	.30**	-.18**	-.13**	.39**				
7. Conventional extended friendships T2	-.03	.28**	-.21**	-.08*	.35**	.55**			
8. Network extended friendships T2	-.03	.18**	-.11**	-.07*	.34**	.03	.66**		
9. Outgroup attitude T1	.08*	.03	-.05	.03	.09*	.08*	.01	-.03	
10. Outgroup attitude T3	-.02	-.01	-.01	.02	.06	.15**	.05	.01	.34**

*Note.* In the conventional extended friendship measure, triads with direct friendships are not excluded. In the network measure, triads with direct friendships are excluded.

\* $p < .05$ ; \*\* $p < .01$ .

attitudes at T3. In the third model we tested the interaction effects of extended intergroup friendships with outgroup attitudes (Model 3.1), and of extended intergroup friendships with (dummy-coded) direct intergroup friendships at T2 (Model 3.2). All regression models presented in Table 3 were computed using our new measure of network extended friendships. We replicated these models also with the conventional measure and will discuss the differences between the findings for the two measures.

## Results

*Preliminary analyses.* Descriptive statistics on all main variables are presented in Table 1. The

number of direct friendships with Turkish classmates was rather low ( $M = 0.18$ ,  $SD = 0.56$ ), in part reflecting the low number of Turkish classmates for the Dutch students in our sample ( $M = 1.38$ ,  $SD = 2.15$ ). Regarding the extended intergroup friendships measure, Table 1 shows that the average number of extended intergroup friendships was higher when triads with direct intergroup friendships were included (conventional measure;  $M = 0.39$ ,  $SD = 0.85$ ), than when triads with direct intergroup friendships were excluded (network measure;  $M = .23$ ,  $SD = .85$ ). Paired sample  $t$  tests show that this difference was statistically significant,  $t(660) = 6.56$ ,  $p < .001$ . Furthermore, bivariate correlations (Table 2) show that having Turkish friends (T2) was

**Table 3.** Standardized coefficients of lagged multilevel analyses predicting outgroup attitudes toward Turks at T3.

	Model 1	Model 2	Model 3.1	Model 3.2
	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>	<i>B (SE)</i>
Constant	-.02 (.07)	-.06 (.07)	-.06 (.07)	-.11 (.08)
Level 1				
<i>Control variables</i>				
Girl	-.07 (.08)	-.06 (.07)	-.05 (.07)	-.07 (.08)
Outgroup attitudes T1	.34 (.04)**	.33 (.04)**	.33 (.04)**	.33 (.04)**
<i>Contact variables</i>				
Direct intergroup friendships T2 <sup>a</sup>		.15 (.04)**	.15 (.04)**	.43 (.13)**
Network extended friendships T2		.02 (.04)	.01 (.04)	.03 (.04)
<i>Interaction</i>				
Attitudes T1 * Extended Friendships T2			-.09 (.04)**	
Direct Friendships T2 * Extended Friendships T2				-.07 (.10)
Level 2 controls				
Middle educational track (ref = lower track)	.09 (.10)	.14 (.10)	.14 (.10)	.15 (.10)
Higher educational track	.09 (.10)	.14 (.10)	.14 (.10)	.15 (.10)
No. of Turkish classmates	.06 (.04)	.001 (.05)	.00 (.05)	.02 (.05)
Explained variance Level 1	13%	14%	15%	14%
Explained variance Level 2	21%	23%	24%	23%
$\chi^2$ deviance difference	129.5**	13.1**	5.7*	12.01**

Note. *n* classes = 58, *n* students = 632.

<sup>a</sup>The variable direct intergroup friendships was dummy coded in Model 3.2. Hence, model comparison ( $\chi^2$ ) in this case was done between Model 1 and Model 3.2.

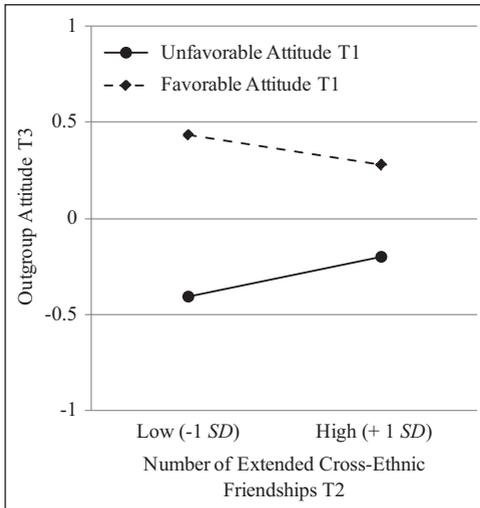
\* $p < .05$ ; \*\* $p < .01$ .

strongly related to the conventional measure of extended intergroup friendships  $r(661) = .55, p < .01$ , but not to our new network extended intergroup friendships measure,  $r(661) = .03, p = .44$ . This indicates that the conventional measure of extended intergroup friendships, which does not exclude direct intergroup friendship, overlapped with direct intergroup friendships. Hence, an effect on outgroup attitude could be due to direct or extended intergroup friendships. Our new measure of network extended intergroup friendships avoids this problem and showed no overlap with direct friendships.

