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**Improving Outgroup Attitudes in Schools: First Steps Toward a Teacher-Led
Vicarious Contact Intervention**

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Abstract

Despite the urgent need for promoting positive intergroup relations in schools, research on improving intergroup relations is not systematically translated into practical implementation of prejudice-reduction interventions. Although prejudice-reduction interventions in schools based on indirect contact have been conducted for decades, they have all been carried out by researchers themselves. In a field experiment in Finland in autumn 2015 we tested for the first time a vicarious contact prejudice-reduction intervention for schools for its effectiveness among adolescents ($N = 639$) when implemented independently by teachers instead of researchers. In addition, we tested the extent to which the intervention's effect is moderated by initial outgroup attitudes, previous direct outgroup contact experiences, and gender, hypothesizing that the intervention improves outgroup attitudes particularly among adolescents with more negative prior attitudes and less positive prior direct contact, and more among girls than among boys. We also explored whether the effect of the intervention depended on the interaction between some moderators. We found an unanticipated overall deterioration in the outgroup attitudes between T1 and T2 regardless of experimental condition. However, attitudes seemed to deteriorate somewhat less in the experimental than in the control group, and the intervention had a significant positive effect in one subgroup who needed it most; girls who had negative rather than positive outgroup attitudes at the outset. We discuss our results in the light of previous research and the environmental conditions which changed dramatically during our field experiment when asylum seekers suddenly increased ten-fold compared to the year before.

Keywords: vicarious contact, teacher-led intervention, outgroup attitudes, prejudice-reduction, gender, adolescents

Improving Outgroup Attitudes in Schools: First Steps Toward a Teacher-Led Vicarious Contact Intervention

Ethnic and cultural diversity increasingly characterizes schools in many western societies. As youth is a critical developmental stage for the formation of outgroup attitudes (Schiefer, Möllering, Daniel, Benish-Weisman, & Boehnke, 2010) and as adolescents spend most of their day at school, the school environment is very important for future intergroup relations. However, research has shown that cultural diversity as such does not guarantee intergroup friendship in educational settings (Dixon, Tredoux, Durrheim, Finchilescu, & Clack, 2008; Schachner, Van de Vijver, Brenic & Noack, 2016). While diverse schools provide opportunities for intergroup friendships, they can also foster negative experiences, like prejudice and social exclusion (Spiel & Strohmeier, 2012; Liebkind, Mähönen, Solares, Solheim, & Jasinskaja-Lahti, 2014). Even if contacts with classmates are almost inevitable, voluntary contacts between pupils representing different ethnic groups are less common (Al Ramiah, Schmid, Hewstone, & Floe, 2015). Thus, offering opportunities for intergroup interaction is not always sufficient to reduce negative out-group attitudes (e.g., Turner, Hewstone, & Voci, 2007) and can even increase them (Vervoort, Ron, Scholte, & Scheepers, 2011).

Despite the urgent need for promoting positive intergroup relations in schools, research on improving intergroup relations is not systematically translated into practical implementation of prejudice-reduction interventions. Teachers often have at their disposal a wide selection of pedagogical tools for multicultural and intercultural education intended to prevent ethnic or cultural discrimination (Holm & Zilliacus, 2009; Renko, Larja, Liebkind, & Solares, 2012; Verkuyten & Thijs, 2013). However, little is known about their effectiveness, as scientific knowledge on improving intergroup relations and anti-discriminatory programs do not always meet: anti-prejudice programs implemented in practice are for the most part

completely unevaluated or not evaluated rigorously enough to enable conclusions on their effectiveness (Paluck & Green, 2009). Multicultural interventions in schools can have even divisive and detrimental effects on children's ethnic attitudes by reinforcing negative stereotypes (Verkuyten & Thijs, 2013). In the worst-case scenario, therefore, untested prejudice-reduction tools can even strengthen intergroup hostility (Vorauer & Sasaki, 2011). Thus, the aim of the study presented here is to respond to the need schools have for scientifically tested prejudice-reduction tools and to specify for whom they are effective.

Social Psychological Research on Vicarious Intergroup Contact

In contrast to the lack of evaluation of practical programs, scientific studies on prejudice-reduction increase rapidly and show increasing theoretical and methodological sophistication (for a review, see Vezzali, Hewstone, Capozza, Giovannini & Wölfer, 2014). Social psychological research has focused on the positive consequences of direct intergroup contact as formulated in the contact hypothesis (Allport, 1954), according to which direct contact with an outgroup member can under specific conditions improve outgroup attitudes. However, direct contact is not always possible, for example, in an ethnically homogenous social context. Students often also self-segregate (Dixon et al., 2008; Schachner et al., 2016), i.e., prefer to interact with similar peers (McPherson, Smith-Lovin, & Cook, 2001). Direct contact with outgroup members can, if it fails, elicit intergroup anxiety, which decreases willingness for direct contact in the future (Barlow et al., 2011). Fortunately, intergroup attitudes can be improved even through indirect contact, i.e., contact where individuals do not personally engage in intergroup contact (Vezzali et al., 2014). One form of indirect contact is extended contact, which refers to knowing that ingroup friends have friends from an outgroup (the extended contact hypothesis; Wright, Aron, McLaughlin-Volpe, & Ropp, 1997; Liebkind & McAlister, 1999).

