

# Friendships Fighting Prejudice: A Longitudinal Perspective on Adolescents' Cross-Group Friendships with Immigrants

Peter F. Titzmann · Alaina Brenick ·  
Rainer K. Silbereisen

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**Abstract** Increasingly, adolescents are growing up in multiethnic multicultural societies. While intergroup prejudice can threaten the multicultural societal cohesion, intergroup friendships are strong predictors of reduced prejudice. Thus, more research is needed to fully understand the development of intergroup friendships and their relations to less prejudicial attitudes. This study addressed two major developmental research questions: first, whether longitudinal patterns of intergroup friendships of native adolescents (i.e., whether or not a native German adolescent has a friendship with an immigrant at different points in time) relate to changes in rates of prejudice about immigrants. Second, whether these friendship patterns that unfold over time can be predicted by contact opportunities, attitudes, subjective norms, and perceived behavioral control assessed at the beginning of the study. The sample included 372 native German adolescents (14.7 years of age at first assessment, 62.3 % girls) who showed one of four friendship trajectories over the three annual assessments: they either maintained, gained, never had, or lost a friendship with an outgroup peer. In particular, results showed that adolescents who gained an intergroup friendship over the three time points showed a significant decrease in negative prejudice over the study. All four theorized predictors contributed to explain friendship

trajectory membership. Generally, adolescents with many opportunities for contact, positive attitudes about contact, perceived positive social norms for contact, and high levels of behavioral control (self-efficacy) were more likely to maintain a friendship with an outgroup member than to follow any of the three other friendship trajectories (gain, lost, or never had). The pattern of predictions differed, however, depending on the specific pairs of friendship trajectories compared.

**Keywords** Intergroup attitudes · Contact hypothesis · Immigrants · Intergroup friendships · Prejudice · Longitudinal

## Introduction

Public opinion polls show that many native Germans feel that Germany is “overrun” with immigrants. Over a third of all native German respondents agree to statements like “foreigners come to our state to abuse the welfare system” (Decker et al. 2012, p. 29)—a sentiment that demonstrates the general level of prejudice against foreigners in Germany. Given the fact that approximately 19 % of the population of Germany has a migrant background (Statistisches Bundesamt 2010), such prejudice can be seen as a threat to the German societal cohesion. As similar tense intergroup relations are present in many modern societies around the globe, it is vital to learn more about intergroup relations, particularly with regard to questions of how and why levels of prejudice can change over time. The intergroup contact theory (Allport 1954) offers some theoretical and empirical arguments in this regard (Pettigrew and Tropp 2006). However, the research on this theory (and on prejudice in childhood and adolescence in general) is often

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P. F. Titzmann (✉)  
Jacobs Center for Productive Youth Development, University of  
Zurich, Andreasstrasse 15, 8050 Zurich, Switzerland  
e-mail: titzmann@jacobscenter.uzh.ch

A. Brenick  
University of Connecticut, West Hartford, CT, USA

R. K. Silbereisen  
Friedrich-Schiller-University Jena, Jena, Germany

based on concurrent associations or on experimental data. In a recent meta-analysis, only 5 % of all studies in childhood and adolescence prejudice were longitudinal whereas 95 % were cross-sectional (Raabe and Beelmann 2011). The focus on concurrent assessments and experimental research may be criticized (Dixon et al. 2005), because developmental methodologies, such as the current longitudinal study, are essential to uncovering long-term changes in authentic intergroup situations.

The above limitations were the starting point for the current longitudinal study aiming at investigating two major research questions. First, we examined whether patterns of intergroup friendships of native adolescents (i.e., whether or not a native German adolescent has an intergroup friendship at different points across time) relate to adolescents' rates of change in prejudice against immigrants. Second, we investigated whether different patterns of intergroup friendship that unfold over time can be predicted by contact opportunities, attitudes, subjective norms, and perceived behavioral control assessed at first assessment. Answers to these research questions can help to significantly improve our understanding of intergroup relations and prejudice in nowadays' multicultural societies.

Intergroup prejudice and the normative developmental changes in prejudice have been studied under various theoretical perspectives, such as social cognitive classification skills, perspective taking, group norm understanding, or moral development (Raabe and Beelmann 2011). In general, however, there seems to be little normative change in intergroup prejudice across the adolescent years. Although some studies found slight decreases in negative prejudice (van Zalk and Kerr 2014), a meta-analysis on 128 studies with participants between 2 and 19 years could not identify a general developmental trend across the adolescent years (Raabe and Beelmann 2011). Rather, the effects across studies seem heterogeneous, which may be an indication that adolescents' prejudice does depend on other circumstances, such as intergroup contact (Raabe and Beelmann 2011), the focus of our study. Research on intergroup prejudice and opportunities to reduce prejudice is, thus, needed given the fact that societies are growing increasingly multicultural and that prejudice can threaten societal cohesion substantially. There is evidence, for example, that immigrant adolescents report higher levels of discrimination when they attend schools, in which their native peers reported higher levels of prejudice (Brenick et al. 2012). The link between natives' prejudice and immigrants' perceived discrimination can be explained by the behavior of native adolescents, as native adolescents' prejudice relates to higher levels of violence against immigrants (Kuhn 2004) and lower levels of tolerance (van Zalk and Kerr 2014). Moreover, these negative outgroup

attitudes, still malleable in adolescence, form the basis of deep-seated explicit and implicit stereotypes in adulthood that justify and perpetuate economic and social inequalities throughout adulthood (Abrams and Killen 2014). Experiences of discrimination have negative effects on immigrants' long-term health and psychological adjustment of immigrants (Priest et al. 2013), so that societies' health and welfare systems can be challenged. Such undesired effects of prejudice can be expected to be particularly negative in adolescence, a life phase when peers and their approval become increasingly important (e.g., La Greca and Harrison 2005; Brown 1999).