Regarding the relation between direct intergroup friendships and outgroup attitudes, bivariate correlations show that students who had direct friendships with Turkish classmates at T2, had more positive outgroup attitudes at T1 and at T3. Direct friendships with Turks were more strongly related to outgroup attitudes at T3 ( $r =$

.15,  $p < .001$ ), than to outgroup attitudes at T1 ( $r = .08, p = .04$ ). The number of extended intergroup friendships with Turks was for none of the two measures correlated with outgroup attitudes. In addition, outgroup attitudes at T1 and T3 correlated only at  $r(661) = .34, p < .01$ . This indicates that the attitude toward the Turkish outgroup was not stable over the first middle-school year.

*Main analyses.* Multilevel regression results predicting outgroup attitudes. In line with previous studies on intergroup contact, the multilevel regression results (Table 3) show that friendships with Turkish peers at T2 improved outgroup attitudes at T3 ( $B = .15, SE = .04, p < .01$ ), controlled for students' attitudes at T1. None of the control variables were significant predictors of attitude change. Moreover, we did not find a significant main effect of (network)



**Figure 2.** Simple slopes for students with relative unfavorable (sign.) versus favorable (not sign.) outgroup attitudes at T1.

extended intergroup friendships at T2 on outgroup attitudes at T3 ( $B = .02, SE = .04, p = .54$ ) in Model 2. Accordingly, having ingroup friends who had outgroup friends was not related to more positive attitudes. This result shows that we neither found support for the positive extended intergroup friendships effect (Hypothesis 1) nor for the possible negative association of extended intergroup friendships with outgroup attitudes (Hypothesis 4).

It was furthermore hypothesized that in particular for students who had relatively unfavorable outgroup attitudes at T1, extended intergroup friendships would lead to more favorable attitudes at T3 (Hypothesis 2). This hypothesis was tested by including an interaction effect (Attitudes T1 \* Extended Intergroup Friendships) in Model 3.1. Consistent with Hypothesis 2, the results (Model 3.1) show that the effect of extended intergroup friendships at T2 was moderated by the attitude at T1,  $B = -.09, SE = .04, p = .02$ .

To facilitate interpretation of the significant interaction effect, we calculated simple slopes (Aiken & West, 1991) for the effects of extended

friendships for students who had relatively unfavorable outgroup attitudes at T1 (i.e., one standard deviation below the mean), for students with average outgroup attitudes at T1, and for students who had relatively favorable attitudes at T1 (i.e., one standard deviation above the mean). Supporting Hypothesis 2, the simple slope analyses showed that the net-effect of extended intergroup friendships on outgroup attitudes was significant and positive for students who had unfavorable attitudes at T1 (simple slope:  $B = .10, SE = .05, p = .04$ ), but there was no significant net-effect of extended intergroup friendships for students who had average outgroup attitudes at T1 (simple slope:  $B = .02, SE = .04, p = .58$ ), or held favorable outgroup attitudes at T1 (simple slope:  $B = -.08, SE = .06, p = .19$ ).<sup>1</sup> Figure 2 illustrates these findings.

We also hypothesized that extended intergroup friendships would improve outgroup attitudes in particular of students who did not have intergroup friendships themselves (Hypothesis 3). This was tested by including an interaction effect (Direct Intergroup Friendships \* Extended Friendships) in Model 3.2. Because we were interested in whether extended intergroup friendships affected students without direct intergroup friends more than students with direct intergroup friendships, the variable direct intergroup friendships was dummy coded (0 = *no Turkish friends*, 1 = *at least one Turkish friend*). Model 3.2 shows that this interaction effect was not statistically significant ( $B = -.07, SE = .10, p = .46$ ). This indicates that the effect of extended intergroup friendships was not different for those who did or did not have direct contact.

