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Improving intergroup relations between Catholics and Protestants in Northern Ireland via E-
contact

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Abstract

Northern Ireland is characterised by extensive segregation between its predominantly Catholic and Protestant communities. With the aim of overcoming this segregation, the current study experimentally evaluated the effectiveness of electronic- or E-contact as a novel indirect contact and prejudice-reduction strategy. Here, Catholic and Protestant participants were not required to meet physically but were involved in a collaborative and goal-orientated online interaction with a member of the other community. As predicted, E-contact improved both Catholics' and Protestants' outgroup attitudes via improved contact expectancies and reduced intergroup anxiety. These findings provide support for the contemporary role of online interactions in actively overcoming the physical and psychological barriers that often prevent prejudice reduction in segregated communities.

Keywords: intergroup contact, computer-mediated communication, prejudice, anxiety, religion

During the late 20th century, Northern Ireland experienced three decades of violent ethno-political conflict between Irish nationalists and unionists, who predominantly self-identify as Catholic and Protestant respectively (Cairns & Darby, 1998). Despite the apparent movement towards peace over the last two decades, the region has remained physically and psychologically divided along religious lines. Most notably, approximately half of the population continues to reside in segregated neighbourhoods, the majority of people do not have a friendship network outside their religious community, and most children (around 95%) attend religiously segregated schools (Cairns & Hewstone, 2002; McKeown, 2013). While religious segregation is not the root of the Northern Ireland conflict, it has played a critical role in maintaining it (Hewstone et al., 2005).

In contrast, extensive social psychological research has demonstrated that positive contact between groups, in particular contact that involves equal status between the groups, intergroup cooperation rather than competition, achievement of a common goal, and institutional support, can reduce conflict and improve intergroup relations (Allport, 1954; Pettigrew, 1998; Pettigrew & Tropp, 2006). Pragmatically, however, how can intergroup contact be successfully applied to reduce prejudice in contexts with high levels of segregation, such as Northern Ireland? The current study will attempt to address this question by experimentally evaluating a contemporary extension of the contact hypothesis, which does not require face-to-face interactions but allows members from segregated groups to interact over the Internet.

Intergroup Contact in Northern Ireland

Despite the barriers that divide Catholics and Protestants in Northern Ireland, intergroup contact has been touted as an effective strategy to reduce prejudice and improve intergroup relations between these two communities (Hewstone & Hughes, 2015). An extensive series of cross-sectional studies has consistently demonstrated that Catholics and Protestants who

reported positive contact with members of the other community also reported more positive outgroup attitudes (e.g., Paolini, Hewstone, & Cairns, 2007; Paolini, Hewstone, Cairns, & Voci, 2004; Tam, Hewstone, Kenworthy, & Cairns, 2009; Tausch, Tam, Hewstone, Kenworthy, & Cairns, 2007; Turner, Tam, Hewstone, Kenworthy, & Cairns, 2013). While intergroup contact may appear to be a panacea for prejudice in Northern Ireland, this solution relies on both Catholics and Protestants to have the *opportunity* for contact. In reality, however, and as described above, these communities are extremely segregated, making direct contact impractical (McKeown, 2013). But even when the opportunity for contact exists, negative expectations and anxiety relating to the intergroup encounter may lead to superficial or negative interactions that prevent prejudice reduction (Plant & Devine, 2003; Stephan & Stephan, 1985).

In an attempt to address these concerns, researchers have examined indirect forms of contact between Catholics and Protestants, which do not require face-to-face intergroup interactions. To our knowledge, however, this attempt has been limited to a single indirect contact paradigm, namely extended contact (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997). Here, both Catholics and Protestants who reported knowledge that a member of their community had a close relationship with a member of the other community also reported more positive outgroup attitudes (Paolini et al., 2004, 2007; Tam et al., 2009; Turner et al., 2013). Even though extended contact ostensibly does not require groups to meet physically, its effectiveness is still dependent on direct contact, albeit once removed. Moreover, extended contact appears only to be effective via proximal contacts that are central to individuals' social networks, such as friends or family, rather than distal contacts, such as neighbours or work colleagues (Tausch, Hewstone, Schmid, Hughes, & Cairns, 2011). Consequently, similar to direct contact, extended contact may not be a practical prejudice-reduction strategy

in Northern Ireland, where the majority of Catholics and Protestants grow up with few close contacts from outside their community (McKeown, 2013).

