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Positive and negative intergroup contact: Evidence of their interactions in a child sample

Elena Trifiletti[1] | Soraya Elizabeth Shamloo[2] | Roberto Burro[1] | Giada Vicentini[1] | Daniela Raccanello[1]

[1]Department of Human Sciences, University of Verona, Verona, Italy

[2]Faculty of Medicine, University of Modena and Reggio Emilia, Modena, Italy

Correspondence
Elena Trifiletti, Department of Human Sciences, Via San Francesco 22, 37129 Verona, Italy.
Email: elena.trifiletti@univr.it

Funding information
Department of Human Sciences, University of Verona, Italy

Abstract

Research has demonstrated that positive intergroup contact improves intergroup relations among children. However, empirical evidence about how positive and negative intergroup contact relates to intergroup outcomes at different ages is scant. By combining theories and empirical evidence in social and developmental psychology, this study aimed to examine positive and negative intergroup contact in a sample of $N = 394$, 9 and 12-year-old Italian children (females and males). We expected to find interactive effects of positive and negative intergroup contact on outgroup trust and behavioural intentions. Furthermore, for both types of contact, we predicted that associations with intergroup outcomes (outgroup trust, behavioural intentions) would be stronger among older than younger children. Results provided support for the interactive effects of positive and negative intergroup contact ($bs \geq .08$, $ps \leq .08$, interaction coefficients), but not for age-related differences. Negative intergroup contact *facilitated* the effects of positive intergroup contact and positive intergroup contact *buffered* the effects of negative intergroup contact. These findings suggest that intergroup relations in childhood can be improved

by creating opportunities for positive intergroup contact in educational and social settings.

KEYWORDS
intergroup contact, outgroup trust, positive and negative intergroup contact, prejudice in children

1 | INTRODUCTION

Intergroup contact (Allport, 1954) has been proven to be an effective tool for ameliorating intergroup relations in children. Therefore, scholars suggested that opportunities for friendly and cooperative interactions between children of different social groups should be increased (Tropp, White, Rucinski, & Tredoux, 2022). Yet, opportunities for positive intergroup contact also enhance the likelihood of negative intergroup encounters. Research with adult samples showed that positive and negative intergroup contact are not independent predictors of intergroup outcomes, but they rather interact with each other, so that the effects of each type of contact depend on the amount of the other type of contact (Fell, 2015). So far, the interplay between positive and negative contact in children has not been clarified. Moreover, studies analysing the effects of positive and negative intergroup contact in children (Bekhuis, Ruiter, & Coenders, 2013; Husnu, Mertan, & Çiçek, 2016; Wölfer et al., 2017) largely lacked a developmental perspective. In the present study, we analysed the interactive effects of positive and negative contact in a child sample and explored the differences between younger (9-year-old) and older (12-year-old) children.

1.1 | Intergroup contact among children

Research investigating ethnic attitudes among children consistently showed that they have an overwhelming preference for their ingroup. This result was found with children as young as 3 years (Nesdale, Maass, Griffiths, & Durkin, 2003), although it is much more consistent among ethnic majority than ethnic minority children (Griffiths & Nesdale, 2006). In early childhood, this preference turns into prejudice toward visible (e.g., ethnic) minority groups (Aboud & Spears Brown, 2013), a tendency that appears to decline during middle childhood (Aboud, 2008). Prejudice increases again during adolescence (Teichman, Bar-Tal, & Abdolrazeq, 2007) and contributes to shaping youth's social relations with effects that may persist into adulthood (Tropp et al., 2022). In an effort to reduce prejudice among children, researchers tested a range of interventions (Grapin, Griffin, Naser, Brown, & Proctor, 2019), among which intergroup contact is the most widely investigated (Di Bernardo, Vezzali, Stathi, Cadamuro, & Cortesi, 2017).

Intergroup contact is effective in reducing prejudice among children (Aboud & Spears Brown, 2013; Cameron & Turner, 2017). Educational contexts represent the most widely investigated setting, not only because children spend most of their daily time at school, but also because educational settings offer many opportunities for meaningful and prolonged intergroup contact (Tropp et al., 2022). Moreover, in educational settings optimal conditions for intergroup contact (i.e., cooperation, common goals, equal status, and authority support; Allport, 1954) are often naturally occurring or can be easily implemented (Di Bernardo et al., 2017). The effectiveness of intergroup contact among children in educational settings was showed in relation to a number of intergroup outcomes, including more positive intergroup attitudes, greater self-disclosure and empathy, higher perceived variability of the outgroup (Turner, Tam, Hewstone, Kenworthy, & Cairns, 2013), as well as more cultural openness, greater helping intentions, and reduced ingroup bias (Abbott & Cameron, 2014). Importantly, intergroup contact can have long-term effects that persist into adulthood, such as less racial prejudice (Wood & Sonleitner, 1996), more preference to live and work in diverse environments when becoming adults, and greater comfort experienced in interracial settings (Mickelson & Nkomo, 2012).