When Wright and his colleagues (1997) had launched the extended contact hypothesis, Liebkind and McAlister (1999) introduced behavioural journalism (based on Bandura, 1986) as a prejudice-reduction tool. The intervention developed by Liebkind and McAlister (1999) utilized vicarious contact (Mazziotta, Mummendey, & Wright, 2011), which refers to observing intergroup contact between in- and outgroup members who act as role-models (Dovidio, Eller, & Hewstone, 2011) and which has more recently been identified as distinct from the original concept of extended contact (Vezzali, et al., 2014). Outgroup attitudes can improve through observational learning as social cognitive theory (Bandura, 1986) posits that we learn social norms and how to behave from the observation of others, especially others with whom we can identify. Observing a successful cross-group interaction either directly or through written or audiovisual media suggests that ingroup members have positive attitudes towards the outgroup, and vice versa, and indicates the appropriate behaviour to adopt during contact (Vezzali et al., 2014).

Liebkind and McAlister (1999) presented students with first-person narratives about intergroup friendships, as stories written in first-person voice and representing characters who are members of the same relevant ingroup as the reader are most effective in closing the psychological gap between the reader and the narrator (Kaufman & Libby, 2012). Similarly, the extended contact hypothesis (Wright et al., 1997) assumes the effect of indirect contact to be stronger when observing similar instead of dissimilar others, as the former makes it easier for the reader to identify with the narrator. The results obtained by Liebkind & McAlister (1999) confirmed these assumptions; the vicarious contact intervention used was successful in improving the outgroup attitudes of Finnish youth.

Although prejudice-reduction interventions in schools based on indirect contact have been conducted for decades (e.g., Cameron, Rutland, Brown, & Douch, 2006; Liebkind & McAlister, 1999; Liebkind et al., 2014; Vezzali, Stathi, Giovannini, Capozza, & Visintin,

2015), they have all been carried out by researchers themselves or trained research assistants. Consequently, these tools cannot become an integral part of the schools' practices, severely limiting their practical usefulness. Also teacher-led prejudice-reduction interventions based on other mechanisms than indirect contact are quite rare; only thirteen were identified in a recent meta-analysis covering 50 studies during the past decade (Ülger, Dette-Hagenmeyer, Reichle, & Gaertner, 2018). Thus, developing and evaluating theoretically driven prejudice-reduction interventions for autonomous use in schools is an increasingly urgent task in order to remedy social problems associated with conflictual intergroup relations, such as discrimination, inequality, and violence.

However, contact interventions that may have proven effective in the context of a research laboratory may not be effective in a school context where several distracting factors are competing for students' attention (Ülger et al., 2018). Especially field experiments are needed for finding effective prejudice-reduction tools, as they are the only ones able to assess whether an intervention's effects can emerge despite a plethora of real-world influences and distractions (Paluck & Green, 2009). These include socially transmitted contact with and information about outgroups in a non-face-to-face contact environment in social media and online communications, which are about to take over traditional first-hand and face-to-face ways of getting to know others (McIntyre, Paolini & Hewstone, 2016). Reviewing prejudice-reduction research since the 1950's (N = 985, 72 % published) in order to find out "what works", Paluck and Green (2009) identified only 71 field experiments to evaluate in detail, half of which used vicarious contact as a mechanism, but only 17 of these were conducted in schools. Listing the best of theory-driven prejudice-reduction interventions the authors concluded that the most promising avenues for prejudice-reduction were interventions based on vicarious contact through media or reading (Paluck & Green, 2009).

However, research on vicarious contact interventions is still scarce, but being mostly experimental, it is more reliable compared to research on extended contact, which is mostly correlational (Vezzali et al., 2014). In a researcher-led vicarious contact intervention developed further from the one used in Liebkind and McAlister (1999), the effect on perceived importance of intergroup contact was found to be most notable for younger participants and girls (Liebkind et al., 2014). Thus, a practical objective of the study presented here is to contribute to finding feasible in-school prejudice-reduction tools by testing a teacher-led vicarious contact school intervention, which has previously been carried out only by researchers (Liebkind & McAlister, 1999; Liebkind et al., 2014).

The Present Study

This study represents the first attempt to examine the applicability of a vicarious contact prejudice-reduction intervention to a real-life context. To that end, we test the intervention used in Liebkind and colleagues (2014) when implemented independently by teaching staff, utilizing the teacher's manual (Solares, Huttunen, Mähönen, Hirvonen, & Liebkind, 2012) that was developed as an end-result of that study. Our primary research question is: "*Is a teacher-led vicarious contact intervention effective for improving outgroup attitudes among adolescents?*" Based on results from researcher-led vicarious contact interventions we hypothesize that the intervention improves outgroup attitudes among adolescents (H1).

However, there are several conditions limiting as well as enhancing the effects of indirect contact (for a review, see Vezzali et al., 2014). A second objective of this study is to examine for whom school interventions are effective when implemented by teachers. To that end, we test three moderators of the effects of indirect contact, which have not been studied before in vicarious contact school interventions aiming at reducing prejudice against ethnic or cultural outgroups. Firstly, individual differences are important moderators of intervention effects, and they include also previous experiences of direct contact with, as well as initial

attitudes toward, the outgroup (Vezzali et al., 2014). Highly prejudiced individuals may find it difficult to engage in intergroup contact in the first place, but people with negative attitudes to begin with benefit more than others from direct and extended contact (Hodson, Castello & McInnis, 2013; Hodson, Harry & Mitchell, 2009). It has not previously been shown, however, that also the effect of vicarious contact interventions among adolescents would depend on prior negative attitudes toward cultural outgroups. Thus, our first secondary research question is: “*Does the effect of the intervention depend on the adolescents’ initial outgroup attitudes?*” We hypothesize that the intervention is more effective among adolescents with more negative attitudes at the outset (H2).