In addition, this extensive body of direct and indirect contact research has not been experimental in nature, which has immensely limited the interpretation and generalisability of past findings. Rather than positive contact reducing prejudice, the opposite causal sequence may also be true (Pettigrew, 1998). In light of the protracted history of sectarian conflict in Northern Ireland, it is plausible that more prejudiced Catholics and Protestants are less likely to pursue opportunities for positive contact with the rival community and, indeed, may actively avoid it (see Binder et al., 2009). All things considered, it is clear that the literature now necessitates experimental evidence to further support the efficacy of intergroup contact as a strategy to improve relations between Catholics and Protestants in Northern Ireland. In particular, attention is needed to evaluate indirect contact strategies that actively overcome the barriers that divide the two communities. In the following section, we focus on electronic contact- or E-contact to address these needs.

Electronic Contact

With the advent of the Digital Age, intergroup contact researchers have extended the contact hypothesis to include computer-mediated interactions where members of different groups interact online (White, Harvey, & Abu-Rayya, 2015). When used appropriately, Internet-based interactions offer several advantages over other contact strategies. For example, in contrast to direct contact, the efficacy of E-contact for prejudice reduction does not require groups to meet physically. The unique characteristics of the Internet dissolve the physical and psychological barriers that often separate groups (Amichai-Hamburger & McKenna, 2006), making contact possible in contexts of segregation.

Moreover, in contrast to other indirect contact strategies, like extended contact, the synchronous nature of the Internet enables members from both groups to be actively involved

in the same intergroup encounter (White, Harvey, & Verrelli, 2015), which can be structured to incorporate Allport's (1954) facilitating contact conditions (Amichai-Hamburger & McKenna, 2006). These conditions can be achieved by connecting an ingroup and outgroup member in a collaborative (i.e., cooperation) and goal-orientated (i.e., common goal) online interaction under the supervision of a chat moderator (i.e., authority support). The online exchange can also be designed to allow each member to contribute equally to the interaction and to the achievement of the shared goal (i.e., equal status). Together, these situational factors, which have largely not been considered in other contact research conducted in Northern Ireland, should allow for personal involvement and intimacy during the interaction (White, Harvey, & Abu-Rayya, 2015) and facilitate positive attitude change (Pettigrew & Tropp, 2006).

In acknowledging these strengths, White and Abu-Rayya (2012; see also White, Abu-Rayya, & Weitzel, 2014) recently developed, and experimentally evaluated, a structured E-contact programme to improve relations between Muslim and Christian high school students from religiously segregated schools in Australia. The programme required Muslim-Christian dyads to collaborate on problem-based activities in a synchronous and text-based chat room under the supervision of their teachers. Compared to the control condition, which involved an online interaction between students of the same religion, the intergroup E-contact programme successfully improved intergroup attitudes, increased outgroup knowledge (White & Abu-Rayya, 2012), and improved prosocial emotion expression in general (White, Abu-Rayya, Bliuc, & Faulkner, 2015)

E-contact has also been effective in reducing prejudice among Jewish and Muslim university students in Israel (Walther, Hoter, Ganayem, & Shonfeld, 2015), who, similar to Catholics and Protestants in Northern Ireland, have experienced a protracted history of intergroup conflict and continue to live in segregation. These findings, however, should be

interpreted with caution despite their clear relevance to the intergroup context in Northern Ireland. The E-contact program evaluated by Walther et al. (2015) required groups of six members (i.e., two orthodox Jews, two secular Jews, and two Muslims) to complete a collaborative online course using “both synchronous chat and asynchronous text-based discussion boards” (p. 553) and involved a face-to-face meeting between participants. Consequently, the intergroup contact was not limited to an online interaction, but also included opportunities for vicarious (e.g., observing a fellow ingroup member discuss course material with a member of the other community on the discussion board) and direct (e.g., meeting an outgroup member at the face-to-face meeting) contact. While there was no apparent effect on prejudice among participants who attended the face-to-face meeting relative to those who did not, the design of the online program did not allow the researchers to distinguish the effects of E-contact from those of vicarious contact.

Finally, it should be acknowledged that E-contact has also been undertaken in Northern Ireland. The ‘Dissolving Boundaries’ initiative has been running since 1999, and links schools across the border between Northern Ireland and the Republic of Ireland for regular classes (Austin, 2010). This programme involves small groups of age- and ability-matched students from the two regions working together on a variety of projects, using a combination of an online learning platform and Internet video links. Rickard, Grace, Austin, and Smyth (2014) surveyed 611 children one year after the end of the programme, 65% of whom had taken part in the initiative and 35% who were from matched classes in the same school who had not taken part in the project. Descriptive evidence suggested that children who had taken part in the initiative: enjoyed it; were more likely to have crossed the border; and felt they knew the other side of the border better. However, no direct measures of outgroup perception were taken, no statistical analyses were conducted, and the authors acknowledge the survey was undertaken in 2012, a time of significant economic and political turmoil, and thus it

would be difficult to identify any single cause of differences between the two groups of students.

