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Neighborhood Effects of Intergroup Contact on Change in Youth Intergroup Bias

Abstract

Intergroup contact plays a critical role in the reduction of prejudice; however, there is limited research examining the multiple ways through which contact can impact trajectories of development for adolescents in divided societies. Thus, the goal of the current study was to examine individual- and context-level effects of intergroup contact on change in intergroup bias through adolescence. Hierarchical linear modeling was used to analyze five waves of data from 933 youth ($M_{age} = 15.5$, $SD = 4.03$; Range: 10-20 years old; 52% female) living in 38 neighborhoods in Belfast, Northern Ireland. The results suggest that youth increase in bias with age. Adolescents with more frequent intergroup contact increase more quickly, and those who report higher quality of contact increase more slowly. Both frequency and quality of contact at the neighborhood level predicted slower increases in bias across adolescence. The results add to a growing literature that combines social and developmental approaches to understanding how intergroup processes and intergroup divide impact youth development of intergroup attitudes and behaviors. The results are discussed in terms of the importance of both individual experiences and the context of intergroup contact for youth development in divided contexts.

Keywords: intergroup contact, longitudinal, context effects, divided society, adolescence, neighborhood

Introduction

Despite the formal end of conflict, intergroup tensions and divisions often continue in post-conflict societies (Mac Ginty, 2006). Youth in post-conflict communities often develop in segregated spaces, with physical and emotional legacies of war that color their family and community histories with trauma and negative emotions (Leonard, 2010). Youth incorporate both their personal experiences with out-group members, as well as family and community experiences to make sense of their worlds (Degner & Dalege, 2013). When personal experiences and cultural norms are defined by segregation and negative intergroup interactions, it is expected that negative intergroup attitudes and behaviors will persist in younger generations. Using a developmental intergroup framework (Abrams & Killen, 2014; Bennett & Sani, 2004), the current manuscript assesses the impact of personal experiences with intergroup contact and the context of neighborhood-level intergroup contact on change in adolescent intergroup bias in a divided society. Context of neighborhood-level contact is conceptualized as norms of contact, or the culture of frequency and quality of intergroup contact that people in one's community experience. In line with previous work by Christ et al. (2014), we use neighborhood means of individual reports of contact to model between-community effects of contact on youth trajectories of intergroup bias.

There is a strong tradition of examining intergroup contact as an intervention and prevention strategy to combat prejudice. The positive effects of intergroup contact on intergroup attitudes have been extensively documented (Allport, 1954; Al Ramiah & Hewstone, 2013; Brown & Hewstone, 2005; Pettigrew & Tropp, 2006). Across multiple contexts and in both experimental and field studies, intergroup contact has been related to lower levels of prejudice (Pettigrew & Tropp, 2006). Notably, Tropp & Pettigrew's (2005) meta-analysis suggests that

contact has stronger effects on prejudice for majority group members compared to minority group members.

Studies examining the effects of intergroup contact have also considered its many facets including the frequency of contact, or how often individuals come into contact with members of other ethnic groups, and the quality of contact, or the degree to which contact is friendly and cooperative, and institutionally supported (Allport, 1954; Tausch, Tam, Hewstone, Kenworthy, & Cairns, 2007). Mediators (e.g., empathy, intergroup friendships) for links between contact and lower prejudice (Pettigrew & Tropp, 2008) and the conditions under which contact is most likely to be efficacious in reducing prejudice (e.g., Tausch et al., 2007) have also been documented.

Regarding the impact of quantity and quality of contact, Pettigrew and Tropp (2006) found contact that met Allport's conditions of contact had a stronger effect on prejudice than contact that was not of high quality. A more recent meta-analysis also suggests that having intergroup friends is a particularly powerful form of contact for reducing prejudice (Davies, Tropp, Aron, Pettigrew, & Wright, 2014). Intergroup friendships are thought to be important to more positive intergroup attitudes because the contact that occurs in the context of these relationships is likely to be both meaningful and involve Allport's original conditions for optimal contact (Pettigrew, Tropp, Wagner & Christ, 2011). Based on this research, we would expect the quality of contact to have a stronger effect on intergroup attitudes than just high frequency contact. Moreover, the quality of contact does not just range from neutral to high quality- intergroup contact can have a negative effect on intergroup attitudes if the contact includes provocations, threat, or contact that is not wanted (e.g., Barlow et al., 2012). Thus, it is possible that higher frequency contact could have a negative impact on prejudice.