Therefore, opportunities for intergroup contact in educational settings may be especially important, because they contribute to shaping children's intergroup relations and attitudes later in life. However, greater opportunities for intergroup encounters enhance the likelihood of positive as well as negative experiences. Whereas positive contact is likely to promote more positive intergroup outcomes and greater intentions to engage in intergroup contact in the future, negative contact is likely to limit positive intergroup outcomes and the willingness to join future intergroup encounters (Graf & Paolini, 2017; Hayward, Tropp, Hornsey, & Barlow, 2017).

1.2 | Positive and negative intergroup contact

Research on intergroup contact has traditionally focused on prejudice reduction and the amelioration of intergroup relations. Consequently, research primarily investigated positive forms of contact, failing to consider the potentially harmful effects of negative contact. More recently, researchers began to examine both positive and negative forms of intergroup contact and how they impact intergroup relations (Barlow et al., 2012; Paolini, Harwood, & Rubin, 2010; Pettigrew & Tropp, 2011). Initially, the effects of positive and negative contact were thought to be additive (Árnadóttir, Lolliot, Brown, & Hewstone, 2018), with the detrimental consequences of negative contact outweighing the beneficial effects of positive contact. In two studies with adult samples, Barlow et al. (2012) found that the association between positive contact and decreased prejudice was weaker than the association between negative contact and increased prejudice, an effect that they called positive–negative asymmetry. Further research suggested that, although negative contact is a stronger predictor of outgroup attitudes, positive contact is more frequently experienced, thus compensating for the greater prominence of negative contact (Graf, Paolini, & Rubin, 2014). However, research findings on the positive–negative asymmetry are inconsistent, with some studies observing only slight differences between positive and negative contact (e.g., Bekhuis et al., 2013), and others finding stronger effects for positive than negative contact (e.g., Fell, 2015). Consequently, the positive–negative asymmetry was questioned, and different models were proposed. Fell (2015) tested four possible interactive effects: (a) *facilitation*, in which the beneficial effects of positive contact are amplified by high pre-existing negative contact experiences; (b) *buffering*, in which positive contact mitigates the relation between negative contact and detrimental intergroup outcomes; (c) *poisoning*, in which the relation between positive contact and intergroup outcomes is weakened in the presence of high negative contact; and (d) *exacerbation*, in which the detrimental effects of negative contact are exacerbated by positive contact. Fell (2015) found evidence for the facilitation effect, with stronger effects of positive contact at high levels of negative contact, and for the buffering effect, with weaker effects of negative contact at high levels of positive contact. Árnadóttir et al. (2018) provided further support for these effects, but only for direct contact (not for extended contact, that is, having an ingroup friend that has an outgroup friend; Wright, Aron, McLaughlin-Volpe, & Ropp, 1997) and with a majority sample (not with a minority sample).

To date, research on positive and negative contact has primarily focused on adult samples. Only a handful of studies were conducted with child or adolescent samples, finding inconsistent results for the concurrent effects of the two forms of contact. Bekhuis et al. (2013) examined the effects of positive and negative contact experiences on ethnic distance in different settings (class, school, and neighbourhood), in a study with adolescents aged 15–19 years from both ethnic majority and minority groups. They found that positive and negative contact in class was equally strongly associated with ethnic distance. In the school setting, only positive contact was associated with ethnic distance, while in the neighbourhood setting only negative contact was a significant predictor of ethnic distance. In two studies with adolescents (Study 1: $M_{age} = 16.83$ years; Study 2: $range_{age} = 14–15$ years), Wölfer et al. (2017) found that self-reported positive contact was more frequent than negative contact. Associations with intergroup attitudes were inconsistent, with positive and negative contact being equally strong predictors of intergroup attitudes in Study 1 (Catholic and Protestant students), and positive contact being a stronger predictor in Study 2 (White British and Asian British students). Husnu et al. (2016; Study 1) investigated the effectiveness of intergroup contact in Turkish Cypriot children aged 6–12 years. They examined positive and negative direct and indirect (family

storytelling) contact with Greek Cypriots as predictors of attitudes, finding that only positive contact (both direct and indirect) was significantly associated with more positive outgroup attitudes. These studies all examined the concurrent effects of positive and negative contact, while the interaction between them has been much less investigated. Árnadóttir, Kende, Phalet, and Tropp (2022) examined the interplay between positive and negative contact in a sample of Latino/a adolescents aged 11–14. They found that the association between positive contact (friendly interactions) and intergroup outcomes (more openness, increased ease, and lower anxiety) was significant only among Latino/a participants who reported no negative contact. Yet, none of these studies examined the interaction effects of positive and negative contact among majority children or analysed if the associations between the two forms of contact and intergroup outcomes differ across age groups.