While the quantity of prior direct contact has been found to moderate the effect of extended intergroup contact on outgroup attitudes (e.g., Vezzali et al., 2014), it has not been shown that this is also true for the effect of interventions depicting vicarious contact between youth representing different cultural groups. However, Schiappa, Gregg and Hewes (2006) studied the moderating effect of prior direct contact of heterosexuals with homosexuals on the correlation between para-social contact through media (watching the Will & Grace TV-series) and attitudes towards homosexuals. The correlation was strongest for those with least prior contact (Schiappa et al., 2006). Thus, we address the role of the amount of prior positive direct contact as a moderator of the effects of a teacher-led vicarious contact intervention. Our second secondary research question is: “*Does the effect of the intervention depend on the adolescents’ prior positive direct intergroup contact experiences?*” Based on previous research we predict that the intervention is more effective among adolescents with less positive previous contact experiences (H3).

Besides these moderators already identified in the intergroup contact literature, we suggest gender as another possible moderator. Even though gender is routinely analyzed for example in health interventions (e.g., Jordans et.al., 2010), it has mostly been neglected in

interventions related to intergroup relations. In an earlier study utilizing the same intervention method as this study there was a tendency for the main effect of the prejudice-reduction intervention on the perceived importance of intergroup contact to be especially salient among girls (Liebkind et al, 2014). Also other existing research indicates that stronger vicarious contact intervention effects could be expected for girls than for boys, because observing positive interaction between in- and outgroup members might provide important information about ingroup norms (Vezzali et al., 2014), and research shows that mechanisms for developing positive intergroup attitudes seem to be gender-specific: while positive in-group norms may be sufficient for girls to promote positive subtle intergroup attitudes, for boys both pleasant direct intergroup contact and positive norms are needed (Mähönen, Jasinskaja-Lahti & Liebkind, 2011). This may be related to the greater propensity among girls for social engagement (Rankin, Lane, Gibbons & Gerard, 2004) and interpersonal affiliation (Leaper & Friedman, 2007). Relevant for teacher-led interventions, girls have also been shown to have a closer and more supportive relationship with school teachers than boys (Fan, 2011).

Some research results indicate that both during adolescence and later girls tend to be less, not more, likely to be susceptible to peer influence or, at least, to characterize themselves this way (Aral & Walker, 2012; Steinberg & Monahan, 2007). However, studies on interventions aiming at changing behaviour support the opposite assumption: in studies on how to prevent bullying in schools, girls seem to be more sensitive than boys to the normative context (Salmivalli, Lappalainen & Lagerspetz, 1998; Salmivalli & Voeten, 2004). Our third secondary research question is thus: *“Is the effectiveness of a teacher-led vicarious contact intervention dependent on the adolescents’ gender?”* In accordance with existing research we hypothesize that girls are more receptive to the intervention than boys (H4).

Finally, in order to get a more detailed picture about how the intervention works, we explore the extent to which individual level differences in prior outgroup attitudes and the

two other moderators described above might simultaneously and cumulatively affect the effectiveness of a teacher-led prejudice-reduction intervention. Our exploratory research question (RQ5) is thus “*Does the effect of the intervention depend on the interaction between initial attitudes and gender and/or between initial attitudes and prior positive direct contact experiences of the adolescents?*”

The Context of the Study

This study was conducted in Finland, which was part of Sweden until 1809, part of the Russian Empire 1809-1917, and defended its independence against the Soviet Union in 1939-1940. Ethnic and cultural diversity has increased in Finland, although the country has traditionally been one of emigration rather than immigration (Pitkänen & Kouki, 2002). Still, only 6 per cent of the population in Finland speaks a foreign mother tongue, but the change has been rapid and continues; the number of foreign-language speakers has increased thirteen-fold since 1990 (Statistics Finland, 2016). Finland’s history contributes to the majority population displaying rather high levels of national identification and pride (Finell, 2012; Finell, Olakivi, Liebkind, & Lipsanen, 2013). Finnish national identity is quite essentialist, i.e., builds upon ethnic and cultural characteristics rather than citizenship (Varjonen, Arnold, & Jasinskaja-Lahti, 2013). This national identity poses a particular challenge for the successful integration of immigrants. This challenge did not lessen in 2015, when the data was collected, when Finland, like the rest of Europe, experienced a substantial increase in the number of asylum seekers. The number of asylum seekers arriving in Finland in 2015 (N = 32,478) was almost ten-fold compared to the year before (N = 3,651) (European Migration Network, 2016), and double even compared to the estimate made in July 2015 (“Total of 32,478 Asylum-Seekers”, 2016).

The field experiment reported here was conducted in two towns in southern Finland: Lahti and Kotka. At the time of the study, there were 118 743 inhabitants in Lahti and 54 319

inhabitants in Kotka. The proportion of foreign-language speaking inhabitants in these towns (in Lahti 5,7 % and in Kotka 8,6 %,) roughly reflected the average proportion of foreign language speakers in the whole country (6,0 %).