Although a large body of work on contact exists, most of these studies are cross-sectional or longitudinal studies of between-person processes (e.g., Feddes, Noack, & Rutland, 2009; Turner & Feddes, 2011). There is limited research documenting the effects of intergroup contact on within-person change in intergroup attitudes. Whereas between-person processes of change, typically assessed through cross-lagged or panel models, assess how individuals change relative to others, within-person models assess change relative to the self. These within-person processes, or trajectories of change, are at the heart of the developmental process. Thus, advancing understanding of age-related changes, this manuscript examines how personal contact experiences and context-level neighborhood contact affect within-person change in intergroup bias for youth in a divided society.

Developmental Models of Intergroup Attitudes

Recent work has acknowledged the importance of social cognition, social identity, intergroup contact and group norms for the development of intergroup attitudes in children (Bennett & Sani, 2004; Levy & Killen, 2008; Nasie, Diamond & Bar-Tal, 2015; Nesdale, 2004). Developmental approaches to understanding when and how children acquire in-group and out-group attitudes has focused on early and middle childhood. Early work by Aboud (1988; Aboud & Doyle, 1996) and colleagues suggested that children's prejudiced attitudes peak around 7 years of age due to their acquisition of concrete operational thinking. They proposed that prejudice declines after this age as children develop perceptual and cognitive abilities that allow them to perceive and process differences between individuals. This social cognitive account of how children develop intergroup attitudes suggests limited emphasis on environmental influences.

On the other hand, Social Identity Development Theory (Nesdale, 2004) recognizes that individuals' increasing awareness of the social world affects their development of intergroup attitudes and it incorporates social identity theory (Tajfel & Turner, 1979) as an important component of our understanding of the changing nature of intergroup attitudes. Social identity theory posits that individuals have a need to identify with social groups that are positively distinct from other groups, motivating greater differentiation compared to relevant out-groups.

Taking these premises into consideration but incorporating social, emotional and cognitive developmental changes, Nesdale (2004) proposed that ethnic prejudice will be impacted by environmental influences. Social identity development theory suggests that the degree to which ethnic preference turns into ethnic prejudice depends on social and cognitive skills such as the development of empathy and higher-level moral reasoning, but also on identity processes in youths' social environments. That is, youth will adopt the attitudes of those around them by incorporating group norms and attitudes as part of their identity. This process is expected to unfold over time, representing "the culmination of a period of exposure to the dislike and hatred felt by significant others towards minority group members, the negative 'facts' (i.e., stereotypic beliefs) that are espoused in relation to minority group members, and the observation of discriminatory behaviors directed at them" (Nesdale, 2004, p. 231). Thus, the norms of intergroup attitudes and behaviors, or how those in close proximity interact with other groups, may impact how bias develops over time.

It is particularly relevant to assess these processes through adolescence and emerging adulthood given adolescents increased awareness of their surroundings and their emerging identity commitments (Erikson, 1963). Notably, Abrams and Rutland discuss awareness of and understanding of group norms resulting from emerging cognitive capacities in adolescence

(2008). In one cross-sectional test of the effects of cultural norms on adolescent identity, cultural-level dimensions, such as hierarchy versus egalitarianism, had stronger effects on out-group negativity for older adolescents compared to late childhood and early adolescence (Schiefer Möllering, Daniel, Benish-Weisman, & Boehnke, 2010). This age trend is complemented by other research that shows adolescents are increasingly aware of and incorporate group norms into their intergroup decision making (Mulvey, Hitti, Rutland, Abrams, & Killen, 2014).

Norms of Contact and Context-Level Effects of Contact

Researchers have also explored how norms of contact impact prejudice. For example, McGuire, Rutland, and Nesdale (2015) found that multiple context norms, such as from peers and schools, interacted to predict prejudice among young people. With primarily adult samples, Christ et al. (2014) examined the impact of both individual-level contact and community-level contact (e.g., neighborhood, region, and district) on prejudice, concluding that community-level contact had a greater impact on prejudice than did individual-level contact. Neighborhood norms may be akin to institutional support which is one of the conditions of contact thought to make those encounters more successful (Allport, 1954). Using multi-level models, Christ et al. demonstrated a methodological advancement in the study of context effects; however, developmental issues representing within-person change processes were not examined. Thus, while community-level norms were shown to have impacts on prejudice, this study did not speak to how the development of intergroup attitudes among youth may be influenced by neighborhood-level norms.