The Current Research

In light of the growing empirical support for the benefits of E-contact in contexts of segregation, the current study aimed to evaluate E-contact as a novel indirect contact strategy to improve intergroup relations between Catholics and Protestants in Northern Ireland. In doing so, it would be the first to provide experimental evidence for the efficacy of E-contact, and contact more generally, in this regional context. Here, Catholic and Protestant participants engaged in a synchronous and text-only online interaction with a member of the rival community that was structured to include Allport's (1954) facilitating conditions (see Method for how this was achieved). Moreover, by limiting the interaction to a synchronous online exchange, the current study aimed to address the methodological shortcomings of past research described above (e.g., Rickard et al., 2014; Walther et al., 2015), and in doing so, provide a more valid examination of the E-contact effect in the context of conflict and segregation.

Outgroup attitudes. It has long been argued that people's attitudes or *feelings* towards the rival community are a particularly important indicator of intergroup relations in Northern Ireland. For example, Whyte (1990) noted that "anyone who studies Northern Ireland must be struck by the intensity of feelings which the conflict evokes" (p. 94). Moreover, although the violence ceased two decades ago, evidence suggests that intergroup contact has a stronger impact on affect than cognitive outcomes, such as group variability or stereotypes (e.g., Miller, Smith & Mackie, 2004; Wolsko, Park, Judd, & Bachelor, 2003). As described above, numerous other intergroup contact studies undertaken in the Northern Irish context have demonstrated a relationship between various aspects of intergroup contact and improved outgroup attitudes (e.g., Paolini et al., 2004, 2007; Tam et al., 2009; Tausch et al., 2007;

Turner et al., 2013). In the current research, we also examined the effect of E-contact on participants' outgroup attitudes. Consistent with previous intergroup contact research, it was hypothesised that:

H1. Catholic and Protestant participants in the E-contact condition would report more positive outgroup attitudes compared to participants in the baseline condition.

Intergroup anxiety and outcome expectancies. Beyond evaluating the benefits of E-contact on Catholics' and Protestants' outgroup attitudes, the current study also aimed to examine the mechanisms that potentially underlie its effects. One factor that has been critical in explaining the E-contact effect is intergroup anxiety, which is the discomfort an individual may feel when anticipating or experiencing intergroup encounters (Stephan & Stephan, 1985). Similar to direct contact (Pettigrew & Tropp, 2008), E-contact has been shown to improve outgroup attitudes by directly reducing intergroup anxiety (White & Abu-Rayya, 2012; White et al., 2014; White, Verrelli, Maunder, & Kervinen, 2018). This research, however, is yet to explain *how* or *why* E-contact would affect intergroup anxiety. Therefore, to address this gap in the literature, the current study examined the role of people's outcome expectancies.

Intergroup anxiety arises when people anticipate negative consequences from interacting with the outgroup (Stephan and Stephan, 1985), such as not being able to make a positive impression (Plant & Devine, 2003). This theory of intergroup anxiety is comparable with Schlenker and Leary's (1982) self-presentation model of social anxiety, which proposes that people's perceived ability to make a desired impression (i.e., their outcome expectancies) is directly and inversely related to their experience of anxiety in social settings. Here, people's outcome expectancies are viewed as an antecedent, rather than a consequence, of social anxiety. Building on this framework, Plant and Devine (2003) argued that self-presentation concerns, such as not appearing prejudiced, often arise during intergroup

interactions. Therefore, insofar as an individual is confident in making a desired and well-received impression during the intergroup encounter, they should experience reduced intergroup anxiety (Aydogan & Gonsalkorale, 2015; Plant & Devine, 2003). However, in contexts of segregation, such as Northern Ireland, people have relatively few contact experiences with members from outside their community, and consequently, may anticipate increased difficulty in successfully navigating intergroup interactions. Thus, people with limited experiences with outgroup contact are likely to report more negative outcome expectancies, which is likely to result in increased intergroup anxiety. By contrast, Plant and Devine also reasoned that positive outgroup contact improves people's outcome expectancies about intergroup contact by both increasing their perceived abilities in making the desired impression and reducing the uncertainty about how to do so. In view of this, providing individuals with the opportunity to interact with the outgroup may improve their outcome expectancies, resulting in relaxed feelings of intergroup anxiety and more positive outgroup attitudes.