Methods

Participants

Participants were majority Finns from 7th and 8th grades of the Finnish secondary school (49,9 % girls; mean age 13.6 years, *SD* =.56). Altogether 1548 students were invited to participate in the study. A total of 647 majority students completed both baseline and follow-up assessments. Students with an immigrant background (*N* = 69) were not included in this study. After excluding item-missing observations on the scales measuring outgroup attitudes and contact with outgroup friends the final sample consisted of 639 students, of 61.3 per cent of which participated in the experimental condition.

Procedure

With permission obtained from the school boards of the municipalities, the field experiment was conducted in altogether 10 schools of varying size. The schools were divided into four intervention schools and six control schools based on the willingness and possibilities to conduct the intervention sessions in the school. The intervention consisted of three 45-minute sessions conducted once a week by the teachers in the experimental schools. Classes in the control schools followed the normal curriculum. The intervention was assessed through two electronic questionnaires: the baseline assessment was completed three weeks before the first intervention session in the intervention schools and the follow-up assessment three weeks after the last intervention session. The questionnaires were completed during the school day under the supervision of teachers, who received written instructions on how to administer the questionnaires. The teachers were not able to see the answers given by the students in the electronic questionnaires. Importantly, the teachers supervising the completion

of the questionnaires were not the same as those conducting the intervention sessions, so that the students would not connect the questionnaires with the intervention.

In the experimental schools, teachers or study councilors carried out the sessions according to a teachers' manual (Solares et al., 2012) containing precise instructions and materials for each session. The manual was originally developed on the basis of a former intervention study where the intervention was conducted by trained research assistants (Liebkind et al., 2014). The manual was written in as detailed a manner as possible to enable its independent use in schools. The vicarious contact intervention consisted of altogether 12 first-person narrative stories about intergroup friendship. The narrators, representing both boys and girls and majority and minority youths, communicated how their initial apprehensions towards people from the outgroup disappeared and how their attitudes changed after becoming friends with a youth from the outgroup. Enhancing identification with the narrator, each story included a picture and a short description of the hobbies, likings and/or family relations of the narrator (for further details on the intervention, see Liebkind et al. 2014.)

Measures

Outgroup attitudes were assessed with a feeling thermometer asking participants to indicate their feeling in general towards people with an immigrant background on an 11-point scale ranging from 0 = extremely cold to 100 = extremely warm) (Haddock, Zanna, & Esses, 1993).

Prior direct contact with outgroup friends was measured by asking "How often are you in contact with friends with an immigrant background". The students could answer 'never' (N = 180), 'rarely' (N = 139), 'sometimes' (N = 137), 'quite often' (N = 116) and 'very often' (N = 67). The frequency of contact with outgroup friends showed a slightly negative distribution with 28.2 per cent stating 'never' and 10.5 per cent 'very often'.

The questionnaire used in baseline and follow-up assessments contained more dependent and independent variables than described above, but this study focuses on only a selected part of the questionnaire.

Analysis

Mean differences in outgroup attitudes were tested with independent and dependent samples *t*-tests. Repeated measures analysis of variance (RM ANOVA) was used to test the effect of the intervention and whether it was moderated by prior outgroup attitudes, prior positive direct contact, or gender. We report Time and Group x Time interactions based on Wilk's criterion. SPSS IBM version 25 was used in all statistical analyses.

Results

The means and standard deviations of outgroup attitudes at baseline (T1) and follow-up (T2) are shown in Table 1. There was no difference in outgroup attitudes between the experimental group and the control group at baseline ($t(468.39) = .55, p = .580$) indicating that the division of the participants into the research conditions was successful regarding the baseline levels of the outcome variable used in this study. Between boys ($M = 51.79, SD = 27.03$) and girls ($M = 59.00, SD = 24.58$) there was a significant difference at baseline ($t(637) = 3.52, p < .001$), with girls having on average more positive outgroup attitudes prior to the intervention. There was also a significant variation in outgroup attitudes by frequency of prior positive direct outgroup contact at baseline ($F(4,628) = 11.74, p < .001$), with attitudes becoming more positive by frequency of prior positive direct contact; never ($M = 46.33, SD = 28.36$), rarely ($M = 52.91, SD = 24.18$), sometimes ($M = 55.95, SD = 23.47$), quite often ($M = 61.88, SD = 24.16$) and very often ($M = 66.89, SD = 24.15$).

INSERT TABLE 1 HERE

In order to assess the effectiveness of the intervention on outgroup attitudes a repeated measures ANOVA was conducted with condition (experiment vs control) as a between-

subjects factor and time (T1, T2) as a within-subjects factor. As seen in Model 1 in Table 2, there was no statistically significant interaction between condition and time, indicating that the intervention did not have a direct effect on outgroup attitudes. The main effect of time showed a difference in means of outgroup attitudes at the different time points, illustrating the overall deterioration of the attitudes that can already be seen in Table 1. Thus, H1 was not supported. It can be noted, however, that there was a tendency towards a Time x Condition interaction ($p = .058$), indicating that the deterioration of attitudes was somewhat smaller in the experimental than in the control group. In addition, although there was no difference between the experimental and control groups in the mean of attitudes at baseline (T1), there was a significant difference at T2 ($t(467.30) = 2.30, p = .026$).

INSERT TABLE 2 HERE

In addition to testing the direct intervention effect on outgroup attitudes, we tested whether the intervention effect was moderated by prior outgroup attitudes (H2), prior positive direct contact (H3) or gender (H4). To assess these possible moderating effects, separate repeated-measures ANOVAs were conducted by extending Model 1 with a moderating variable as a second between-subjects factor. Table 2 presents the results of the three models.