The relationship between group norms and intergroup attitudes has also been studied in youth. Durkin, Griffiths, Maass and Nesdale (2005) found that when a child's group has norms

of exclusion toward out-group members, they are more likely to express dislike of out-group members. The study also reported important interaction effects suggesting that older children (9 year-olds compared to 7-year olds) only reported disliking of the out-group when children were in the exclusive norm group *and* when their group was threatened. That is, the exclusive group norm was more important in shaping out-group attitudes among older children who felt their group was in danger. In a longitudinal test of between person differences, Feddes et al. (2009) showed that the effects of direct cross-group friendship on out-group attitudes are partially mediated by social norms. Examining within-person change in preference for in-group friends, Jugert, Noack & Rutland (2011) found that preference for same-ethnic friendships decreased over one school year for a group of 9-12 year old children in Germany. Both German majority students and Turkish minority students decreased in their preference for in-group friends over the school year, and positive peer norms about intergroup friendships impacted children's friendship preferences.

The Current Study

Given the importance of the developmental intergroup framework, and the scarcity of within-person longitudinal designs (see Jugert et al. 2011 as a noted exception), the current study examines how *both* individual contact experiences and community-level contact norms affect the development of intergroup bias in the form of in-group preference in Belfast, Northern Ireland. Today, Belfast is a divided community following decades of conflict known as the Troubles. The conflict has been defined by a struggle between two ethno-political groups (Catholics and Protestants) clashing over issues of nationality and the constitutional position of Northern Ireland (Cairns & Darby, 1998). Although the labels used to define the two groups signify that religion is a key factor in the current divide, the nature of the conflict is ethno-political (Mac Ginty,

Muldoon, & Ferguson, 2007). That is, the central issue of the conflict is whether Northern Ireland should remain part of the United Kingdom or whether it should unite with the Republic of Ireland. Protestants tend to identify as British and want to preserve Northern Ireland's place in the United Kingdom, and Catholics tend to identify as Irish and endorse the move to unification with the Republic of Ireland. During the late 1960s, Catholics who were in the minority within Northern Ireland began protesting for their civil rights. During the Troubles, these protests evolved into armed confrontations between various combinations of state forces, illegal paramilitary groups, and civilians. Estimates suggest that 3,600 people have been killed, around 20,000-30,000 imprisoned, and some 50,000 reported as injured (Cairns & Darby, 1998; Cairns, Wilson, Gallagher, & Trew, 1995; McEvoy & Shirlow, 2009).

Despite the signing of the Belfast/Good Friday Agreement in 1998, many in Belfast live segregated lives. For example, 93% of youth continue to attend segregated schools (Northern Ireland Department of Education, 2017), with Catholic and Protestant youth largely existing in separate social spaces. Given that many youth in Belfast live in highly segregated, tight knit neighborhoods, recognition of "the other" is easy. Although progress has been made in the overall security situation, intergroup tensions remain and periodically spike. Moreover, group status has been described as a "double majority" as Catholics are in the numeric majority on the island of Ireland, and Protestants maintain a slight majority within Northern Ireland. Thus, Catholics and Protestants feel insecure regarding their place within Northern Ireland and on the Island of Ireland, respectively, and both groups view themselves as having a legitimate majority (Mac Ginty et al., 2007).

Within this context, the current study examines how age-related development of youth intergroup attitudes is influenced by their own contact experiences and neighborhood-level

norms of contact using five waves of data from a longitudinal study of youth development. Norms in the current study are conceptualized as the context-level experiences of contact for youth within segregated neighborhoods in Belfast. In this context of tight-knit, segregated neighborhoods, we expected the average amount of contact that occurs within the clearly defined neighborhood boundaries reflects a pattern or norm of intergroup contact. Neighborhood-level norms of contact were chosen over school-level norms of contact that have been assessed in previous research (e.g., Jugert et al., 2011) because a vast majority of youth in Northern Ireland attend segregated schools (Northern Ireland Department of Education, 2017). Moreover, the level of neighborhood segregation and the role that neighborhoods have played in the history of conflict in Belfast (Shirlow & Murtagh, 2006) led to the focus on neighborhoods. Within this context, we tested three questions: (1) Does intergroup bias change within-person (i.e. with age) through adolescence? (2) Do individual experiences of contact influence these changes? (3) Do norms of contact at the neighborhood-level predict these changes? Based on social identity development theory and the divided communities in which youth in Belfast live, we expected that intergroup bias would increase through adolescence. We also hypothesized that youth living in neighborhoods with norms of more frequent and higher quality contact will show lower levels and slower trajectories of increasing intergroup bias with age. Based on the existing empirical evidence that both amount and quality (e.g., in Northern Ireland, Tausch et al., 2007) of contact have positive effects on intergroup attitudes, we hypothesized that individual differences in frequency and quality of contact would also predict lower levels of bias and slower increases in bias.