*Analyses with the conventional extended contact measure.* To examine whether the network measure and the conventional way of measuring extended contact yielded different results, we replicated the regression analyses with the conventional measure of extended intergroup friendships (not excluding triads with direct contact). The results of the analyses did not differ from the ones presented in Table 3 in terms of direction

and significance, except for one difference. The moderation effect of extended contact with attitudes at T1 was not statistically significant,  $B = -.07$ ,  $SE = .04$ ,  $p = .10$ . Thus, when using the conventional extended intergroup friendships measure, the results did not support our hypothesis that extended intergroup friendships had a stronger effect on outgroup attitudes for those students who held negative attitudes at the beginning of the school year.

*Additional analyses.* The moderating effect of initial outgroup attitudes might occur not only for extended contact but also for direct contact. To test this possibility, we included an interaction effect of the variable direct intergroup friendships with outgroup attitudes at the beginning of the school year. This interaction effect was not significant (and is not presented in Table 3). Thus, direct friendships with Turks improved outgroup attitudes of students regardless of their (positive or negative) initial outgroup attitudes.

To test the robustness of the causal relations between (extended) intergroup friendships and outgroup attitudes, we repeated the regression analyses with attitudes at T2 as an independent variable replacing attitudes at T1. These analyses yielded similar results. That is, when controlling for attitudes at T2, having Turkish friends at T2 improved attitudes towards Turks at T3 ( $B = .13$ ,  $SE = .04$ ,  $p < .01$ ), and extended intergroup friendships at T2 improved outgroup attitudes in particular for students who held negative outgroup attitudes at T2 (interaction:  $B = -.10$ ,  $SE = .03$ ,  $p < .01$ ).

Different from the analyses with initial attitudes at T1, the simple slope of students who had favorable outgroup attitudes at T2 was also significant. For students who had favorable attitudes at T2, extended intergroup friendships at T2 was related to less favorable outgroup attitudes at T3 (simple slope:  $B = -.10$ ,  $SE = .05$ ,  $p = .04$ ), and for students who had less favorable attitudes at T2 extended intergroup friendships at T2 was related to more favorable attitudes at T3 (simple

slope:  $B = .11$ ,  $SE = .05$ ,  $p = .04$ ). These alternative analyses point to partial support of Hypothesis 4. Extended intergroup friendships were related to a decrease in outgroup attitudes, but only for students who had more favorable attitudes at T2.

## Discussion

The present study examined conditions under which extended intergroup friendships improve outgroup attitudes. It was hypothesized that these friendships improve outgroup attitudes particularly for individuals who hold initially relatively unfavorable outgroup attitudes, and for individuals who do not have direct intergroup friendships themselves. Moreover, taking a network perspective, we presented a measure for extended intergroup friendships that avoids misclassification of intergroup friendship as extended when it is in fact direct, and we theorized that extended intergroup friendships in small social settings could also have potential negative effects. This was examined among Dutch students who just entered multiethnic middle schools.

### *Main Findings*

In line with intergroup contact theory (Allport, 1954), our study showed that direct intergroup friendships with Turkish peers led to more positive attitudes toward Turks amongst native Dutch students. In contrast to the extended contact hypothesis (Wright et al., 1997), we did not find support for Hypothesis 1, that extended intergroup friendships within school classes had a positive main effect on outgroup attitudes. This is in line with some earlier findings in school classes (e.g., Feddes et al., 2009). Moreover, the absence of an effect of extended intergroup friendship meant that we also had to reject Hypothesis 4, which stated that extended intergroup friendships in small social settings may be related to more negative attitudes.

To add to the extended contact literature, this study investigated conditions that could affect whether extended intergroup friendships improve outgroup attitudes. We expected that effects of extended intergroup friendships would be moderated by outgroup attitudes that students initially held when they entered middle school. In line with Hypothesis 2, we found that extended intergroup friendships improved outgroup attitudes particularly for students who initially held unfavorable attitudes. In addition, we found a negative (non- to marginally significant) trend for students with initially favorable outgroup attitudes. Additional analyses showed that this negative trend was significant when we controlled for attitudes at T2 instead of attitudes at T1. Thus, among students with positive outgroup attitudes 3 months after they entered middle school, extended intergroup friendships were related to a less favorable outgroup attitude.