Model 2 tested the moderating effect of prior outgroup attitudes (H2). When using this variable as a moderator, it was dichotomized separating participants with negative (< 40 ; $N = 138$) versus positive (> 39 ; $N = 501$) scores on outgroup attitudes at baseline. At baseline 21.6 per cent scored less than 40 on outgroup attitudes. This dichotomized attitude variable was added to the original model. There was no statistically significant three-way interaction between time, condition and prior outgroup attitudes. Thus, H2 was not supported, i.e., the effect of the intervention was in general not dependent on prior outgroup attitudes.

Model 3 tested previous outgroup contact as a moderator (H3). The main effect of prior direct outgroup contact and the two-way interaction between prior direct outgroup

contact and condition were statistically significant. This indicates that the association between outgroup attitudes and outgroup contact was different between the experimental and control group. However, although the three-way interaction between condition, outgroup contact and time was also statistically significant, five effect plots (cf. Appendix) presenting the relationship between condition and outgroup attitudes over time for each value of prior direct outgroup contact did not support the hypothesized linear direction of how prior direct outgroup contact should affect the experimental but not the control group's outgroup attitudes, i.e., that the intervention would be more effective for those with less previous experiences of direct outgroup contact (H3). The plots revealed no such pattern. Instead it was primarily the control group's attitudes that produced the significant interaction as they varied much between each value of outgroup contact, following no specific pattern. Consequently, we conclude that H3 was not supported. Model 4 included gender as an additional moderator to the original model (H4). There was a between-subjects effect of gender, but neither the three-way interaction between time, condition and gender nor any of the two-way interactions were statistically significant in Model 4. Hence, it can be concluded that H4 was not supported; girls in general were not more receptive to the intervention than boys.

INSERT TABLE 3 HERE

The exploratory RQ5 was assessed by repeating the Models 3 and 4 of Table 2 and adding prior outgroup attitudes as a between-subjects factor. As seen in Table 3, the interaction between frequency of contact with outgroup friends and baseline attitudes did not influence the effectiveness of the intervention. However, the four-way interaction between condition, gender, negative versus positive outgroup attitudes at baseline and time was statistically significant. This suggests that the intervention was effective among girls with negative outgroup attitudes at baseline, but not among boys. Although the effect size for the

interaction was weak, Figure 1 shows that girls with negative outgroup attitudes at baseline who took part in the experiment had a moderate mean increase from around 20 to 45 mean scores in the feeling thermometer measuring outgroup attitudes, while there was no such increase among girls with more positive outgroup attitudes or among boys.

INSERT FIGURE 1 HERE

Discussion

In this study, a vicarious contact prejudice-reduction intervention for schools (Liebkind & McAlister, 1999; Liebkind et al., 2014) was, for the first time, tested for its overall effectiveness among adolescents when implemented independently by teachers instead of researchers/research assistants (main research question). We also tested the extent to which the effectiveness of this intervention is moderated by the adolescents' (a) initial outgroup attitudes, previous direct outgroup contact experiences, and (c) gender (secondary research questions). We hypothesized that the teacher-led intervention improves outgroup attitudes among the adolescents (H1), particularly among those with more negative attitudes at the outset (H2) and less experiences of positive prior direct contact (H3), and more among girls than among boys (H4). We also explored whether the effect of the intervention depended on the interaction between the initial outgroup attitudes and gender of the adolescents, and/or on the initial outgroup attitudes and the adolescents' prior positive direct contact experiences.

Firstly, the answer to our main research question is negative; there was no general effect of the intervention in the expected direction. Instead, our results showed an unanticipated deterioration in the outgroup attitudes between baseline and follow-up among all the adolescents, regardless of condition. One indication of a possible positive effect of the intervention was, however, the tendency towards an interaction between time and condition, showing that attitudes deteriorated somewhat less in the experimental than in the control

group. There was a significant difference between the experimental and control groups in mean outgroup attitudes at T2, although no such difference between the conditions could be observed at baseline (T1). Secondly, we did not get support for any of our hypotheses regarding the separate moderating effects on the intervention of prior outgroup attitudes, prior positive direct intergroup contact, or gender.

When trying to get a more detailed picture about how the teacher-led intervention works by exploring the interactions between the moderators, we did not find support for the moderating role of prior positive direct contact, neither separately nor in combination with prior outgroup attitudes. However, we found the teacher-led vicarious contact intervention to be more effective for girls, but not boys, with negative rather than positive outgroup attitudes at baseline. Various individual-level differences may thus simultaneously moderate the effect of teacher-led prejudice-reduction interventions, in this case resulting in the intervention being effective for a subgroup of the adolescents characterized by two of the three variables we expected to independently moderate the effect of the intervention. The effect of gender in the interaction between gender and prior outgroup attitudes could be due to the tendency for girls to be more sensitive to the normative context (Salmivalli & Voeten, 2004) and to have a closer and more supportive relationship with teachers than boys (Fan, 2011). The effect of prior negative outgroup attitudes in the interaction with gender, in turn, is the first indication of the possibility that the effect of in-school vicarious contact interventions on outgroup attitudes could be stronger for those with negative rather than positive prior outgroup attitudes. Previous research has only shown that direct and extended intergroup contact is more efficient in improving intergroup attitudes for highly rather than less prejudiced adults (Hodson et al., 2013).