Method

Participants

The participants included 933 youth (48% male) that participated in any of the final five waves of a six wave longitudinal data collection for a larger project on the impact of political violence on children and families in Belfast. At Time 1 of the larger study, families with an adolescent between the ages of 10-17 were recruited. The average age across waves was 13.24 ($SD = 1.83$), 13.61 ($SD = 2.00$), 14.66 ($SD = 1.97$), 15.74 ($SD = 1.97$), and 16.82 ($SD = 2.00$) years old, respectively. Reflecting the demographics of Northern Ireland on the whole, all participants were White and there was a slight over-representation of the Protestant community (62%) compared to the Catholic community (38%) given the 48/45% breakdown in the last census. Consistent with family structures in socially-deprived areas of Belfast, roughly two-thirds of the participating families were headed by single females. A majority of these mothers identify as being single or never married.

The attrition was low given the high-risk nature of the sample; of the original sample at Time 1, 80% at Time 2, 74% at Time 3, 73% at Time 4, and 78% at Time 5 was retained. From Times 1 to 2 ($t(525) = 3.55, p < .001$; retained: $M = 25.59, SD = 35.12$; attrited: $M = 11.63, SD = 35.14$), and Times 5 to 6 ($t(583) = 4.46, p < .001$; retained: $M = 36.60, SD = 30.13$; attrited: $M = 20.26, SD = 27.36$), participants who reported *less* bias were more likely to drop out at each subsequent wave. There were no differences in bias between those who were retained or not between Times 2 and 3 or Times 3 and 4. For individual contact experiences, participants that did not return at Time 5 reported higher contact frequency ($t(548) = -2.96, p < .01$; retained: $M = 2.05, SD = 3.16$; attrited: $M = 3.27, SD = 3.69$) and quality ($t(531) = -3.58, p < .001$; retained: $M = 5.65, SD = 7.35$; attrited: $M = 9.10, SD = 7.99$) at Time 4.

Procedures

An expert demographer identified neighborhoods in Belfast that were relatively homogenous based on Catholic/Protestant affiliation of residents and on socio-economic status, but varied based on historic and more recent sectarian violence. That is, based on historical politically-motivated death rates during the Troubles, as well as current sectarian crime reports to the Police Service of Northern Ireland, neighborhoods were selected for higher and lower amounts of each type of risk (Shirlow & Murtagh, 2006). All study areas were working class and ranked in the lowest quarter of social deprivation in terms of access to basic services, schools, education and housing. Neighborhoods can also be identified by super output areas (SOA), micro-communities designated by the government for census data collection. SOAs were designed to be consistent in size, around 2,000 residents, and homogenous in terms of the Catholic or Protestant background of inhabitants. SOAs were selected by the government as the smallest unit of analysis for documentation by the Northern Ireland Statistics and Research Agency (NISRA, 2015).

Within each of the identified neighborhoods, 35-40 families with a child in the target age range (10-17 years old) were recruited to participate in the Mother and Child Project following a quota sampling design based on youth gender and age. At the initiation of the study, community leaders in each neighborhood were sent a letter informing them about the study. Then, letters were sent to each home and families were told that it was a study of political and community conflict, family relationships, and child development. Interviewers then followed up through door-to-door visits to see if the family was eligible and interested in participating. At Time 2, a supplementary sample was added because of additional financial support; adjusting for the child age, the same recruitment procedures were followed as with the original sample. Only 5% of the sample moved between the third and sixth waves of the study. All of the data were collected via

face-to-face interviews by a trained member of a local market research firm. Interviews were completed in the participants' homes and the child survey lasted approximately 45 minutes, for which the family received modest compensation at each time point. Procedures were approved by the Human Subjects Review Boards at all participating universities.