The focus of our study was on the intergroup relations between native German youth and ethnic German immigrants from the former Soviet Union. Ethnic German immigrants are one of the largest immigrant groups in Germany, with more than 2.5 million immigrants since the 1990s, and, thus, these immigrants are well-represented in schools. Ethnic German immigrants had lived on the territory of the former Soviet Union for many generations. This group shares a German ancestry and (at least perceived) cultural background with the majority German population. They also receive preferential treatment, such as financial support and immediate German citizenship upon arrival. However, despite these favorable circumstances, ethnic German immigrants face similar challenges as immigrants from other immigrant groups in other countries, such as discrimination or language problems (Titzmann et al. 2014). A major reason these acculturation related challenges arise is because ethnic German immigrants were not allowed to speak German in public and were forced to assimilate to the culture of the former Soviet Union. Not surprisingly, this group is viewed as not quite German by the German society and is often labeled as "Russians," a label that also reflects a low social status. The general reservation of the majority population against immigrants (Decker et al. 2012), along with the clear status differential between native and immigrant groups, makes the study of the relations between native Germans and ethnic German immigrants applicable to many similar tense intergroup relations in societies around the world, particularly those in which the population is comprised of hierarchically stratified subgroups. At the same time, the privileged immigration conditions and the German ancestry makes this a unique group for studying the effects of interethnic friendships. The study of this group allows the often encouraged replication of intergroup contact effects (Swart et al. 2011) in a group that does not differ in terms of skin color or official naturalization from the German majority, but is nevertheless seen as outgroup. The replication of effects in substantially different groups is particularly meaningful, because it can challenge common theoretical assumptions (Kohn 1987).

## Intergroup Friendships and Intergroup Prejudice Across Time

A wealth of research has found intergroup contact to be quite successful at improving relations between groups ranging from race to sexual preference to age (Kenworthy et al. 2005; Pettigrew and Tropp 2006). A particularly powerful form of intergroup contact seems to be intergroup friendships, which were found to be related to prejudice reduction in various studies (Pettigrew et al. 2007; Pettigrew and Tropp 2006; van Laar et al. 2008). This friendship effect is likely due to friendships' meeting nearly all criteria Allport (1954) defined as critical for contact to be optimally effective in reducing intergroup tensions, such as equal status, common goals, and not being in competition (Pettigrew 1998). The underlying mechanisms for the effect of intergroup friendships on the reduction of prejudice are assumed to be reduced intergroup anxiety, increased empathy, better abilities for perspective taking, as well as an increase in knowledge about the outgroup (Pettigrew and Tropp 2008). Based on these assumptions, Pettigrew (1998) concluded that "friendship potential (is) an essential, not merely facilitating, condition for positive intergroup contact effects that generalize" (p. 76). Although the intergroup contact theory clearly predicts that reduced prejudice results from intergroup contact, which is supported by some studies (Dhont et al. 2012), other studies have found bidirectional models more appropriate in describing the associations between contact and prejudice (Binder et al. 2009; Swart et al. 2011). These bidirectional models found empirical support for simultaneous longitudinal effects from intergroup contact on prejudice and from prejudice on intergroup contact. In addition, these studies investigated the mechanisms linking intergroup contact and prejudice and found that intergroup anxiety seems to be a particularly strong mediator. Intergroup contact was found to reduce intergroup anxiety, which in turn reduced the level of negative prejudice (Binder et al. 2009; Swart et al. 2011).

Our research focused on the association between intergroup friendships and native majority adolescents' negative prejudice against immigrants. However, our study advanced the current literature in three ways: first, we extended the primarily cross-sectional and experimental work on intergroup friendships to the study of real groups in a society—the relationships between ethnic German Diaspora immigrants and native Germans. Second, we wanted to study changes in native German adolescents' prejudice over a time span covering three annual waves of assessment, in order to be able to see change and stability in prejudice. Existing longitudinal studies usually covered shorter time frames, such as 1.5 years (Swart et al. 2011) or 1 year (Eller et al. 2011). Third, we assessed predictors for patterns of engagement in intergroup friendship.

Our hypotheses referred to different patterns of friendships over time. Previous research has demonstrated that intergroup friendships between native adolescents and immigrants are not the norm in Germany (Jugert et al. 2011; Titzmann 2014), although they are more frequent the longer immigrants have been in the country (Titzmann and Silberstein 2009). Thus, intergroup friendships do exist and, across time, four patterns can be expected to occur: Native adolescents (1) may always have and maintain an intergroup friendship with an immigrant adolescent (maintain trajectory), (2) may gain an intergroup friendship over the course of the longitudinal study (gain trajectory), (3) may have an intergroup friendship in the beginning of the study, but may lose it over time (lose trajectory), or (4) may never have an intergroup friendship throughout the duration of the study (never-had trajectory). These trajectories were expected based on the fact that intergroup friendships in adolescence were found to occur (Jugert et al. 2011; Titzmann 2014), but are also known to be less stable (Schneider et al. 2007) so that it was likely for all patterns to occur over the period of our research. These four friendship trajectories formed the basis of our study and we expected the reported prejudice among natives to differ in relation to these patterns.

## Predictors of Intergroup Friendship Trajectories

Native German adolescents' membership in these four longitudinal friendship trajectories is, however, unlikely to be based on chance. Our second aim was, therefore, to investigate whether interindividual variation at first assessment in a number of conditions can predict membership in the four longitudinal friendship trajectories. We derived the predictors for membership in these friendship trajectories from two theoretical approaches: the opportunity theory for outgroup contact and the theory of planned behavior.

### *Opportunity Theory*

The opportunity hypothesis (Hallinan and Teixeira 1987) and macrostructural theory (Blau 1974, 1977) argue that, first and foremost, individuals must have the opportunity to engage with outgroup members in order for intergroup relationships to develop. Simply put, in order for an intergroup friendship to develop, at the very least an individual must have access to an outgroup member as a potential friend. Research conducted in school settings supports these perspectives finding greater numbers of intergroup friendships among majority group members in schools with greater shares of immigrant students (Houtte and Stevens 2009; Wilson and Rodkin 2011). For this reason, we studied the share of ethnic German Diaspora immigrants in the native Germans' schools as a potential predictor of such friendships. We expected that those students in schools with higher shares of outgroup peers would be

significantly more likely to follow the maintain trajectory. In contrast, the likelihood of being in the never-had trajectory was expected to be higher in schools with the lower shares of ethnic German immigrants. The gain and lose trajectories were expected to be also found in schools with relatively lower shares of immigrants in their students.