It can be argued that in order for in-school prejudice-reduction interventions to be feasible, the interventions should be effective for a substantial proportion of the students, but

it can also be argued that it is more important for schools to improve outgroup attitudes among those with negative rather than positive outgroup attitudes at the outset. However, prejudice-reduction interventions in schools should not be gender-specific. Thus, future research on prejudice-reduction interventions in schools should focus on whether or not, and the reasons why, students' gender might influence the effectiveness of vicarious contact interventions. Vicarious contact largely rests on sending positive in- and outgroup norms (Vezzali et al., 2014), and while positive in-group norms seem to be sufficient for girls to develop positive outgroup attitudes, it may take pleasant direct intergroup contact in addition to positive norms for boys to develop similar outgroup attitudes (Mähönen et al., 2011). Boys with negative outgroups attitudes at the outset could possibly benefit from a vicarious contact intervention only later when they get opportunities also for direct outgroup contact. Previous research has shown that vicarious contact interventions increases the perceived importance of future contact (Liebkind et al., 2014) and that vicarious, unlike direct, contact, leads to a persistent reduction of anxiety for future contact (Ioannou, Al Ramiah, & Hewstone, in press). Vicarious contact thus acts as a supportive factor for engaging in direct intergroup contact experiences in future (Brown & Paterson, 2016)

We can only speculate on the reasons for generally failing to improve the students' outgroup attitudes. Ülger's and her colleagues' (2018) meta-analysis covered also teacher-led interventions, although none were based on vicarious contact, and it shows that while prejudice-reduction interventions delivered by researchers had large effects, those delivered by teachers tended to produce non-significant results. Thus, in-school interventions still need to find ways to overcome other real-life influences, acknowledging that such influences are not confined to the school. As important moderators of vicarious contact, environmental conditions include mass media (Vezzali et al., 2014), which is the primary source of information for people to form impressions of outgroups, and research has shown the

detrimental impact of negative vicarious contact through audio-visual (para-social) contact (Brown & Paterson, 2016). Especially TV news and newspapers typically depict immigrants in negative and racist (Visintin, Voci, Pagotto & Hewstone, 2017), and youth are also surrounded by a proliferation of para-social contact with and information about outgroups in social media and online communications (McIntyre et al., 2016). Social cognitive theory (Bandura, 1986) suggests that ingroup bias can arise at least in part from transmission of negative outgroup attitudes from family, relevant others, peers, and media. When environmental conditions suddenly change by, for example, a tangible increase in asylum-seekers and/or in anti-immigration public discourse, this can provide a substantially larger experimental manipulation than most laboratory or especially field experiments can ever accomplish (Crandall, Miller, & White, 2018).

Undoubtedly, environmental conditions changed dramatically during our intervention study, also in the towns where the study took place: right after our baseline survey (31.8-6.9.2015), local reception centers were established or expanded in both Lahti and Kotka, and similar events continued during the whole study right up to the follow-up assessment (23.-29.11.2015). For example, in Lahti there was a violent demonstration against the arriving asylum seekers, fireworks thrown at the bus bringing them to the reception center, and one protester dressed as a KKK-member (“Ku Klux Klan-Clad Protester in Lahti”, 2015). Anti-immigrant rhetoric increased in nation-wide media (e.g., Öhberg, 2015), and the children of asylum seekers were granted preparatory education in local schools, also in some of those participating on our study. There were also nation-wide news about three incidents of rape where an asylum seeker was suspected for the crime (e.g., “Police: Asylum Seeker Held for Suspected Rape”, 2015). We cannot know to what extent such events contributed to the deterioration of outgroup attitudes from baseline to follow-up in the experimental and control groups alike. However, it is likely that the vicarious exposure to negative contact through

media during the time of our study has had detrimental effects on the outgroup attitudes of the adolescents studied, considering that the negative portrayal of immigrants in TV-news and newspapers has recently been shown to contribute to the maintenance of prejudice against immigrants (Visintin et al., 2017).

Regardless of environmental influences outside our control, however, also the limitations of the study itself must be addressed. The primary limitation of the intervention may simply be its length; although prejudice-reduction in schools often takes place through single-session interventions (Paluck & Green, 2009; Ülger et al., 2018), only three sessions may not be enough to elicit significant results. Another limitation closely connected with the increasing use among youth of social media (McIntyre et al., 2016; Visintin et al., 2017) is the fact that our intervention utilized printed first-person narratives, which visually offered only pictures of the narrators. In times when youth consume and themselves post different kinds of audio-visual materials on various social media, narratives on paper may not be interesting enough. A third limitation is connected to the fact that this was the first vicarious contact prejudice-reduction intervention conducted independently by teachers. The effectiveness of teacher-led interventions is bound to depend highly on the teachers and their motivation and input during the intervention sessions. We thus suggest that future research could develop teacher-led vicarious contact interventions by increasing the number of sessions, providing more attention-grabbing first-person narratives of vicarious contact, and assessing the perception the students have of the teacher conducting the intervention.