Measures

Intergroup bias. At each time point, youth responded to two questions that related to intergroup attitudes (Cairns, Kenworthy, Campbell, & Hewstone, 2006). This set of items asked participants to respond to a 'feeling thermometer' which ranges from 0 (*unfavorable*) to 100 (*favorable*) for overall feeling towards the Protestant and Catholic community, respectively. Higher scores indicated more positive feelings. A difference score was calculated, based on the participant's in-group. That is, for Catholic youth, the Protestant score was subtracted from the Catholic community score; whereas the opposite was calculated for Protestant youth. As a result, the degree of intergroup bias reflects the difference between a favorable rating of the individual's in-group compared to the out-group, ranging from -100 to 100 with higher scores indicating positive in-group bias. This approach to intergroup bias has been shown to have predictive validity with regard to strength of in-group identification in Northern Ireland (Cairns et al., 2006), as well as in-group favoritism and collective self-esteem under conditions of threat (Ysseldyk, Haslam, Matheson, & Anisman, 2012).

Frequency of intergroup contact. At Times 4 and 5, youth reported the amount of contact they had with an individual from the 'other community,' the local reference to the relative out-group of Catholic/Protestant. Adolescents responded to four items that asked "how often do you interact with people from the other community in each other's homes / at school / in your neighborhood / through extra-curricular activities such as sports or community service."

That is, the four items assessed the frequency of contact across four different domains.

Responses could range from 0 (*never*) to 4 (*very often*) and were summed for a composite score.

Cronbach's alphas were good (Time 4 $\alpha = .82$, Time 5 $\alpha = .86$).

Quality of intergroup contact. At Times 4 and 5, individual participants also rated their overall experiences with the 'other community' in terms of the quality of contact (Dixon et al., 2010). On a 5-point Likert scale participants selected the degree to which the five statements described their experiences from 0 (*never*) to 4 (*always*). Example items include the degree to which, when interacting with someone from the other community, participants interact as equals, the contact is friendly, the contact is pleasant, the contact is cooperative, and the contact is close and intimate. Responses were summed and higher scores indicated better quality of contact with excellent internal consistencies (Time 4 = .99, Time 5 $\alpha = .99$).

Neighborhood-level contact. Scores for neighborhood-level frequency and quality of contact were computed by taking the mean of the individual-level reports of these variables for all participants in a given neighborhood. The neighborhood-level mean for contact frequency was 2.58 ($SD = 1.88$) and the mean for contact quality was 8.19 ($SD = .60$).

Results

Descriptive Statistics

Means and standard deviations for the individual level variables (Levels 1 and 2) are included in Table 1. Due to the age-based nature of the dataset, descriptive statistics are presented by age instead of wave. Therefore, a given individual contributed data to more than one age if they were assessed more than once. For this reason, the number of correlations for the age-based dataset would require an exceptionally large table and therefore presentation of the correlations are described here. The correlations between contact frequency and contact quality

were significant across age groups (Range: $r = .55, p < .001$ to $r = .80, p < .001$). The pattern of correlations between frequency and quality of contact appeared to increase with age. The relationship between frequency and bias was significant starting in the 14- year-old age-group but did not appear to consistently increase or decrease over time (Range: $r = -.25, p < .001$ to $r = -.46, p < .001$). The relationship between contact quality and bias was significant starting in the 13- year-old age-group but did not appear to consistently increase or decrease over time (Range: $r = -.44, p < .001$ to $r = -.64, p < .001$).

Model Results

All data were modeled using a multilevel modeling approach in order to study the between-person and between-neighborhood differences in within-person change. Separate equations are specified for the within-person, between-person, and between-neighborhood levels of the data. For the within-person variables at Level 1, the outcome variable is regressed on the within-person predictors such as age and other time-varying predictors in the data. The Level 1 parameters are then used as outcome variables regressed on Level 2 predictors, and the Level 2 parameters are used as outcome variables at Level 3. Multilevel modeling uses maximum likelihood estimation which accurately estimates parameters with missing data, assuming that the data are missing at random. The analyses were conducted using HLM 7.0 (Raudenbush, Bryk, & Congdon, 2013).

The first set of model tests compared no change, linear change and quadratic change models to determine the best fitting model for bias change over age. The linear model was a better fitting model than the intercept only model ($\chi^2(1) = 50.46, p < .001$), and the quadratic model of change did not fit significantly better than the linear change model ($\chi^2(1) = .06, p > .50$). The linear change model indicated adolescents increased in bias 1.93 points per year of age

($\beta=1.93$, $S.E. = .55$, $p < .001$). The subsequent models examined effects of between-person and between-neighborhood differences for the linear change model of intergroup bias.