### *Theory of Planned Behavior*

According to the Theory of Planned Behavior (Fishbein and Ajzen 2010), friendships can be seen as the behavioral outcome of an individual's attitude regarding, subjective norm about, and perceived control over intergroup friendships. A wealth of research supports Fishbein and Ajzen's (2010) theory as demonstrated by a meta-analysis of 185 studies (Armitage and Conner 2001). The *attitude* toward a behavior is the favorable or unfavorable evaluation or appraisal of the behavior in question. Positive attitudes about intergroup contact can be expected to result in intentions to bring attitudes and behavior into alignment, which in turn does increase the subsequent likelihood of establishing intergroup friendships. The *subjective norm* is one's perception about the social pressure to engage or not engage in the behavior. Subjective social norms regarding interethnic friendships affect the intention to form and subsequently the actual formation of intergroup friendships, because they are associated with expectations of whether forming such friendships is socially rewarded or sanctioned (Fishbein and Ajzen 2010). The *perceived behavioral control*, quite closely related to Bandura's self-efficacy (Bandura 1982; Fishbein and Ajzen 2010), reflects one's understanding and beliefs about how capable one feels in terms of actually carrying out the specified behavior. Higher levels of behavioral control can be assumed to be associated with intentions to form and the actual formation of intergroup friendships, because individuals with higher levels of behavioral control perceive fewer barriers and more facilitators in developing these friendships (Fishbein and Ajzen 2010). When this theory is applied to intergroup friendships, we expected that a greater willingness for intergroup contact (*attitude*), a general perception that the German society expects native adolescents to develop intergroup friendships (*subjective norm*), and higher levels of self-efficacy (*perceived behavioral control*) should predict native German adolescents' membership in the maintain or the gain trajectory, whereas it should decrease the likelihood for native German adolescents to find themselves in the never-had trajectory.

### **Present Study**

With regard to hypotheses, we expected significant prejudice change in the gain trajectory, in particular. Their level of

negative prejudice about ethnic German immigrants should decrease, that is become less negative, as they transition to having an ethnic German immigrant friend. For this reason, we expected the gain trajectory to report a significant decrease in prejudice over time (Hypothesis 1a). Furthermore, we expected that their change rate in negative prejudice should differ from the other trajectories, that is the maintain, never-had, and the lose trajectories, i.e. their change rate should be significantly more negative than that of the other trajectories in the study (Hypothesis 1b). The maintain and never had trajectories were expected to express relatively little change in their levels of prejudice over the course of the study. Expectations were less clear with regard to native German youth who dissolved their intergroup friendships (lose trajectory) because, once established, contact may result in an enduring change in prejudice, but the effect may also wear off after some time.

In addition, we expected that contact opportunities, positive attitudes about contact, subjective social norms about contact, and perceived behavioral control should predict membership in the four friendship trajectories (maintain, gain, lose, never-had). Our thinking in this regard was guided by the theoretical assertion that the maintain trajectory represents the pattern of friendships with the greatest potential to promote lasting positive outgroup attitudes. We, therefore, used the maintain group as reference point in the statistical analyses of this study. We hypothesized that, in comparison to the never-had trajectory; Native German youth: who have a high percentage of immigrant youth in their schools will be more likely to be a member of the maintain friendship trajectory (Hypothesis 2a), who are highly willing to engage in intergroup friendships will be more likely to be a member of the maintain friendship trajectory (Hypothesis 2b), who perceive that intergroup friendships are more accepted by their society will be more likely to be a member of the maintain friendship trajectory (Hypothesis 2c), and who have higher levels of self-efficacy will be more likely to be a member of the maintain friendship trajectory (Hypothesis 2d). The maintain and never-had trajectories can be seen as extremes on opposite ends of a spectrum. The predictors may, however, also differentiate between the maintain trajectory and the gain/lose trajectories, but the expected predictive pattern is less certain. It may be, for example, that moderate values in the predictors (e.g., lower than in the maintain trajectory, but higher than in the never-had trajectory) are associated with being in either the gain or lose trajectories. Alternatively, the pattern in these predictors may be decisive. Willingness for intergroup friendships, for example, may not be predictive for being a member in the maintain trajectory versus gain trajectory, because both members in both these trajectories may embrace efforts in creating and keeping an intergroup

friendship. Willingness for intergroup contact may, however, differentiate between adolescents in the maintain and the lose trajectories. These contradicting assumptions were tested in an explorative manner.

We included four control variables in the study: age, gender, family finances and academic aspirations. Age was chosen because the likelihood of interethnic friendships tends to decrease with age and because the functions of friendships change from companionship to more mature relations including mutual disclosure (Aboud and Mendelson 1998). These functions may be more easily established with ingroup friends. Gender was included, because male and female adolescents differ in terms of friendship quality (Way and Greene 2006), and acceptance of intergroup exclusion and inclusion, which may both affect the likelihood of forming intergroup friendships and the effects on intergroup outcomes. Family finances and adolescents' academic aspirations were included as indicators of socioeconomic status, which is known to affect a large number of developmental outcomes across childhood and adolescence (Bradley and Corwyn 2002).

## Methods

### Sample

The sample for the present analyses was drawn from a large multidisciplinary longitudinal research project on adolescent adaptation conducted from 2003 to 2006. Potential participants (age range from 11 to 19 years) and their parents were informed via school teachers about the project. Both adolescent and parent consent were required for participation. Participants came from 29 schools in 9 cities in 4 federal states (North Rhine Westphalia, Hesse, Thuringia, Saxony). Cities with 100,000–200,000 citizens were selected, because these host a substantial number of ethnic German immigrants, which ensured that ethnic Germans attended all schools participating in the project (although the shares varied between schools—see the measure for contact opportunities below). The students self-identified their ethnic German immigrant, foreign or native status into three commonly used, well-defined, and well-understood labels. In common German use, native Germans hold German citizenship and are born to parents born in Germany. They differ from ethnic German immigrant adolescents (the common term “Aussiedler” was used in the questionnaires), who have moved back to Germany from the former Soviet Union, Poland or Romania and know about this background through the specific legal status, subsidies, and the family life. The term “foreigner” refers in common German language to persons who do not have a German passport and see themselves as members of a different nation respectively