The interaction found by Árnadóttir et al. (2022) can be thought of as an overshadowing effect, in which negative contact communicates to minority children that their social identity is devaluated, thus triggering social identity threat. However, this effect should not be observed among majority children, for whom concerns over one's social identity are much less likely to stem from negative intergroup interactions. Research conducted with adult majority samples (Árnadóttir et al., 2018; Fell, 2015) suggested that positive and negative contact interact in predictable ways, taking the form of facilitation and buffering effects. In this study, we examined if these effects can be observed also among majority children. Children's contact experiences do not happen in a vacuum, but are influenced by prior experiences, so that children experiencing frequent negative intergroup interactions should perceive positive contact as more unexpected compared with children experiencing sporadic negative intergroup interactions. Thus, positive contact experiences should attract more attention and have a greater impact on children's attitudes and behaviour (Birtel & Crisp, 2012). For children experiencing frequent positive contact, the positive experiences should create a stereotypic expectation about the outgroup in which the negative contact experience does not fit (Paolini et al., 2014), and this should mitigate the effects of negative contact on intergroup outcomes.

Another issue that deserves attention in research with children is how positive and negative contact relates to intergroup outcomes in younger and older children. Research on children's perceptions of discrimination suggests that the detrimental consequences of negative contact for intergroup relations might increase with age. An initial understanding of discrimination appears to emerge as early as age 5 or 6 (Brown & Bigler, 2005), when children begin to categorize instances of negative intergroup contact, such as name-calling and social exclusion, as discriminatory behaviours (Verkuyten, Kinket, & van der Weilen, 1997). Shortly after, from the age of 7 to 8 years onwards, children's awareness that discrimination is linked to the endorsement of social stereotypes progressively increases (McKown & Weinstein, 2003). Thus, older children are more likely to attribute negative intergroup contact to stereotypes and prejudice, and this can in turn significantly undermine intergroup relations. According to Brown and Bigler (2005), children's ability to link negative behaviours to prejudice depends on developmental changes in key cognitive skills (social categorization; understanding of others' cognitions and emotions, that is, theory of mind; moral reasoning; and social comparisons), which are acquired by age 5–6 and develop throughout childhood. Further changes relative to these skills characterize adolescence. During this period, a key developmental task concerns the formation of identity (Erikson, 1963). This task includes the definition of both ethnic identity and self (French, Seidman, Allen, & Aber, 2006), which makes more salient social categorization processes. As regards the skill to understand others' emotions, adolescents further refine the ability to comprehend mixed emotions, that is, the ability to conceptualize the coexistence of positive and negative states (Pons, Harris, & De Rosnay, 2004); this acquirement can facilitate the understanding of the simultaneous presence of contact with opposite emotional valence, that is, positive and negative. As for moral reasoning, during adolescence moral beliefs further develop (Rutland, Killen, & Abrams, 2010), together with the relevance of group norms (Abrams & Rutland, 2008). The salience of such norms is increased also by the higher relevance of peer relationships and related social comparisons (Wölfer, Bull, & Scheithauer, 2012). These same cognitive skills are also likely to play a role in positive intergroup contact, by contributing to positive group-based explanations of friendly interactions, with beneficial effects for intergroup relations. Involving 13- to 26-year-olds, Wölfer, Faber, and Hewstone (2015) found that, particularly for adolescents, intergroup contact predicted majority students' tolerant attitudes toward immigrants. However, they did not explore this relation in

children. Although little attention has been paid to how positive and negative contact relate to intergroup outcomes at different ages, it seems reasonable to assume that both types of contact are more consequential for older than younger children.

The interactive effects of positive and negative contact and their developmental trajectories among children are important issues to investigate, both for theoretical and applied reasons. From a theoretical standpoint, to fully understand the role of intergroup contact for intergroup relations in childhood, we need to deepen our knowledge on both positive and negative contact experiences among younger and older children, and on how the two types of contact interact to affect intergroup outcomes. From an applied perspective, understanding possible age differences and the interplay between positive and negative contact may be key to developing effective prejudice reduction interventions targeted for children.

1.3 | The present study

We examined positive and negative contact with immigrant peers at school in a sample of Italian (majority) children. According to a recent report of the Italian Ministry of Education (MIUR, 2022), immigrant children (both first and second generation) represent the 12.0% of primary and the 10.8% of lower secondary school students in Italy. Therefore, intergroup contact in educational settings appears to be sustained in Italy, thus representing an ideal setting for testing positive and negative contact effects with children.

As far as the outcome variables, we decided to focus on outgroup trust and behavioural intentions. Specifically, we focused on trust as it represents an important aspect of positive and healthy intergroup relations (e.g., Tam, Hewstone, Kenworthy, & Cairns, 2009). Not only among adults, but also children may benefit from enhanced outgroup trust. This is testified by studies showing that when mutual trust is present, it is more likely that perspective-taking and empathy will emerge (Carlo, Randall, Rotenberg, & Armenta, 2010) as well as positive outgroup attitudes among majority children and adolescents (Grütter & Tropp, 2019). The study also examined behavioural intentions, given that they are known to be strong predictors of actual behaviour, more so than attitudes (Fishbein & Ajzen, 2010; see Vezzali et al., 2023 for similar rationale), including intergroup behaviour (see Vezzali, Stathi, Giovannini, Capozza, & Visintin, 2015).