In sum, extended intergroup friendships improved intergroup attitudes among students with initially unfavorable attitudes. Additional analyses, however, showed that extended intergroup friendships may also be related to a decline in positive outgroup attitudes among students with favorable outgroup attitudes later in the school year (at T2). Although the latter effect was only significant when controlling for attitudes at T2 (and not when controlling for attitudes at T1), the potential opposite effects might point to two different implications of extended intergroup friendships. On the one hand, extended intergroup friendships improved outgroup attitudes, like originally suggested (Wright et al., 1997), but only among respondents who initially held negative outgroup attitudes. This is in line with the study of Paolini et al. (2007) who found that extended contact in particular reduced prejudice to more highly prejudiced groups. Individuals who hold unfavorable outgroup attitudes might refrain from forming a direct friendship with an outgroup member because of their unfavorable attitude (Binder et al., 2009; Swart, Hewstone, Christ, & Voci, 2011). However, they gain new information through the intergroup friendships

of their friends, which can improve their own attitude. As argued in the first part of this article, for students who already hold positive outgroup attitudes, new information might not change their already positive attitudes. Additionally, next to this cognitive explanation, the social network perspective offers an affective explanation. It might be that students with extended intergroup friendship (unbalanced triads) reduce cognitive dissonance through adjusting their negative attitude. However, when students already have a positive outgroup attitude, they do not need to change it in order to restore balance.

On the other hand, extended intergroup friendships were related to a decline in favorable outgroup attitudes, like we theorized based on structural balance theory, but only among individuals with initially favorable outgroup attitudes at T2. These adolescents had the possibility to close the unbalanced triad and become direct friends with the outgroup friends of their ingroup friends. Structural balance theory even predicts that they would do so to avoid cognitive dissonance (Cartwright & Harary, 1956; Heider, 1958) and their positive outgroup attitude should not prevent them from doing so. Yet, the existence of an extended intergroup friendship (excluding the direct outgroup friendship) indicates that people chose *not* to close the triad.

The continuation of an unbalanced situation with its associated cognitive dissonance might indicate a negative relationship with the outgroup member. Such negative outgroup relations may disconfirm initially positive attitudes and hence lead to less favorable outgroup attitudes. Previous research has shown that negative interpersonal relationships led to more unfavorable outgroup attitudes in the long run (Stark et al., 2013). Thus, our findings for the subgroup of students who held positive outgroup attitudes at T2 were consistent with Hypothesis 4. On average, extended intergroup friendships did not have an effect on attitude change because the positive effect among the group with initially negative attitudes and the negative trend among those with initially positive attitudes counterbalanced each other.

However, the question remains why the negative effect of extended contact among students with relatively favorable outgroup attitudes was significant when these attitudes were measured at T2 and only showed a trend (marginally significant when looking at more extreme positive attitudes) when attitudes were measured at T1. The technical explanation might be that the mean value of outgroup attitudes among students in extended intergroup friendship triads who also had favorable attitudes were higher at T2 than at T1. This may have been caused by different processes. For example, those students may have developed more positive outgroup attitudes between T1 and T2 because they became direct friends of their ingroup friends' outgroup friends. Yet, these friendships were terminated shortly before the second measurement and negative interpersonal relationships with the former friends developed, which subsequently led to unfavorable outgroup attitudes at T3.

Another explanation could be that some students were already part of an unbalanced triad earlier in the school year. These students may have already developed less favorable (but still positive) attitudes towards the outgroup at T1. However, these students did not belong anymore to the group of students with positive attitudes at T2 because their outgroup attitudes continued to become more negative. Accordingly, mean outgroup attitudes at T2 were somewhat higher for the group of students with favorable outgroup attitude. Unfortunately, the exact reason cannot be given based on our data. Future studies have to study this process in more detail.

Furthermore, while the initial outgroup attitude moderated the effect of extended intergroup friendships on attitude change, additional analyses showed that this attitude did not moderate the effect of direct intergroup friendships on attitude change. This is a surprising finding given that previous studies found that direct intergroup friendships were more strongly related to outgroup attitudes among people high on right-wing authoritarianism (Dhont & van Hiel, 2011) and social dominance orientation (Hodson, 2011). However, Dhont and van Hiel (2011) also found

a weaker moderation effect of authoritarianism for direct friendships than for extended contact. Furthermore, different from these previous studies, the current study focused on (mostly) new friendships of students who just entered middle school, used earlier outgroup attitudes as a moderator, and examined intergroup friendships within the classroom context.