(e.g. Turks, Yugoslavs, Italians etc.). For the first assessment wave, the questionnaires were completed at school, while the follow up questionnaires were answered by mail with 12 months intervals between the assessments. Sampling was conducted in cooperation with a reputed field research organization (ZUMA, Mannheim, Germany) and the sampling procedure ensured that adolescents in school grades 5 through 12 from all school academic and vocational streams were representatively included (see Chmielewski 2014 for comparison between school tracking and school streaming). The secondary school-system can vary slightly between federal states of Germany, but in general, three educational streams are available: the “Hauptschule” (lowest school stream leading to basic vocational trainings), the “Realschule” (higher school stream leading to more advanced vocational trainings) or the “Gymnasium” (highest school leading to university entrance qualification). Children enter into these streams at age of 10, after 4 years of primary school. Typically the parents select the school based on the primary school's assessment and recommendation. For an overview of the German school system see Schnabel et al. (2002).

The larger project from which our sample was drawn consisted of various subsamples, including a subsample of native German adolescents. In the first wave of assessment (at school), 851 native German adolescents participated, but for the current study we included only native German adolescents who were surveyed at three annual assessments and provided information on their friendships at least for the first and third time point as these are the minimum data points necessary to define the change (or stability) in intergroup friendship. Adolescents who had the same intergroup friendship status at first and third wave, but had no information at the second wave ( $N = 64$ ), were excluded from the analyses as it was impossible to determine whether these adolescents changed in friendship status during these years. Furthermore, a small number of adolescents reported multiple changes in friendship status, i.e., both gaining *and* losing an intergroup friendship, over the course of the study (have friendship-do not have friendship-have friendship-do not have friendship, 24 adolescents each). These two friendship trajectories were excluded, because too few individuals reported these trajectories. As a result, the final sample included 372 native German adolescents. These adolescents differed from the adolescents who were excluded in some variables (e.g., participating adolescents were 3 months younger, more girls participated in the longitudinal assessments, and participating adolescents reported slightly higher educational aims). The mean age at the first of the three annual assessments was 14.69 ( $SD = 2.17$ ), and the sample had slightly more girls than boys (62.3 % girls).



## Measures

### *Intergroup Friendship Assessment*

At each time point participants were asked to report whether or not they currently had an ethnic German immigrant friend. For our study, we focused simply on participants' self-reports of having *any* intergroup friendship at the three waves of assessment, rather than analyzing the number of cross-group friends a participant reported. The major argument for this procedure can be found in studies showing that the reduction of prejudice is substantial with *any* contact and that more contact does not necessarily substantially add to this effect (Raabe and Beelmann 2011). Participants were grouped based on their patterns of having or not having intergroup friendships at each time point. Adolescents in the maintain trajectory reported having intergroup friendships across all three time points. This was the largest group consisting of 134 adolescents (36.0 %). The never-had trajectory adolescents (63 adolescents, 16.9 %) reported not having intergroup friendships at any of the three time points. The gain trajectory (113 adolescents, 30.4 % of the sample) consisted of adolescents who reported not having an intergroup friendship at time point one or time points one and two, but then reported having intergroup friendships at time points two and three, or time point three, respectively. The lose trajectory (62 participants, 16.7 %) represented adolescents who had an intergroup friendships at time point one or time points one and two, but then did not indicate such an intergroup friendship at time points two and three, or time point three, respectively.

### *Opportunity*

Opportunity to engage in intergroup friendships was determined by the percentage of ethnic German immigrants in participants' schools, which was provided by school principals according to their enrollment statistics at the first wave of the study. The share of ethnic German immigrants in the schools assessed varied between 0.14 and 38.4 % depending on school ( $M = 8.3$ ,  $SD = 7.7$ ). As a result of administrative regulation in Germany, students usually attend the school that is nearest to them in their neighborhood and, thus, these shares reflect the neighborhood environment as well. For this reason, the effects of the school composition and the neighborhood composition are rather similar in the German context (Silbereisen and Titzmann 2007).

### *Attitude: Willingness for Intergroup Contact*

Participants' willingness for intergroup contact was measured at the first assessment using three items adapted from Ryder

et al. (2000) acculturation orientation instrument. The three items, "I enjoy social activities with ethnic German immigrants," "I would be willing to have a girlfriend/boyfriend who is ethnic German immigrant," and "I can imagine having ethnic German immigrant friends" were derived from the existing instrument but adapted to be appropriate for adolescents in our study. Participants rated their agreement with each statement on a six-point scale ranging from 1 = I disagree to 6 = I agree. The internal consistency of the scale ( $M = 4.1$ ,  $SD = 1.5$ ) was high with a Cronbach's alpha of .81.

### *Subjective Norm: Perceived Societal Contact Expectations*

Participants' perceived subjective norms of their salient and relevant ingroup, native Germans as a whole, were assessed through a 3-item measure on perceptions of societal expectations for intergroup contact. The items were completed at first assessment and were also based on an acculturation expectations instrument (Ryder et al. 2000), which was adapted for the current study. The items, "Many native Germans want me ..." "...to enjoy social activities together with ethnic German immigrants," "...to have a romantic relationship with an ethnic German immigrant," and "... to have friends that are ethnic German immigrants" were rated on a 6-point scale ranging from 1 = does not apply to 6 = does apply. The internal consistency of the scale ( $M = 2.9$ ,  $SD = 1.4$ ) was high with a Cronbach's alpha of .86. Although this instrument was developed for intergroup attitudes of ethnic groups in North America, it has been adapted and used in numerous studies worldwide including studies in Germany (Titzmann and Silbereisen 2009). Further, because majority attitudes are assumed to reflect the same dimensions as those assessed for acculturating ethnic groups (Berry 1997; Bourhis et al. 1997), the instrument is also applicable for assessing majority populations' intergroup contact attitudes.