To test for between-person differences in change in bias over age, we included adolescent gender and person averages of contact frequency and quality at Level 2. To examine how differences in neighborhood contact norms influenced how individuals differed in their change in bias with age, we included neighborhood (i.e., SOA) averages of contact frequency and quality at Level 3; these variables predicted between-neighborhood differences in individual intercepts and trajectories of bias. Neighborhood norms were calculated by taking the mean of these variables for all individuals in a neighborhood across the two time points with contact data. To facilitate interpretation, age at Level 1 was grand mean centered, contact frequency and contact quality at Level 2 were person centered, and neighborhood contact frequency and neighborhood contact quality were grand mean centered. The equations for the final models are:

Level 1:

$$\text{Bias} = \beta_{0i} + \beta_{4i}(\text{Age}) + e_{ij}$$

Level 2:

$$\beta_{0i} = \gamma_{00} + \gamma_{01}(\text{Personal Contact Frequency}) + \gamma_{02}(\text{Personal Contact Quality}) + \gamma_{03}(\text{Gender}) + \zeta_{0i}$$

$$\beta_{1i} = \gamma_{10} + \gamma_{11}(\text{Personal Contact Frequency}) + \gamma_{12}(\text{Personal Contact Quality}) + \gamma_{13}(\text{Gender}) + \zeta_{1i}$$

Level 3:

$$\gamma_{00} = \gamma_{000} + \gamma_{001}(\text{Neighborhood Contact Frequency}) + \gamma_{002}(\text{Neighborhood Contact Quality}) + \mu_0$$

$$\gamma_{01} = \gamma_{010}$$

$$\gamma_{02} = \gamma_{020}$$

$$\gamma_{03} = \gamma_{030}$$

$$\gamma_{10} = \gamma_{100} + \gamma_{101}(\text{Neighborhood Contact Frequency}) + \gamma_{102}(\text{Neighborhood Contact Quality}) + \mu_3$$

$$\gamma_{11} = \gamma_{110}$$

$$\gamma_{12} = \gamma_{120}$$

$$\gamma_{13} = \gamma_{130}$$

Coefficients for the above model are reported in Table 2. The results indicated that the intercept, or average level of bias at age 15.5 years old, was 29.72 ($S.E. = 2.87$, $p < .001$), and adolescents with higher average levels of quality of contact reported less bias at age 15.5 ($\beta = -1.24$, $S.E. = .29$, $p < .001$). Girls also reported less bias on average at age 15.5 ($\beta = -5.01$, $S.E. = 1.44$, $p < .001$). On average, individuals tended to increase in bias over time ($\beta = 1.87$, $S.E. = .60$,

$p = .004$). However, because there were significant interaction effects with age, the change in bias over time depended on other predictors. The between-person effects showed that youth with higher average frequency of contact were increasing *more* quickly in bias over time ($\beta = .36$, $S.E. = .14$, $p = .013$). However, youth with higher average quality contact were increasing in bias *less* quickly ($\beta = -.33$, $S.E. = .08$, $p < .001$).

Differences in neighborhood norms of contact frequency and quality also predicted average levels and change in bias over time. Neighborhood contact quality predicted adolescents' average bias at age 15.5 years; youth living in neighborhoods with higher quality contact reported less bias at age 15.5 ($\beta = -2.10$, $S.E. = .39$, $p < .001$). With regard to the change in bias with age, on average, youth in neighborhoods with higher frequency ($\beta = -0.88$, $S.E. = .34$, $p = .014$; Figure 1) and quality ($\beta = -.12$, $S.E. = .05$, $p = .031$; Figure 2) contact norms increased less quickly in bias. To graphically depict the significant interactions between age and neighborhood contact, participants were grouped into low, average and high groups by splitting the communities into thirds based on average contact frequency and quality scores for each representation of the interaction.

Sensitivity Analyses and Alternative Model Tests

The model tests above included participants as long as each SOA had at least five participants representing it. This decision was made given that one of the main questions utilized means of contact at the SOA level. We tested the same model with all participants from all SOAs included and the pattern of findings remained the same. The pattern of this set of findings suggests slightly attenuated parameters, but the pattern of significant effects and their directions remained the same.

We also ran the tests of the effects of individual and neighborhood-level contact including extended contact in the models. Again, the overall pattern of findings was the same as the main model test with the additional finding that individual extended contact predicts lower levels of bias ($\beta = .74$, $S.E. = .30$, $p = .015$).