Past research (both with children and adults) widely investigated the concurrent effects of positive and negative intergroup contact. However, empirical evidence about these effects is mixed and inconclusive. Therefore, in this study we did not test a specific prediction for the concurrent effects of positive and negative contact. Instead, based on research with adults and adolescents (Árnadóttir et al., 2022; Fell, 2015), we examined the interplay between positive and negative intergroup contact, and tested if the associations between the two forms of contact and intergroup outcomes differ across age groups.

Regarding the interplay between positive and negative contact, we based our predictions on the idea that children's contact experiences affect how positive and negative intergroup encounters are perceived and interpreted (Fell, 2015).

We hypothesized that:

1. The association between positive intergroup contact and intergroup outcomes (behavioural intentions, outgroup trust) would be stronger at high levels of negative intergroup contact (*facilitation effect*; *Hypothesis 1*).
2. The association between negative intergroup contact and intergroup outcomes (behavioural intentions, outgroup trust) would be weaker at high levels of positive intergroup contact (*buffering effect*; *Hypothesis 2*).
3. Our predictions about age-related differences were derived from the contention that key cognitive skills involved in social cognition and understanding of social relations are more developed in older than younger children (Brown & Bigler, 2005). The transition from childhood to adolescence is marked by physiological and psychological changes that shape one's sense of identity, self-consciousness, and social relations (Blakemore, 2008). With

the beginning of adolescence, individuals become more sociable, form more complex and hierarchical peer relations, and become more sensitive to acceptance and rejection by their peers (Steinberg & Morris, 2001). Based on these considerations, we focused on children at age 9 and early adolescents at age 12. We selected these two age groups as, in the Italian education system, 9-year-old children and 12-year-old adolescents attend the penultimate grades, respectively, of the primary (i.e., the fourth year out of five) and the lower secondary (i.e., the second year out of three) schools. For this reason, these age groups well represent the transition from these two school levels and, in turn, from childhood to adolescence (e.g., Author et al., 2021; Forbes, Fitzpatrick, Magson, & Rapee, 2019). We hypothesized that:

4. Positive intergroup contact and intergroup outcomes (behavioural intentions, outgroup trust) would be more positively associated among 12-year-olds than among 9-year-olds (*Hypothesis 3*);
5. Negative intergroup contact and intergroup outcomes (behavioural intentions, outgroup trust) would be more negatively associated among 12-year-olds than among 9-year-olds (*Hypotheses 4*).

2 | METHOD

2.1 | Participants

Participants were $N = 432$ 9-year-old ($M_{age} = 9$ years, 6 months) and 12-year-old ($M_{age} = 12$ years, 5 months) children who attended schools located in Northern Italy. Thirty-six were immigrant children (born in Italy or a different country). Due to insufficient statistical power, these participants were excluded from the analyses. Two other participants were excluded because of excessive missing data (> 30%). The final sample included $N = 394$ Italian students (183 females and 211 males, 233 9-year-old and 161 12-year-old children).

2.2 | Procedure

The study was part of a larger interdisciplinary research on social cohesion (Raccanello, Trifiletti, Vicentini, Branchini, & Burro, 2020; Raccanello, Vicentini, Trifiletti, & Burro, 2020; Tronca, 2020). Ethical approval was obtained by the Ethics Committee at the Department of Human Sciences at the University of Verona (protocol number 362742). Informed consent was signed by parents or legal guardians. Participants completed a questionnaire during school hours, which included measures of the study variables. Italian children answered a set of items on contact experiences with immigrant children (immigrant children answered a parallel set of items on contact experiences with Italian children). A brief description of the meaning of the words "Italian" and "immigrant" was provided together with instructions for completing the questionnaire.

2.3 | Measures

All the items were answered on a 5-point scale (1 = *not at all* and 5 = *very much*).

2.3.1 | Positive and negative intergroup contact

We assessed positive and negative intergroup contact with a single ad hoc item each (*How much do you play with your immigrant classmates*? and *How much do you argue with your immigrant classmates*? respectively). As a part of a larger interdisciplinary project, participation in this study required the completion of a considerable number of

measures. Moreover, due to the young age of our participants, it was important to reduce the risk of fatigue. For these reasons, we preferred the use of single-item measures. In addition, we based them on common situations which could be easily understood and encountered by participants.

2.3.2 | Behavioural intentions

We used three ad hoc items to assess behavioural intentions toward the outgroup (*If you meet an immigrant child at the park, to what extent … Would you be happy to know him/her?/Would you play with him/her?/Would you get an ice cream with him/her?*). Reliability was satisfactory ($\omega = .88$).

2.3.3 | Outgroup trust

As in Husnu et al.' study (2016), we used a single item to assess outgroup trust (*How much would you trust an immigrant child to borrow your favourite toy?*; see Vezzali, Capozza, Stathi, & Giovannini, 2012).

2.4 | Statistical analyses

Data were analysed with SPSS 20.0. The data were inspected for missingness. Missing data represented 0.004% of total responses. Little's missing completely at random (MCAR) test showed that missing data approached MCAR, $\chi^2(27, N = 390) = 38.87$, $p = .065$. We replaced missing data using the Expectation–Maximization (EM) algorithm (Graham, 2009). Bivariate correlations between the measures were computed using Pearson's *r*.