### *Perceived Behavioral Control: Self-Efficacy*

Perceived behavioral control was measured at first assessment using 4-items of Schwarzer and Jerusalem's (1995) self-efficacy instrument. Items such as, "I can always solve difficult problems if I try hard enough," and "It's easy for me to stick to my goals and accomplish them," were rated on a 6-point scale ranging from 1 = does not apply to 6 = does apply. The internal consistency of the scale ( $M = 3.9$ ,  $SD = 1.1$ ) was good with a Cronbach's alpha of .75. This instrument has been translated into at least thirty languages and found valid in numerous countries including Germany (Scholz et al. 2002). Although this instrument does not focus particularly on friendships, it can be assumed that general self-efficacy beliefs are effective in creating and keeping friendships as indicated by larger

social networks among German adolescents with higher levels of self-efficacy (Pössel et al. 2005).

### Prejudice

Prejudice toward ethnic German immigrants was assessed through seven items that tapped into native German participants' agreement to several common prejudices about ethnic German immigrants (e.g., "Ethnic German immigrants just want to live at the expense of Germans," "Ethnic German immigrants tend to violence and criminality"). These items were derived from a scale developed for use with native German adolescents (Förster et al. 1993). Participants rated their agreement to these statements on a 6-point scale ranging from 1 = does not apply to 6 = does apply. The internal consistency was high. Depending on the wave of assessment, Cronbach's alpha for this prejudice scale ranged from .87 to .88 (T1:  $M = 2.7$ ,  $SD = 1.3$ ; T2:  $M = 2.6$ ,  $SD = 1.2$ ; T1:  $M = 2.7$ ,  $SD = 1.2$ ).

### Control Variables

Adolescents reported their age and gender. They also provided some basic information on their socio-economic background by rating the financial situation of their family from 1 = very bad to 6 = very good ( $M = 3.7$ ,  $SD = 0.8$ ) and by stating their general academic aspirations from the lowest degree (8th grade graduation), the lower (Hauptschulabschluss), and higher (Realschulabschluss) Certificate of Secondary Education, and the university entrance qualification ( $M = 3.7$ ,  $SD = 0.6$ ).

## Results

### Intergroup Friendships and Intergroup Prejudice Across Time

Our first aim was to investigate changes in prejudice over time in the four friendship trajectories. In order to do so, we built a four-group latent growth model using Amos (Arbuckle 2011), with three waves of prejudice ratings as manifest variables for the linear change over time. We tested whether the more parsimonious linear model represented the data well by testing this model against an unconstrained growth model, in which the parameter between the latent slope variable and the second wave manifest variable could vary freely. Results showed that both models represented the data rather well and did not differ significantly ( $\Delta\chi^2 = 8.85$ ,  $p = .07$ ) so that we used the linear more parsimonious model for our analyses. Only 3.9 % of the data on prejudice were missing. These missing data were handled with AMOS' Full Information Maximum Likelihood algorithm, which was

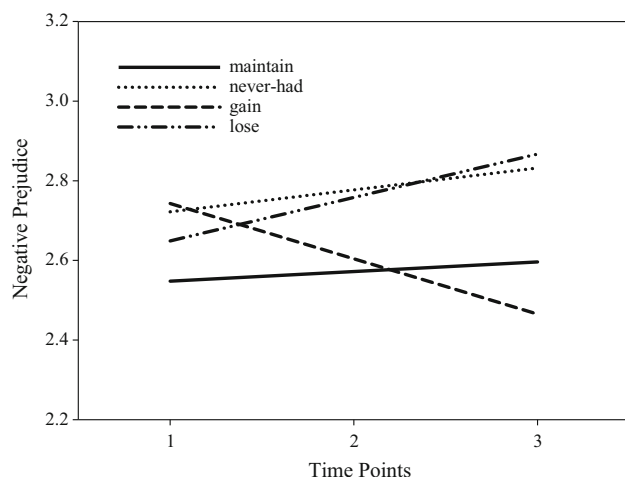
found to reliably handle missing data as long as <25 % of data points are missing (Collins et al. 2001). Age, gender, family finances and academic aspirations were used as covariates in the model. This growth curve model was the basis for estimating the intercept (start value) and slope (rate of change over time) in prejudice for all individuals and allowed us to test whether these differ between the four friendship trajectories. Mean friendship trajectory differences in the intercept and slope were tested by comparing a model in which these parameters could vary freely across the groups represented by friendship trajectories with a model in which these parameters were constrained to be equal across the friendship trajectories (Jöreskog and Sörbom 1989; Scott-Lennox and Lennox 1995). A significant difference in the model fit between these models indicates that the means in the intercept and/or slope of negative prejudice are significantly different between friendship trajectories.

The growth curve model for prejudice revealed a good model fit,  $\chi^2(39, N = 372) = 43.1$ ,  $p = .30$ ; Comparative Fit Index (CFI) = .99; Root Mean Square Error of Approximation = .02. The estimated prejudice across time is depicted in Fig. 1. The starting value (intercept) of the maintain trajectory was 2.55 with an annual change rate (slope) of 0.02,  $p = .63$ . The never-had trajectory started with an intercept of 2.72 and reported an annual change rate of 0.06,  $p = .47$ , during the course of the study. The gain trajectory started with an intercept of 2.74 and reported an annual change rate (slope) of  $-.14$ ,  $p < .05$ . Finally, the lose trajectory reported an intercept of 2.65 and a slope of .11,  $p = .18$ . Thus, only adolescents who gained an ethnic German immigrant friend over the 2 years of the study decreased, on average, significantly in their prejudice. This result clearly supported our Hypothesis 1a.

When we constrained the intercepts of the four friendship trajectory groups to be equal, the model fit did not change significantly,  $\Delta\chi^2(3, N = 372) = 1.89$ ,  $p = .60$ . This indicates that adolescents in all trajectory groups started with approximately the same level of prejudice. Constraining the slopes to be equal across friendship trajectories, however, revealed a significant change in model fit,  $\Delta\chi^2(3, N = 372) = 8.26$ ,  $p < .05$ . When we tested all four groups against each other, the results showed that the slope of the gain trajectory differed significantly from the maintain,  $\Delta\chi^2(1, N = 372) = 4.58$ ,  $p < .05$ , the never-had,  $\Delta\chi^2(1, N = 372) = 4.12$ ,  $p < .05$ , and the lose trajectories,  $\Delta\chi^2(1, N = 372) = 6.22$ ,  $p < .01$ . This result supported Hypothesis 1b. No other differences were found.