Conclusions

In the study reported here we tested, for the first time, a teacher-led prejudice-reduction intervention based on vicarious contact and intended for independent use in schools among adolescents. The reason for this was two-fold: Firstly, there is a dire need for effective in-school tools to prevent and decrease negative outgroup attitudes in increasingly culturally

diverse societies. Secondly, within social psychological research vicarious contact interventions are considered to be one of the most promising tools to achieve this goal (Paluck & Green, 2009; Vezzali et al, 2014, Ülger et al., 2018). We thus took the first steps in this direction, but we note that vicarious contact seems to be a two-edged sword: negative vicarious contact via mass-media can possibly have unexpected and detrimental effects on ongoing interventions in schools. However, against the backdrop of the specific environmental conditions in which this study was conducted, it can be considered encouraging that we found a significant positive effect of the intervention in at least one subgroup of the experimental group; girls who had negative rather than positive outgroup attitudes at the outset had significantly more positive attitudes after the intervention. Thus, the intervention was effective for at least some of those who needed it most.

However, our modest results indicate that the development of effective in-school prejudice-reduction interventions needs to continue, not only by duly acknowledging the crucial role of teachers in teacher-led interventions, but also by considering the power of traditional as well as social media in the every-day lives of adolescents. While TV-news and newspapers may increase prejudice against immigrants, vicarious contact through films and TV series have been shown to have a positive impact on outgroup perceptions by favoring the attribution of uniquely human traits to immigrants (Visintin et al., 2017). To the extent, therefore, that broadcasted entertainment tells about positive intergroup interactions and is widespread enough, it can provide positive role models for cross-group interactions on a large scale and function as an intervention of positive vicarious contact (Paluck, 2009). It is in this direction we need to continue developing effective teacher-led vicarious contact prejudice-reduction interventions. Field experiments are the only possible way to proceed, even if it means a series of trial and error before we reach our goal. In this process, it is important for researchers to collaborate with schools. Once successful interventions have been developed,

they can become continuous and integral part of the curriculum, and thus contribute to harmonious intergroup relations. This is an urgent task, as failure to find practical means to prevent conflictual intergroup relations can have serious consequences for schools as well as for the society at large.

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A TEACHER-LED VICARIOUS CONTACT INTERVENTION

Table 1

Descriptive statistics of outgroup attitudes (0-100) for baseline (T1) and follow up (T2)

	T1		T2		Difference within conditions T1 to T2
	<i>N</i>	<i>M (SD)</i>	<i>M (SD)</i>		
Experimental	392	55.87 (24.57)	53.42 (25.53)	$t(391) = 1.99, p = 0.047$	
Control	247	54.66 (28.23)	48.34 (29.53)	$t(246) = 3.81, p < 0.001$	
Total	639	55.40 (26.07)	51.46 (27.23)	$t(638) = 3.97, p < 0.001$	

A TEACHER-LED VICARIOUS CONTACT INTERVENTION

Table 2

Repeated measures ANOVA on outgroup attitudes (N=639)

Model 1	<i>F</i>	<i>df</i>	<i>p</i>	η^2
Time	18.58	1	< 0.001	0.03
Condition	2.71	1	0.100	0.00
Time x Condition	3.61	1	0.058	0.01
Model 2	<i>F</i>	<i>df</i>	<i>p</i>	η^2
Time	1.16	1	0.281	0.00
Condition	3.00	1	0.083	0.01
Attitudes T1	492.22	1	< 0.001	0.44
Condition x Attitudes T1	4.44	1	0.035	0.01
Time x Condition	6.53	1	0.011	0.01
Time x Attitudes T1	76.50	1	< 0.001	0.11
Time x Condition x Attitudes T1	0.45	1	0.501	0.00
Model 3	<i>F</i>	<i>df</i>	<i>p</i>	η^2
Time	20.84	1	< 0.001	0.03
Condition	0.79	1	0.376	0.00
Outgroup contact	14.45	1	< 0.001	0.08
Condition x Outgroup contact	2.72	1	0.028	0.02
Time x Condition	3.15	1	0.076	0.01
Time x Outgroup contact	1.25	1	0.291	0.01
Time x Condition x Outgroup contact	3.15	1	0.014	0.02
Model 4	<i>F</i>	<i>df</i>	<i>p</i>	η^2
Time	18.56	1	< 0.001	0.03
Condition	2.81	1	0.094	0.00
Gender	16.34	1	< 0.001	0.03
Condition x Gender	1.35	1	0.244	0.00
Time x Condition	3.61	1	0.058	0.01
Time x Gender	0.55	1	0.457	0.00
Time x Condition x Gender	0.31	1	0.576	0.00