To test Hypotheses 1 and 2 (interaction effects), we performed two hierarchical regression models (one for each dependent variable), in which the two types of contact (mean-centred) were entered as predictors in the first step (concurrent effects). Their interaction was entered into the regression equation in the second step. To reach a detailed picture of the contribution of positive and negative contact in relation to the outcome variables, we used lmg (Lindeman, Merenda, & Gold, 1980), with 95% bootstrapped confidence interval (1,000 resamples) by employing the R (R Core Team, 2021) package relaimpo (Grömping, 2006). This allowed us to measure "dispersion importance" which provides information on the relative importance related to the amount of explained variance of the predictors in the model (Grömping, 2006). Hypotheses 3 and 4 were tested with four hierarchical regression models, one for each of the two dependent variables (outgroup trust, behavioural intentions) and for each type of intergroup contact (positive, negative), respectively. In each model, in the first step we entered age group and one type of intergroup contact as predictors, and the other type of intergroup contact as a control variable. In the second step, we added the interaction between the predictor and age group. In all regression models, significant interactions were decomposed with simple slopes at $+1SD$ and $-1SD$ of the moderator.

3 | RESULTS

Descriptive statistics and correlations between variables are reported in Table 1. Positive and negative intergroup contact correlated with the dependent variables in the expected direction and were unrelated to each other. Behavioural intentions and outgroup trust were moderately correlated.

In the two hierarchical regression models testing the interplay of positive and negative contact, at Step 1 both types of contact were significantly associated with the two outcome variables (Table 2). The standardized regression coefficients were greater for positive than for negative contact suggesting that the first is a somewhat stronger

TABLE 1 Descriptive statistics and bivariate Pearson correlations.

	1	2	3	4
1. Positive contact	—			
2. Negative contact	0.01	—		
3. Behavioural intentions	0.42***	−0.12*	—	
4. Outgroup trust	0.30***	−0.18***	0.50***	—
M	2.57	1.57	3.21	3.09
95% LLCI	2.47	1.49	3.11	2.96
95% ULCI	2.68	1.66	3.31	3.22
SD	1.05	0.87	1.06	1.32

Note: $N = 394$.
Abbreviations: LLCI, lower limit of the confidence interval; ULCI, upper limit of the confidence interval.
*$p < .05$; ***$p < .001$.

TABLE 2 Interplay between positive and negative intergroup contact, standardized regression coefficients.

	Outcome variable	
	Behavioural intentions	**Outgroup trust**
Step 1		
Predictor		
Positive contact (PC)	.43***	.30***
Negative contact (NC)	−.13**	−.18***
Model fit		
R^2	.44	.35
F	47.78	26.89
df	(2, 391)	(2, 391)
p	<.001	<.001
Step 2		
Predictor		
PC	.43***	.30***
NC	−.12*	−.17***
PC × NC	.08†	.11*
Model fit		
R^2_{change}	.006	.010
F_{change}	3.13	5.21
df	(1, 390)	(1, 390)
p	.080	.023

Note: $N = 394$.
*$p < .05$; **$p < .01$; ***$p < .001$; †$p = .08$.

predictor of behavioural intentions and outgroup trust in this sample. However, lmg indicated that, although positive contact's coefficients were greater compared with the coefficients related to negative contact for both trust and behavioural intentions, the two predictors significantly differed from one another only in the case of behavioural

intentions (95% CI [0.0815, 0.2407] for behavioural intentions; 95% CI [−0.0092, 0.1282] for trust). Following, at Step 2 the interaction between positive and negative contact was marginally significant for behavioural intentions and significant for outgroup trust (Table 2, Step 2). Simple slope decomposition showed that the association between positive contact and the outcome variables (Figures 1 and 2) was stronger at high levels (behavioural intentions: $b = 0.50$, $SE = 0.06$, $t = 8.18$, $p < .001$; outgroup trust: $b = 0.50$, $SE = 0.08$, $t = 6.22$, $p < .001$), than at low levels of negative contact (behavioural intentions: $b = 0.36$, $SE = 0.06$, $t = 5.66$, $p < .001$; outgroup trust: $b = 0.25$, $SE = 0.08$, $t = 3.05$, $p = .003$). Moreover, the association between negative contact and the outcome variables (Figures 3 and 4) was non-significant at high levels (behavioural intentions: $b = -0.05$, $SE = 0.08$, $t = 0.65$, $p = .520$;