### Predictors of Intergroup Friendship Trajectories

Our second aim was to predict participants' membership in each of the four trajectories of friendship change. To assess the predictors of engagement in and maintenance of



**Fig. 1** Change in negative prejudice over time for the four friendship trajectories

intergroup friendship (Hypotheses 2a–d) we ran a multinomial logistic regression. The dependent variable was membership in intergroup friendship trajectories: maintain, gain, lose, or never-had with the maintain trajectory being chosen as the reference category. Age, gender, the perceived family socio-economic standing, and academic aspirations were entered as covariates, whereas percent of ethnic German immigrants in participants' schools, participants' positive attitude—willingness for contact to ethnic German immigrants, subjective social norms—societal expectations about contact to ethnic German immigrants, and perceived behavioral control—self-efficacy were entered as predictor variables, all measured at the first assessment. As <1 % of the data points were missing in the Wave 1 predictors, no missing data handling was required. The overall model emerged as significant  $\chi^2(24, N = 355) = 92.15, p < .05$  and explained 23 % of the variance, Cox & Snell  $R^2 = .23$ . The Cox & Snell  $R^2$  is an estimate of the explained variance based on the log-likelihood of the model with predictors compared with the log-likelihood of the basic model—it is also referred to as a “pseudo  $R^2$ ” in logistic regressions. The control variables did not add to the prediction (see Table 1).

All four predictor variables were significantly related to the likelihood of being in the maintain trajectory on the one hand and the never-had, lose, or gain trajectories on the other, but results varied depending on the pairs of friendship trajectories being compared. The data in Table 1 show that a higher share of ethnic German immigrants in school, a higher willingness for intergroup contact, and higher levels of perceived self-efficacy are independently and significantly related to a lower likelihood to be in the never-had as compared to the maintain trajectory. This result supports our Hypotheses 2a, b, and 2d. No effects

were found for the subjective societal contact expectations and, thus, Hypothesis 2c was rejected.

Table 1 also shows that the predictors did differentiate between the maintain and the gain trajectories. A higher share of ethnic German immigrants in school, a higher willingness for intergroup friendships, and higher perceived societal expectations for intergroup friendships predicted a lower likelihood for being in the gain as compared to the maintain trajectory. Only one predictor could differentiate between the maintain and the lose trajectories. A higher share of ethnic German immigrants at school was related to a lower likelihood to be in the lose trajectory. Thus, adolescents in the maintain and the lose trajectories were only differentiated by their opportunities for intergroup contact, but no other variable contributed to this differentiation. In order to further illustrate the differences between the friendship trajectories in these predictors, Table 2 shows the mean differences in the predictor variables for all friendship trajectories.

## Discussion

Prejudice in adolescence is a threat to the cohesion of multicultural and diverse societies, as it has been found to be related to lower levels of tolerance (van Zalk and Kerr 2014) and even to violence against immigrants (Kuhn 2004). As such, it is important to identify the factors that can reduce prejudice and negative attitudes. Our study showed that intergroup friendships are associated with lower levels of prejudice and, thus, are such a factor. The main finding showed that the act of gaining an outgroup friend over the course of the study was associated with significant decreases in adolescents' negative attitudes about this particular outgroup. This change was not only significant, but it also differed from the changes in prejudice in all other friendship trajectory groups (maintaining, never having, or losing an intergroup friendship over the course of the study). However, we could also show that such friendships do not occur by chance, but that some characteristics at first assessment predicted membership in friendship trajectories. One source for constant intergroup friendships across all years was opportunities for friendships. Native Germans with many ethnic German immigrants in their schools were more likely to fall in the maintain as compared to all other friendship trajectories (i.e., were more likely to have an ethnic German immigrant friend across all three time points). Nevertheless, attitudes (intergroup contact willingness) and subjective norms (societal expectations regarding contact) as well as perceived behavioral control (self-efficacy) were also important: A high initial willingness for intergroup contact predicted a greater



**Table 1** Predicting friendship trajectory membership (multinomial logistic regression)

Predictors at T1	Never-had			Gain			Lose		
	B	Wald test (z ratio)	Odds Ratio (95 % interval)	B	Wald test (z ratio)	Odds Ratio (95 % interval)	B	Wald test (z ratio)	Odds Ratio (95 % interval)
Age	−.00	.00	1.00 (.85–1.18)	−.13	3.51	.88 (.76–1.01)	.13	2.31	1.14 (.96–1.35)
Gender (male)	−.33	.80	.72 (.34–1.49)	−.04	.02	.96 (.54–1.72)	.38	1.24	1.46 (.75–2.87)
Family finances	.30	1.71	1.35 (.86–2.11)	.15	.65	1.16 (.81–1.64)	−.16	.65	.85 (.57–1.26)
Academic aspirations	.53	2.28	1.70 (.85–3.37)	.35	1.72	1.42 (.84–2.40)	−.37	1.94	.69 (.41–1.16)
Share of ethnic Germans at school	−.15	11.11	.86** (.79–.94)	−.10	10.98	.91** (.86–.96)	−.07	7.62	.93** (.88–.98)
Contact willingness	−.39	9.83	.68** (.53–.86)	−.25	5.56	.78* (.64–.96)	−.10	.58	.91 (.71–1.16)
Societal expectations	−.22	2.45	.80 (.61–1.06)	−.26	5.21	.78* (.62–.97)	−.01	.01	.99 (.77–1.26)
Self-efficacy	−.33	3.98	.72* (.52–.99)	−.09	.41	.92 (.71–1.19)	−.17	1.09	.85 (.62–1.16)
(Constant)	3.89	19.79		2.74	14.35		.76	.88	