These differences may explain why results differ from previous studies, but we believe there is also a theoretical reason related to the difference between direct and indirect outgroup friendships. A moderation of the intergroup friendship effect could either be caused by a negative effect for those with initially positive attitudes (like the effect we found for extended contact) or by a stronger effect for those with initially negative attitudes. However, in the case of direct friendships, the former is rather unlikely. Whereas extended contact might mean that there is a negative outgroup relation, this is not the case for direct friendships. The latter, a stronger effect for those with initially negative attitudes may be caused by a ceiling effect. Students with positive attitudes cannot improve their attitude as strongly as those with negative attitudes because they score already very high on the attitudes scale. The fact that we did not find such a moderation may also indicate that there was still sufficient room for improvement among students in our sample that already had relatively favorable attitudes.

As another moderating condition, we tested whether extended contact would improve outgroup attitudes among people who did not have direct friendships themselves (Hypothesis 3). This was expected because extended intergroup contact should provide new information and adolescents with outgroup friendships already possess (positive) information from their own outgroup contact experiences. Whereas several studies found this association (Cameron et al., 2011; Christ et al., 2010; Dhont & van Hiel, 2011), we did not find support for the hypothesis in our sample. Next to the difference in study designs and age groups between our study and this earlier research, we focused on contact within classrooms. As described before, extended

intergroup friendships within a social setting like a school class may have another meaning than in other social settings. Accordingly, not having direct intergroup friends but only extended intergroup friends may be a consequence of negative attitudes, rather than an impetus for developing more positive attitudes. Moreover, it might be that students have direct intergroup friendships outside the school that we could not account for in our analyses.

The current study adds to previous research by providing a new measure for extended intergroup friendship that excludes triads with direct outgroup contact. Whereas most previous studies made use of survey questions (e.g., Tausch et al., 2011) to measure extended contact, we proposed a new measure using "best friend" peer nominations. Because the Arnhem School Study has data on complete social networks within school classes, we were able to examine extended intergroup friendships using concepts from social network analysis. By comparing our new measurement with analyses based on the extended intergroup friendships measure that included direct friendship between ego and the outgroup alter, and thus resembled the conventional survey questions, the current study showed that excluding direct contact gives somewhat different results. The conventional measure correlated highly with direct contact. This was not the case for the network measurement of extended intergroup friendships. Moreover, the effect of the conventional measure was not moderated by respondents' initial outgroup attitudes.

The extended contact hypothesis addresses situations in which a person has no direct contact with an outgroup contact of his or her ingroup friends (Wright et al., 1997) and our study shows that researchers can derive different conclusions depending on whether a direct intergroup friendship in an extended friendship triad is taken into account or not. In our view, this makes a strong point for employing a measure of extended intergroup friendships based on peer nominations to assess "truly" extended contact. Given the recent increase in the number and quality of studies that collect network data on intergroup relations, we

believe that this can be a fruitful avenue for future research on extended contact within small social settings like school classes, work groups, or sport clubs.

The current study also adds to previous research because it is one of the few studies that tested the extended contact hypothesis longitudinally. Even though reverse effects (of attitude on extended contact) might be unlikely, the current study shows that extended intergroup friendships improve not only outgroup attitudes measured simultaneously with the extended friendships (for those with initially unfavorable attitudes), but also that it improves attitudes at the end of the school year in comparison with the beginning of the school year.

### *Limitations and Further Research*

Paolini et al. (2007) argued that direct intergroup friendships particularly affect affection-based attitudes and extended intergroup friendships are more effective at improving cognition-based attitudes. In line with Turner et al. (2007), the current study argued for the importance of cognitive as well as affective processes for understanding how extended intergroup friendships may affect outgroup attitudes in small social settings. Cognitively, extended intergroup contact could provide new information (e.g., in- and outgroup norms) which may change intergroup attitudes. Affectively, structural balance theory argues that in order to avoid cognitive dissonance, people will adjust their outgroup attitude to the attitude of their ingroup friend. Whether the processes that underlie extended contact effects are predominantly affective or cognitive might differ between small and larger social settings. Hence, it seems important for future research to examine affective versus cognitive mediators of extended contact in more detail and whether this differs between small and large settings.

The social network measure of extended intergroup friendships has important advantages. First, by excluding triads in which there is a direct friendship between ego and the outgroup alter, the separate effects of direct and extended

intergroup friendships can be disentangled. Second, the new measure is suitable for measuring extended contact within ethnically diverse contact situations in which many people operate in their daily lives. Third, the social network measure gives more detailed information about the amount of extended contact than traditional survey questions that commonly work with survey scales. Furthermore, it is not very demanding for respondents because they only have to name their friends and do not have to recall the friends of their friends. Fourth, the social network measure can be used with different types of social relations. For example, negative extended intergroup contact effects can be examined with peer rejection and bullying nomination data.