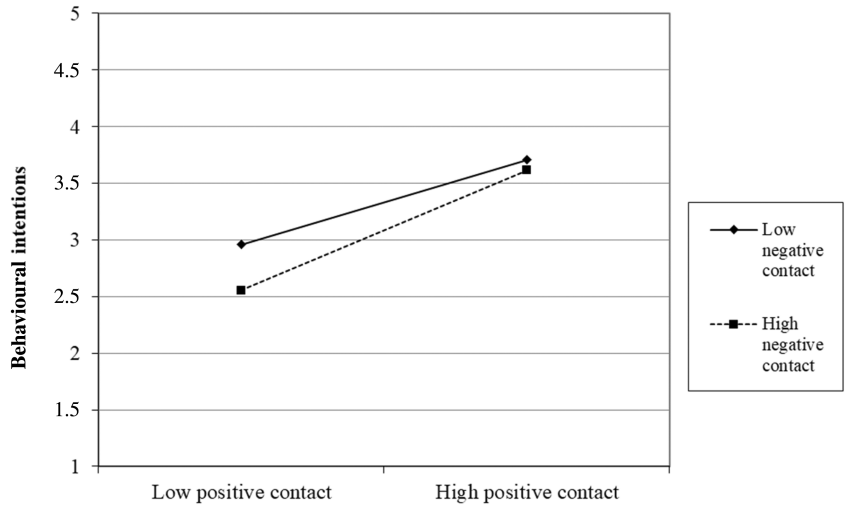

FIGURE 1 Association between positive contact and behavioural intentions as a function of high and low levels of negative contact.

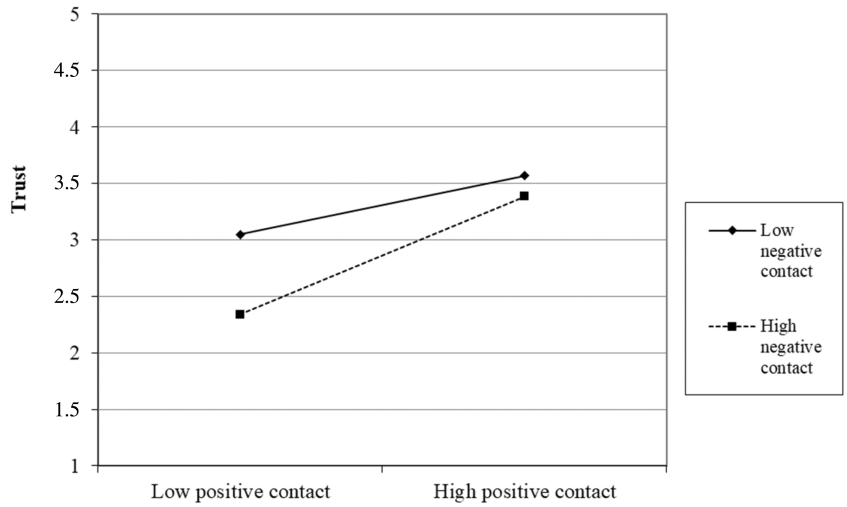

FIGURE 2 Association between positive contact and outgroup trust as a function of high and low levels of negative contact.

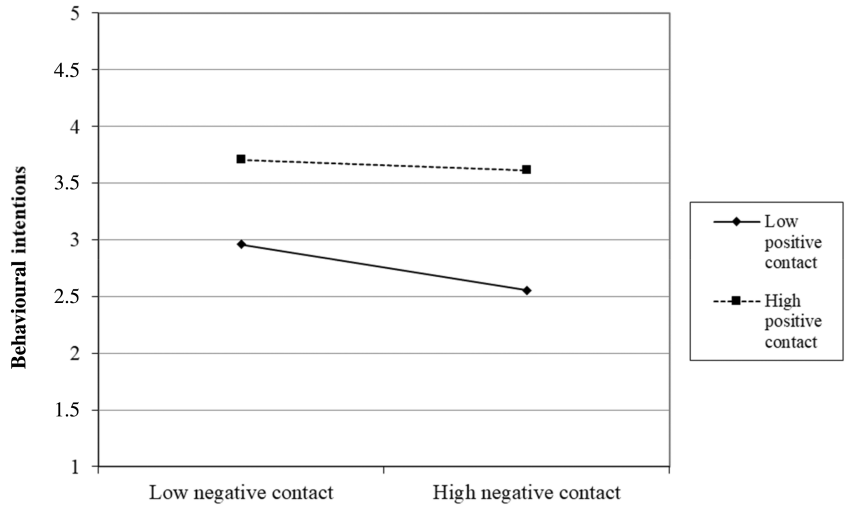

FIGURE 3 Association between negative contact and behavioural intentions as a function of high and low levels of positive contact.