Reference is the maintain trajectory group. \*  $p < .05$ ; \*\*  $p < .01$

**Table 2** Descriptive friendship trajectory group differences in the predictor variables; mean (SD)

Predictors at T1	Maintain	Never-had	Gain	Lose
Share of ethnic Germans at school	11.1 (10.6) <sup>a</sup>	5.8 (3.3) <sup>b</sup>	6.7 (3.7) <sup>b</sup>	6.9 (5.9) <sup>b</sup>
Contact willingness	4.6 (1.3) <sup>a</sup>	3.6 (1.7) <sup>b</sup>	3.8 (1.6) <sup>b</sup>	4.3 (1.5) <sup>a</sup>
Societal expectations	3.2 (1.5) <sup>a</sup>	2.6 (1.4) <sup>b</sup>	2.6 (1.3) <sup>b</sup>	3.0 (1.4) <sup>a, b</sup>
Self-efficacy	4.1 (1.1) <sup>a</sup>	3.6 (1.0) <sup>b</sup>	3.9 (1.1) <sup>a, b</sup>	3.9 (1.1) <sup>a, b</sup>

Different superscripts in a line indicate significant differences between friendship trajectories based on an F-test with  $p < .05$

likelihood of being in the maintain as compared to being in the never-had or gain trajectory. High perceived societal contact expectations predicted a higher likelihood of being in the maintain as compared to the gain trajectory and high levels of self-efficacy made it more likely to be in the maintain as compared to the never-had trajectory. The above results lead to two major conclusions. First, contact theory predicts that friendships possess all beneficial criteria of intergroup contact quality to successfully reduce the level of prejudice (Pettigrew 1998). Our study supports this prediction and extends the current knowledge beyond predominantly concurrent associations. Obviously, the positive effects of friendships can also be found in complex real life situations with immigrant and native adolescents as two groups in contact. Second, particular settings (with many opportunities) and particular psychological conditions (willingness for contact, subjective norms for contact, and self-efficacy) can increase the likelihood for intergroup friendships to occur. This is important knowledge for increasingly multicultural societies. Schools particularly are populated by students of many ethnicities and must recognize the efforts needed to help facilitate positive intercultural contact.

### Intergroup Friendships and Intergroup Prejudice Across Time

Nevertheless, some issues remain to be discussed. It was somewhat surprising, for example, that the friendship trajectory groups did not differ in their initial values of negative prejudice. Although adolescents without an ethnic German immigrant friend at first assessment (never-had, gain) reported nominally higher values in negative prejudice than adolescents in both other trajectories (see Fig. 1), these differences were not significant. A probable explanation can be seen in the larger interindividual variation in initial values (intercepts) as compared to the variation in rates of change (slopes). This larger variation can be explained by the fact that the initial value in negative prejudice is the result of many unobserved peer-processes that occurred before we started the study. Adolescents who reported not having had an immigrant friend at first assessment, for example, may have had such a friend at earlier stages of life. This distinguishes our field research from primarily experimental studies in which the first contact occurs as part of the experimental condition (e.g., Shook and Fazio 2008). In reality, adolescents remain in

the same class over many years and changes in friendship status take place at any time and with a particular relationship history within the setting (Swart et al. 2011). Thus, although our results may be somewhat weaker than those revealed in experimental studies, they provide clear evidence that negative prejudice can be reduced through intergroup friendships even when they emerge from a non-novel, longstanding social setting.

Related to this observation is the finding that losing an intergroup friendship did not change prejudice significantly in our study. At first glance, this is good news as it suggests that the creation of a new friendship has more relevance for negative prejudice than the loss of a friendship. However, given the size of this friendship trajectory group (62 adolescents were in lose as compared to 113 adolescents in the gain trajectory), this conclusion should be investigated further. Our results show a statistically insignificant, nominal increase in negative prejudice for the lose trajectory (depicted in Fig. 1). Over longer time spans and in larger samples, an increase in negative attitudes may emerge in adolescents who lose their intergroup friendship. Moreover, whether or not the loss of an intergroup friendship leads to a change in outgroup prejudice is likely related to the circumstances of how the friendship was dissolved. Some friendships may dissolve with heated conflicts whereas others fade more naturally or less ceremoniously. These conditions may affect the manner in and the degree to which negative prejudice does change when a friendship is dissolved. In line with this assumption, the interindividual variation in change rates was highest in the lose trajectory. Since previous research has shown that intergroup friendships tend to be less stable over time and involve more conflict than homogenous friendships (Schneider et al. 2007), it would be of great value for future research to more thoroughly examine the circumstances under which an intergroup friendship comes to an end.

#### Predictors of Intergroup Friendship Trajectories

Our study also showed that membership in the four friendship trajectories is not accidental. One particularly important factor in this regard is the school context; adolescents who were in schools with relative higher shares of ethnic German immigrants were also more likely to fall within the maintain trajectory. This finding has two implications. The first implication is that, given that friendships are primarily formed in schools, schools should be developmentally supportive and conducive to the creation and maintenance of intergroup friendships. Furthermore, given that intergroup friendships tend to involve higher rates of conflict (Schneider et al. 2007), it would benefit the overall school intergroup climate as well as

intergroup friendships to train school personnel in multicultural competencies, such as culture-based knowledge and cultural sensitivity (Prieto 2012) - competencies that can be modeled and directly taught to the student body. The second implication is that opportunities for contact have to be created in order to allow intergroup friendships to develop. The effects of such opportunities may be even larger under optimal conditions, i.e., equal group status, common goals, no competition (Allport 1954; Pettigrew 1998). Whether or not these conditions of intergroup contact are met in contemporary schools and how they can be met, remains an issue for further research.

Independent of one's opportunity to engage in intergroup friendships, all three predictors derived from the theory of planned behavior (Fishbein and Ajzen 2010) proved to be significant predictors of friendship trajectory membership. Adolescents with higher levels of contact willingness (attitudes), more positive perceived contact expectations (subjective norms), and higher levels of self-efficacy (perceived behavioral control) were more likely to have an intergroup friend across all three time points. The practical advantage of these findings (in comparison to that in which opportunity predicts friendship trajectory membership) is that these three characteristics—attitudes, subjective norms, and perceived behavioral control, may be more easily addressed through intervention or education efforts than, for example, changing the share of immigrants in schools. Fostering intercultural communication competence (Kupka et al. 2007) may be one such effort. Language and cultural barriers have been found to be a major challenge in developing intergroup relationships between native and immigrant youth (Titzmann 2014). Intercultural competency training, however, can break down these barriers and strengthen adolescents' sense of self-efficacy in developing intergroup friendships, especially if such training is directed at building both native and immigrant youth's friendship competencies.