However, the social network measure also has some limitations. Foremost, full social network data is needed which means that most social network studies are limited to one context. Extended and direct intergroup relations outside this context are not taken into account. Fortunately, several network studies are becoming available that are not limited to the classroom, but that include entire school cohorts (e.g., Add Health: Harris, 2009), or even a whole community (the Swedish 10 to 18 Study: Kiesner, Kerr, & Stattin, 2004). Furthermore, even though the new measure takes the existence of direct friendships into account, the absence of a direct intergroup friendship within the extended contact triad does not mean that ego does not know the outgroup alter. There might still be a positive or a negative relation with the outgroup alter which is not labeled as friendship.

Moreover, we examined the effect of extended intergroup friendships within classrooms. On the one hand this meant that we could reasonably assume that students knew about the intergroup friendships of their ingroup friends. Moreover, the focus on extended intergroup friendships within classrooms is relevant for extended contact interventions which are often targeted at restricted settings like school classes (e.g., Cameron, Rutland, & Brown, 2007). On the other hand, due to our focus on extended intergroup friendships within the classroom, we

did not take students' direct and extended intergroup friendships outside the classroom into account. The absence of a friendship with a Turkish classmate does not necessarily mean that a Dutch student does not have Turkish friends at all. This could interfere with the processes within the school class. Also, to examine extended intergroup friendship effects in a small setting, the current study focused on the ecology of the classroom. Future studies should examine whether findings replicate in other small social settings like for example work organizations or sport clubs.

A potential concern about our study could be that the findings reflect regression of outgroup attitudes to the mean. For students with initially unfavorable outgroup attitudes extended friendships are related to less unfavorable attitudes, and students with initially favorable attitudes show a trend to less favorable attitudes. However, the absence of a reduction of the standard deviation of outgroup attitudes shows that not all students become more similar to the mean over time. Further, the interaction of direct friendships with initial outgroup attitudes was not significant, indicating that it is really extended intergroup friendships that affect attitudes of students who initially held relatively favorable or unfavorable outgroup attitudes.

A related concern is that the moderation that we found may reflect a ceiling effect; for students who already have favorable attitudes towards the outgroup further improvement of their attitudes is unlikely, whether due to extended intergroup friendships or other factors. However, we believe that such a ceiling effect did not drive the results in the current study because students generally did not score at the extreme ends of the scale. Additionally, direct intergroup friendships affected students with negative and positive attitudes similarly, which shows that there is room for more positive attitudes even for students who were already relatively positive. Students with negative attitudes have most room for improvement, but, as Hodson (2011) argues, this does not make improvement among this group inevitable. In particular the negative group might be less open to contact or improving their

attitudes. In a review paper, Hodson (2011) found that effects of intergroup contact on outgroup attitudes may be particularly strong for intolerant people. Our result that extended intergroup friendships particularly improve outgroup attitudes of students with unfavorable outgroup attitudes, is in agreement with this finding.

The amount of (extended) intergroup friendships in our study was quite low because the number of students with an immigrant background was relatively low. Hence, studies on more ethnically diverse samples are needed to replicate the current results. Future studies should also investigate more in depth the reasons for why extended intergroup friendship triads, that is, multiethnic unbalanced triads, are unbalanced and how this affects outgroup attitudes. In addition, it would be interesting to see how those extended intergroup friendship triads develop over time and how they develop in relation to outgroup attitudes.

## Conclusion

This study contributes to the growing body of research on extended intergroup contact theory and indicates that “extended contact prejudice-reduction interventions” as developed by Cameron et al. (2007) are particularly of importance for students who have unfavorable outgroup attitudes. We also demonstrated that the focus on the entire friendship network within a class can give new and important insights. Extended intergroup friendships within social settings may indicate the development of more prejudice for those who initially hold more favorable outgroup attitudes. This means that interventions to promote positive outgroup attitudes should not only target students with unfavorable outgroup attitudes but should target the entire school class. Students that have intergroup friendships can form the bridge to integrated networks and to more positive outgroup attitudes within multiethnic school classes.

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## Note

1. Additional simple slope analyses with extreme scores (2 SD's below and above the mean) show that among students with more extreme unfavorable attitudes at T1, extended intergroup friendships improved outgroup attitudes positively (simple slope:  $B = .19$ ,  $SE = .08$ ,  $p = .02$ ) and among students with more extreme favorable attitudes at T2 extended intergroup friendships was marginally related to less favorable outgroup attitudes (simple slope:  $B = -.16$ ,  $SE = .09$ ,  $p = .06$ ).

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