Discussion

Although the intergroup contact literature is vast (Pettigrew & Tropp, 2008), a dearth of information exists on how contact effects developmental changes in intergroup attitudes. More generally, limited research and theory address the intersection between developmental and social psychological phenomena (Abrams & Killen, 2014; Bennett & Sani, 2004). The current study contributes to growing interest in the intersection of developmental intergroup processes by examining the effects of individual- and community-level contact on *within-person* change in intergroup attitudes for youth in a divided society. The results suggest that, on average, youth in Belfast are increasing in bias through middle and late adolescence. Drawing from previous work suggesting that context-level effects of contact are impactful over and above individual experiences of contact (Christ et al., 2014), the current study found that context-level contact is related to trajectories of bias for adolescents in the divided communities in Belfast Northern, Ireland. These findings underscore the importance of norms and a culture of intergroup contact that is of high quality, not just for adults or youth at one moment in time, but for the developmental sequelae that unfolds through the key developmental period of adolescence.

The results of the study are consistent with social identity development theory (Nesdale, 2004), suggesting that prejudice or intergroup bias might increase throughout adolescence as youth take on the norms of those around them, in a setting where those norms include messages of intergroup avoidance or negative interactions. The current results suggest that youth in Belfast

increase in their intergroup bias through adolescence; however, the nature of this change depends on their individual experiences with intergroup contact as well as the frequency and quality of intergroup contact experienced by those living in their neighborhood. Consistent with previous findings (Tausch et al., 2007), youth with higher quality of contact reported lower levels of bias on average. Extending past findings, the quality of contact was important for slowing the increase in bias as youth age. Counter to the findings for quality of contact, however, personal frequency of contact related to faster increase in bias over age.

These findings underscore the importance of quality of intergroup contact for youth. For example, past work suggests frequent intergroup contact characterized by animosity and threat increases negative attitudes between groups (Aberson, 2015). Given the nature of the segregation and continued tensions in these Belfast neighborhoods, it may be reasonable to assume that higher frequency contact may have a negative tone. Moreover, the difference in attitudes, or the degree of intergroup bias, may also be accentuated during this developmental period as young people get more attached to their in-group. Although in-group love does not directly translate to outgroup hate (Brewer, 1999), past research has found that intergroup bias does lead to negative intergroup interactions, such as avoiding helping the outgroup (Weisel & Bohm, 2015). In the setting of Northern Ireland, where the binary arrangement of political life reinforces the zero-sum nature of the conflict (Brewer & Higgins, 1998), intergroup bias, rather than negative outgroup attitudes alone, may have implications for long-term intergroup relations. Thus, mere contact, without being good quality, may have negative intergroup implications across adolescent development (e.g., Barlow et al., 2012).

The current results are also consistent with recent work by Christ et al. (2014) suggesting that norms of contact at the neighborhood level are important contextual variables that may be

shaping positive effects of intergroup contact. Higher quality of contact at the neighborhood level predicted lower levels of intergroup bias at mid-adolescence. Extending these results to look at developmental change over adolescence, the current results suggest that both frequency of contact and quality of contact at the neighborhood level are related to slower increases in bias as youth age. These results are also complementary to findings by Jugert et al. (2011) who found that positive intergroup friend norms influenced individual intergroup friend preferences; although the context-level variable in their case had a positive tone, they found that same-group friend preferences decreased over the school year. The differences in trajectories between the current study and the Jugert et al. (2011) study could be explained by the fact that unlike the German and Turkish youth in the same schools, the youth in the current study, like the vast majority (93%) of pupils in Northern Ireland, are in separate schools where daily contact is limited. This difference also underscores the importance of regular contact that is of high quality to promote trajectories of positive intergroup attitudes and behaviors.

This study's findings should be considered while recognizing its limitations. The data in the current manuscript relied on self-report variables and could be strengthened with additional measures of intergroup attitudes including behavioral responses. Although it was not our intention to directly measure group norms, but to demonstrate the impact of context-level effects of contact, the validity of our approach could be strengthened by a direct measure of youth perceived norms. The fact that the intergroup contact data was only collected in the last two waves of the study is another limitation. Previous research in a different setting has indeed found that links between contact and bias go in both directions. That is, contact predicts fewer negative intergroup attitudes and intergroup attitudes predict intergroup contact (Binder et al., 2009). Future research could also consider the quality of contact within each interaction setting, rather

than a global measure used in the current study. It is also possible that individual- and neighborhood-level contact change over time or with age. With the inclusion of additional measurements of contact data, future research could assess how changes in these variables potentially affect youth intergroup attitudes. That is, with more assessment points, the directionality of the relations between intergroup contact and bias could also be examined. In addition, because contact was only asked at later waves, there are fewer participants at the lower end of our age-range (e.g., 10-11 years old).