#### Strengths, Limitations, and Future Research

Although our study has various strengths, such as the longitudinal assessments of prejudice change and the analysis of four unique, and as of yet understudied, intergroup friendship trajectories, and the investigation of real groups, several limitations have to be mentioned. One issue is that we do not know the adolescents' histories of intergroup friendships, because we sampled adolescents in the middle of a long process of peer friendships in schools. Future studies could collect more data in this regard, for example by starting such studies much earlier in life or by using a life history calendar (Caspi et al. 1996) to retrospectively assess early friendship experiences. In addition, future studies could also include some measures of intergroup

friendship quality and the circumstances under which intergroup friendships are created and dissolved. Such information may give even deeper insights into the quality and duration of the effects of intergroup friendships. A second limitation relates to our assessment of negative prejudice. This scale was developed to measure for German adolescents' prejudice, but was obviously informed by instruments for adults ("Ethnic German immigrants just want to live at the expense of Germans"). Although the scale revealed effects in our study and also proved to predict immigrant adolescents' feelings of discrimination in another study (Brenick et al. 2012), the results probably would have been even clearer with an instrument focusing more directly on adolescent life experiences. Qualitative research could be helpful in the development of such a measure. A third limitation can be seen in the direction of effects. Although friendship trajectories were defined by their friendship behavior during the course of the study, the association of friendship trajectory membership with predictors at first assessment still does not warrant drawing causal conclusions. Similarly, we expected that intergroup friendships would reduce the level of prejudice, an expectation that was embedded in the theoretical assumptions (Allport 1954; Pettigrew 1998) and empirical findings (Dhont et al. 2012). In reality, effects may be bidirectional with an additional effect from prejudice on intergroup friendships (Binder et al. 2009; Swart et al. 2011). Future research may, therefore, conduct experimental work that is embedded in long-term longitudinal studies on intergroup prejudice. Such an approach was taken, for example, in research on adolescent aggression, where an anti-aggression intervention was conducted with a subgroup of adolescents who already had participated in several longitudinal assessments (Boisjoli et al. 2007). Finally, our study cannot claim to be representative with regard to all likely contexts for contact. As we focused on the effects of intergroup contact, we had to select schools in which immigrants could be found. This resulted in a strong overrepresentation of schools in the west of Germany and in areas with a higher share of immigrants.

## Conclusion

Our research provides solid empirical support for the argument that intergroup friendships do not occur by chance, but when they do develop, a significant amelioration of negative prejudice can be expected. These findings have practical meaning, for the native adolescents, for their immigrant peers, and for society. For native adolescents, lower levels of prejudice mean greater tolerance and lower levels of intergroup violence (Kuhn 2004; van Zalk and Kerr 2014). Even more, promoting

positive, more inclusive outgroup attitudes in adolescence will help prevent the perpetuation of widespread discriminatory practices in adult life (e.g., unequal pay, job and housing discrimination) that are justified by staunchly unchanging prejudicial attitudes in adults (Abrams and Killen 2014). For immigrant youth, lower levels of prejudice mean lower levels of perceived (Brenick et al. 2012) and experienced discrimination, one of most detrimental experiences related to health and psychological adjustment problems among immigrants (Priest et al. 2013). Furthermore, immigrant adolescents will profit from intergroup friendships, as native friends are a resource for socio-cultural knowledge and skills needed for adaptation in the host community (Titzmann et al. 2010; Aberson et al. 2004). In concert with one another, the effects on natives and on immigrants will create a more accepting and supportive intergroup context with fewer tensions that challenge the smooth functioning of diverse societies. As peer approval is particularly important throughout adolescence, often more so than approval by family and community members (Brenick and Killen 2014), the effectiveness of intergroup friendships on reducing outgroup prejudice can be even greater than at other points in development. In addition, some research has demonstrated that the effects of intergroup friendships can spread to the ingroup friends of those adolescents who entertain an intergroup friendship (Eller et al. 2011). Such results show that the potential of intergroup friendship should not be underestimated. As societies become increasingly multicultural, we need to invest more in the understanding and facilitation of intergroup friendships and have to create an atmosphere that fosters intergroup friendships. This study has already demonstrated a handful of ways in which this can be accomplished. For example, opportunities for contact must be created, adolescents need to learn that society supports the formation of friendships with immigrants, and adolescents need to be motivated to establish such friendships themselves. Such efforts will certainly improve adolescents' intercultural relations that hopefully carry throughout the entire lifespan.

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**Author contributions** P.F.T and A.B conceived of the study. P.F.T conducted analyses for the study presented, and drafted the manuscript. A.B provided input for the theoretical underpinning of the study and was involved in drafting the manuscript. R.K.S was principal investigator of the project and participated in the interpretation of the data and in drafting the manuscript. All authors read, edited, and approved the final manuscript.

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**Peter F. Titzmann** is currently Associate Professor at the Jacobs Center for Productive Youth Development, University of Zürich, Switzerland. His general research interest is in the interplay between normative development and migration-related adaptation among adolescents with immigrant background. He investigated this interplay in various developmental outcomes, such as experiences of stress, delinquent behaviour, friendships, and autonomy development.

**Alaina Brenick** is currently an assistant professor of Human Development and Family Studies at the University of Connecticut. Her research interests include social and moral reasoning regarding victimization, bullying, discrimination, and exclusion based on group membership, intergroup relations in areas of immigration and/or high

conflict, the roles of contact, identity, and culture in these phenomena, and intervention efforts to promote positive intergroup dynamics in youth.

**Rainer K. Silbereisen** is currently Research Professor of Developmental Psychology and Director of the Center for Applied

Developmental Science (CADS) at the Friedrich Schiller University Jena, Germany. His research interests focus on the study of large-scale societal changes (political transformations, migration, environmental change, economic shocks) and their effect on social and personality development across the lifespan in cross-cultural format.