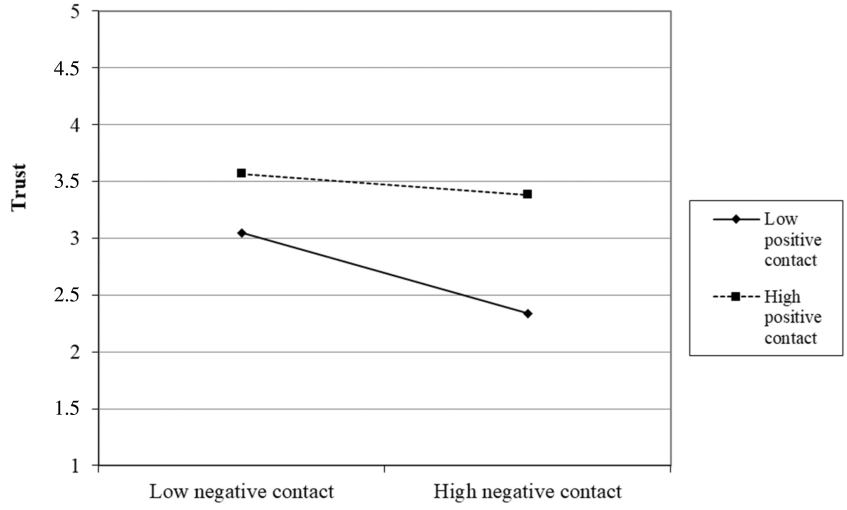

FIGURE 4 Association between negative contact and outgroup trust as a function of high and low levels of positive contact.

outgroup trust: $b = -0.11$, $SE = 0.10$, $t = 1.03$, $p = .310$), but significant at low levels of positive contact (behavioural intentions: $b = -0.23$, $SE = -0.07$, $t = 3.28$, $p = .001$; outgroup trust: $b = -0.41$, $SE = 0.09$, $t = 4.45$, $p < .001$). Overall, these results provide support for *Hypotheses 1* and *2*.

Regression models testing age-related differences showed that, at Step 2, the interactions between the two types of contact and age group were nonsignificant ($ps \geq .180$, see Tables 3 and 4). Therefore, *Hypotheses 3* and *4* were not supported. The association between age group and behavioural intentions was non-significant, suggesting that younger and older participants' orientation toward the outgroup was similar. Age group was significantly related to outgroup trust, indicating that older participants displayed greater outgroup trust.

TABLE 3 Hierarchical regression testing the interplay between positive intergroup contact and age group, standardized regression coefficients.

	Outcome variable	
	Behavioural intentions	**Outgroup trust**
Step 1		
Predictor		
Positive contact (PC)	.43***	.29***
Age group	.02	−.18***
Negative contact (NC)	−.13**	−.17***
Model fit		
R^2	.20	.15
F	31.84	23.50
df	(3, 390)	(3, 390)
p	<.001	<.001
Step 2		
Predictor		
PC	.37***	.29**
Age group	.02*	−.18***
NC	−.13**	−.17***
PC × age group	.08	.025
Model fit		
R^2_{change}	.002	.00
F_{change}	0.88	0.092
df	(1, 389)	(1, 389)
p	.350	.762

Note: Negative intergroup contact was entered as a control variable. $N = 394$.
*$p < .05$; **$p < .01$; ***$p < .001$.

4 | DISCUSSION

Our first aim in this study was to investigate the interplay between positive and negative intergroup contact in children. We found support for the facilitation and buffering effects observed with adult samples (Fell, 2015). Our findings indicated that the effects of positive contact are facilitated when negative contact is more frequent, suggesting that positive contact is more effective for children who are more at risk of developing prejudiced attitudes because of their negative contact experiences. Moreover, negative contact was unrelated to intergroup outcomes when positive contact was high, but the association was significant when positive contact was low. Thus, our results indicate that positive contact buffers the effects of negative contact on intergroup outcomes in children, extending the literature about adults. To the best of our knowledge, this is the first time that the facilitation and buffering effects are tested with a child majority sample. These findings are important because they provide further support for the idea that creating opportunities for positive intergroup experiences for children in educational and social settings can significantly contribute to more positive intergroup relations, with effects that may persist into adulthood (Mickelson & Nkomo, 2012; Wood & Sonleitner, 1996). Our results provide important indications for policymakers and social cohesion practitioners, by suggesting that opportunities for positive intergroup contact must be created in educational and social settings because they protect from the risk of developing negative intergroup attitudes in case of

TABLE 4 Hierarchical regression testing the interplay between negative intergroup contact and age group, standardized regression coefficients.

	Outcome variable	
	Behavioural intentions	**Outgroup trust**
Step 1		
Predictor		
Negative contact (NC)	−.13**	−.17***
Age group	.02	−.18***
Positive contact (PC)	.43***	.29***
Model fit		
R^2	.20	.15
F	31.84	23.50
df	(3, 390)	(3, 390)
p	<.001	<.001
Step 2		
Predictor		
NC	−.04	−.20**
Age group	.02*	−.18***
PC	.42***	.30***
NC × age group	−.11	.04
Model fit		
R^2_{change}	.004	.001
F_{change}	1.76	0.26
df	(1, 389)	(1, 389)
p	.186	.620

Note: Positive intergroup contact was entered as a control variable. $N = 394$.
*$p < .05$; **$p < .01$; ***$p < .001$.

negative or unfriendly interactions with outgroup members and can significantly ameliorate intergroup relationships precisely when it is needed most. However, practitioners should be aware that the interplay between positive and negative contact may shape intergroup attitudes differently for majority and minority children (see Árnadóttir et al., 2022), and consider these differences when designing and implementing contact-based interventions. Árnadóttir et al.'s (2022) findings suggest that positive, friendly interactions with majority outgroup members are associated with better intergroup outcomes only when negative intergroup contact is absent. However, this overshadowing effect was not observed in the case of high-quality intergroup contact, whose effects were less undermined by negative contact. Therefore, whereas in interventions with majority children the implementation of positive, friendly contact interactions such as playing can be sufficient, as suggested in our study, interventions designed for minority children require additional attention in creating positive high-quality interactions with majority outgroup members.