A TEACHER-LED VICARIOUS CONTACT INTERVENTION

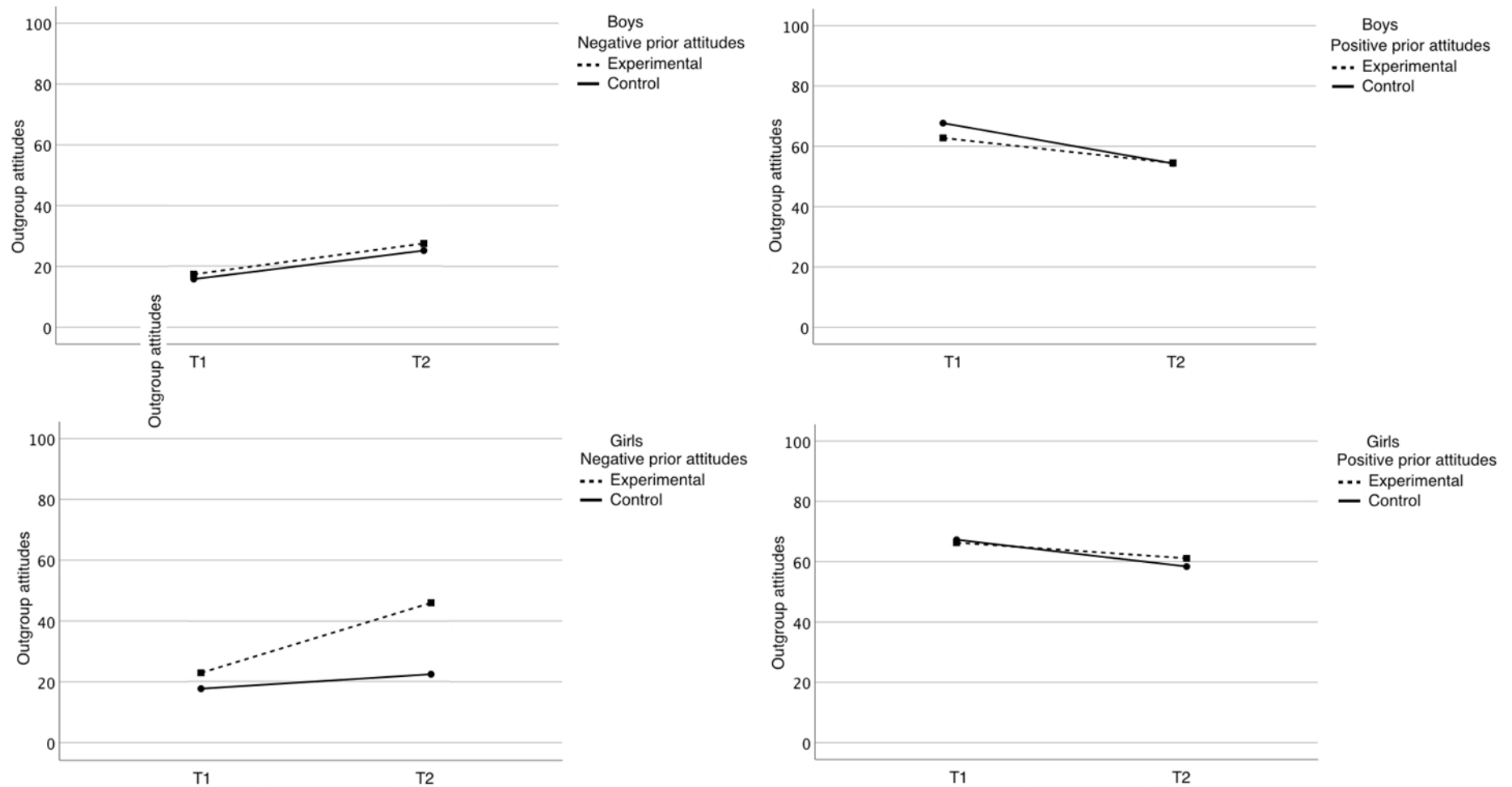
Table 3

Repeated measures ANOVA on outgroup attitudes with condition, attitudes at baseline and gender or outgroup contact (N=639)

	Gender				Outgroup contact				
	<i>F</i>	<i>df</i>	<i>p</i>	η^2	<i>F</i>	<i>df</i>	<i>p</i>	η^2	
Time	1.62	1	0.203	0.00	Time	1.88	1	0.172	0.00
Condition	4.63	1	0.032	0.01	Condition	0.67	1	0.413	0.00
Gender	7.16	1	0.008	0.01	Outgroup contact	4.97	4	0.001	0.03
AttitudesT1	458.24	1	<0.001	0.42	AttitudesT1	203.24	1	<0.001	0.25
Condition x Gender	5.12	1	0.024	0.01	Condition x Outgroup contact	2.05	4	0.087	0.01
Condition x AttitudesT1	6.65	1	0.010	0.01	Condition x AttitudesT1	1.75	1	0.187	0.00
Gender x AttitudesT1	0.46	1	0.498	0.00	Outgroup contact x AttitudesT1	0.02	4	1.000	0.00
Condition x Time	8.92	1	0.003	0.01	Condition x Time	2.83	1	0.093	0.01
Gender x Time	2.91	1	0.088	0.01	Outgroup contact x Time	0.63	4	0.644	0.00
AttitudesT1 x Time	79.58	1	<0.001	0.11	AttitudesT1 x Time	42.86	1	<0.001	0.07
Condition x Gender x Time	3.04	1	0.082	0.01	Condition x Outgroup contact x Time	0.07	4	0.991	0.00
Condition x AttitudesT1 x Time	1.24	1	0.267	0.00	Condition x AttitudesT1 x Time	0.41	1	0.524	0.00
Gender x AttitudesT1 x Time	0.00	1	0.938	0.00	Outgroup contact x AttitudesT1 x Time	0.60	4	0.661	0.00
Condition x Gender x AttitudesT1 x Time	4.13	1	0.042	0.01	Condition x Outgroup contact x AttitudesT1 x Time	1.14	4	0.337	0.01

A TEACHER-LED VICARIOUS CONTACT INTERVENTION

Figure 1. Outgroup attitudes at T1 and T2 by condition for boys and girls with negative or positive attitudes at T1



A TEACHER-LED VICARIOUS CONTACT INTERVENTION

APPENDIX

Outgroup attitudes at T1 and T2 by condition by contact with outgroup friends