Future research should also consider different context-level effects in addition to the neighborhood. For example, recent work by McGuire et al. (2015) found that school norms of inclusion had less impact on children when their peers groups had norms of exclusion. Thus, future research should consider multiple domains of the social ecology in terms of their overall impact on youth intergroup attitudes. The current findings should also be replicated in other settings of intergroup divide, particularly when school systems are separated along group lines. For example, throughout the countries of the Former Yugoslavia and in Israel and the Palestinian territories (Bekerman, 2007; Reidy et al., 2015), longitudinal examinations of context-effects on adolescent development in relation to intergroup relations should be tested.

Conclusion

The current study is one of the first to document the role of both personal and neighborhood-level intergroup contact on *trajectories* of bias for youth in a divided society. Thus, the current findings have important implications for our understanding of youth development of intergroup attitudes and how this development may have implications for intergroup relations in post-accord Northern Ireland. The analyses show that youth in Belfast are increasing in bias through adolescence, adding a within-person, developmental analysis to our

understanding of intergroup attitudes in this age group. Adolescence is critical period of identity development and commitments (Erikson, 1963; French, Seidman, Allen, Aber, 2006); evidence suggesting that intergroup bias is seemingly consolidating during this period has important implications for programs and policies that attempt to improve intergroup relations.

In addition, the study also contributes novel findings to our understanding of how the multi-level influences of intergroup contact impact adolescent development of intergroup attitudes. Common approaches to decreasing negative intergroup attitudes include increasing contact for individuals or small groups of children and adolescents. Although attempts have been made to integrate contexts such as schools for youth in Belfast, progress has been limited and many youth still live, learn, and work in segregated spaces (Furey, Donnelly, Hughes, & Blaylock, 2016; Shirlow & Murtagh, 2006). In addition to replicating findings that quality of contact at the personal level is related to lower intergroup bias, the current results suggest that neighborhood norms of contact that is frequent and high quality predict slower increases in intergroup bias. This finding supports continued efforts toward school- and community-level integration that is institutionally supported. At the same time, the finding that more frequent individual-level contact predicts increases in bias across adolescence in the segregated communities of Belfast supports the continued efforts at reducing negative contact. It is expected that these results have important implications for other post-conflict settings and communities grappling with formal and informal structures supporting segregation.

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Table 1.

Means and Standard Deviations by Age

Age	BIAS	Contact Frequency	Contact Quality
10	13.57 (32.48)	0 (.)	0 (.)
11	23.55 (30.56)	8.5 (3.53)	13.33 (2.89)
12	24.45 (33.02)	3.29 (3.22)	10.58 (7.36)
13	26.63 (32.51)	3.37 (4.00)	7.73 (6.91)
14	31.10 (32.93)	1.93 (3.26)	5.43 (7.42)
15	27.79 (35.83)	2.20 (3.39)	5.82 (7.55)
16	29.69 (33.02)	1.94 (2.82)	5.91 (7.32)
17	30.58 (31.41)	2.10 (3.28)	5.58 (7.06)
18	32.63 (28.73)	2.15 (3.16)	6.39 (7.21)
19	33.07 (33.17)	1.99 (2.93)	6.61 (7.11)
20	39.08 (30.54)	2.22 (3.07)	6.50 (6.50)
Possible Range	-100-100	0-16	0-20

Table 2.

Multilevel Models Results

	<u>Coefficient</u>	<u>S.E.</u>	<u>p-value</u>
<u>Intercept</u>	29.72	2.87	<.001
Gender	-5.01	1.44	<.001
Person Frequency	-.32	0.47	0.50
Person Quality	-1.24	0.29	<.001
Neighborhood Frequency	0.94	1.33	0.49
Neighborhood Quality	-2.10	.39	<.001
<u>Age Slope</u>	1.87	.60	0.004
Gender	-.71	.59	.232
Person Frequency	0.36	.14	.013
Person Quality	-0.33	.08	.014
Neighborhood Frequency	-.87	.34	.014
Neighborhood Quality	-.12	.05	.031

Figure 1. Neighborhood frequency of contact moderating the relationship between age and intergroup bias.

Figure 2. Neighborhood quality of contact moderating the relationship between age and intergroup bias.