Our findings also showed that positive contact was somewhat stronger predictor than negative contact, similarly to Husnu and colleagues' (Husnu et al., 2016) findings. However, no definitive conclusion can be drawn from this result. Research with both adult and child samples showed that the relative strength of the associations between the two types of contact and intergroup outcomes is subject to variations. Future studies should investigate the possible sources of these variations, in terms of moderation effects of individual variables (e.g., personality traits) or contextual variables (e.g., intergroup context, Husnu et al., 2016; setting of intergroup contact, Bekhuis et al., 2013).

Our second aim was to examine the effects of positive and negative intergroup contact from a developmental perspective. We reasoned that, due to greater social cognitive development, both types of contact should be more strongly related to intergroup outcomes among older than younger participants. We tested this prediction with a sample of 9-year-olds and 12-year-olds. Differently from our hypotheses, none of the hypothesized age-related effects was significant. Our hypotheses were based on the consideration of the relevant changes in identity formation (Erikson, 1963; French et al., 2006), understanding of other's emotions (Pons et al., 2004), moral reasoning (Abrams & Rutland, 2008; Rutland et al., 2010), and peer relations (Wölfer et al., 2012) during adolescence, compared with previous ages. The absence of the expected result could be due to several reasons, such as the reduced age range between the two examined groups, or the fact that at 12 years adolescence is still in its early stages. Further studies could widen the age range considered, involving older participants. Despite these non-significant results, we believe that our study provides a relevant contribution to the developmental research on intergroup relations. Although the developmental trajectories of prejudice have received some attention (Aboud & Spears Brown, 2013), age-related differences in intergroup contact effects have been much less investigated. Thus, our study paves the way for the adoption of a developmental perspective in the study of intergroup contact effects in children and early adolescents. The non-significant results observed in this study could depend on the items used to assess positive and negative intergroup contact. These items referred to situations with which both children and early adolescents were very familiar with (playing, for positive contact; arguing, for negative contact). This may have obscured the effects of those cognitive skills that, according to Brown and Bigler (2005), play a role in the interpretation of intergroup interactions and that are progressively acquired by children. It is possible that in such very familiar situations younger children's ability to understand others' intentions is similar to that of older children. We acknowledge that this may represent a limitation of the present study. However, it ensured that both younger and older children could easily retrieve from memory instances of positive and negative intergroup interactions. Another possibility is that the typical changes in the cognitive characteristics that develop with the transition to adolescence may have not yet been present for the 12-year-olds included in our sample. Further, also the age span between the two groups could not be enough to reveal developmental differences in the examined relations. Therefore, we believe that future studies on intergroup contact in childhood should embrace a developmental approach and further investigate age-related effects of positive and negative contact experiences in children, also extending the considered age span.

Our study presents some limitations. First, we considered only participants from two age groups (i.e., 9- and 12-year-olds). For a comprehensive understanding of developmental changes in intergroup processes, it is important to examine differences between different age groups, ranging from early childhood to adulthood. Second, we used single items to assess intergroup contact and outgroup trust, due to constraints related to the larger interdisciplinary research of which this study was part. The use of single-item scales has been generally questioned because of issues with validity and reliability. However, it is increasingly recognized that in certain circumstances the use of single items can help to overcome some practical barriers to research designs (Fisher, Matthews, & Gibbons, 2016). This was the case for the present study, which required, as a part of a larger interdisciplinary research, the completion of an extensive battery of items. Nevertheless, future studies should overcome this limitation and use multiple item measures to ensure greater reliability. A third limitation is that we examined only direct contact occurring in educational settings. It would be interesting to examine positive and negative contact among children in other settings (e.g., sport) and to investigate their interactions across these settings, as well as to test the effects of indirect forms of contact.

In conclusion, this study provides important insights into the interplay of positive and negative contact in children and suggests that positive intergroup contact can effectively promote better intergroup relations, especially for majority children experiencing more negative intergroup interactions.

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CONFLICT OF INTEREST STATEMENT

The authors have no conflict of interest to disclose.

DATA AVAILABILITY STATEMENT

The data and code necessary to reproduce the analyses presented here are publicly accessible. Data and code are available at the following URL: https://osf.io/u4ycs/?view_only=fe37fd456e4a41f0bf778e8e2a970f88, DOI: 10.17605/OSF.IO/U4YCS.

ORCID

Elena Trifiletti https://orcid.org/0000-0002-9203-507X
Soraya Elizabeth Shamloo https://orcid.org/0000-0003-3640-5504
Roberto Burro https://orcid.org/0000-0002-4491-2015
Giada Vicentini https://orcid.org/0000-0001-7120-4965
Daniela Raccanello https://orcid.org/0000-0002-2810-7630

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