There are several reasons to expect E-contact, particularly the structured and text-only E-contact programme examined in this study, to improve people's outcome expectancies and reduce their intergroup anxiety. E-contact can provide individuals with a high degree of psychological control over the contact situation in a way that is not possible in face-to-face interactions (Amichai-Hamburger & McKenna, 2006). In text-only online interactions, people have more time to think about what they are going to say and how they are going to say it, and they can see and edit their responses before sending them. Moreover, E-contact that is structured to include Allport's (1954) facilitating contact conditions may provide individuals with the appropriate norms to guide their behaviour during the intergroup encounter (e.g., completing a collaborative and goal-orientated task with predetermined roles for each person). These features may offer individuals clear guides for their self-presentation

and increase their perceived abilities to present a desired impression. Together, this may assist people to develop the necessary skills that will improve their outcome expectancies, and in doing so, reduce their levels of intergroup anxiety (Plant & Devine, 2003). For these reasons, it was hypothesised that:

H2. Improved contact expectancies and reduced intergroup anxiety would serially mediate the E-contact effect on improved outgroup attitudes.

Method

Participants and Design

Overall, 86 first-year undergraduate students from Belfast, Northern Ireland, took part in the study (65.1% female; $M_{\text{age}} = 20.7$ years, $SD = 4.2$; 100% White). Of these, 43 identified as Catholic and 43 as Protestant. The study adopted a 2 (Condition: E-contact vs. baseline) x 2 (Religious membership: Catholic vs. Protestant) between-subjects design. The dependent variables were outcome expectancies, intergroup anxiety, and outgroup attitudes.

Dependent Measures

Items for all the dependent measures can be found in Supplementary Online Materials (SOM) 1. An index for each dependent variable was created by first reverse scoring any negatively worded items and then averaging the measure items (higher scores = more positive outcome expectancies; greater intergroup anxiety; more positive outgroup attitudes).

Outcome expectancies. Plant and Devine's (2003) 11-item outcome expectancies scale was adapted to measure participants' positive expectations of outgroup interactions. Participants rated their level of agreement with statements such as "When interacting with a Protestant [Catholic] person, I would know what to say in order to come across as nonprejudiced" and "When interacting with a Protestant [Catholic] person, he or she would see me as prejudiced no matter what I did" (reverse scored) on a rating scale from 1 (*Strongly disagree*) to 5 (*Strongly agree*). Cronbach's $\alpha = .84$.

Intergroup anxiety. Stephan and Stephan's (1985) intergroup anxiety scale was adapted to measure how anxious participants would feel interacting in a group made up entirely of the outgroup. Participants rated the extent they would feel eight different emotions (e.g., awkward, self-conscious) on a rating scale from 1 (*Not at all*) to 5 (*Extremely*). Cronbach's $\alpha = .84$.

Outgroup attitudes. Wright et al.'s (1997) general attitudes scale was used to assess participants' positive attitudes towards the outgroup. Participants rated the outgroup on five semantic differential items (e.g., *cold–warm*, *negative–positive*) on an 8-point rating scale. Cronbach's $\alpha = .95$.

Procedure

Potential participants were recruited via an advertisement for a lab-based study ostensibly on social cognition. This advertisement was published online on the university's participant pool management system alongside other similar studies. Upon presenting to the lab, participants who provided their informed consent to participate in the study were asked to indicate their age, gender, religion, and ethnicity, before being randomly assigned to one of two experimental conditions: E-contact or baseline. Participants assigned to the E-contact condition were informed that they would engage in a synchronous and text-only, online interaction, like that of Facebook Messenger or MSN, with another student who was located in a different building on campus. Participants were told that the purpose of the study was to trial a new instant messaging tool for university students, and in doing so, produce a handout for the student union about their first-year university experiences. Prior to the online interaction, participants were not told that the chat would involve a member of the other community. Participants were also informed that another experimenter, who would act as the chat moderator, would lead the online conversation. Both the chat moderator and the E-contact partner were the same gender as the participant. Unknown to participants, however,

the outgroup member's and moderator's responses were pre-programmed. This procedure was adopted to increase experimental standardisation across each online interaction, ensure outgroup identity disclosure, and remove the need for recruiting equal numbers of outgroup confederates. Finally, to increase the realism of the online interaction, the experimenter informed participants that the other student was running late, and consequently, the chat would be delayed slightly.

Participants in the E-contact condition then engaged in an online interaction with an outgroup member (see SOM 2 for the E-contact chat script). That is, for Catholic participants, the E-contact partner was Protestant, whereas for Protestant participants, the E-contact partner was Catholic. Once participants logged into the chat room, the moderator welcomed both interaction partners and then invited the outgroup member to start the conversation by introducing themselves. To reveal the outgroup member's religious membership, the moderator introduced the E-contact partner by a prototypically Catholic (i.e., Éimhear or Colm) or Protestant (i.e., Grace or James) name. The E-contact partner's introduction to the participant also included the statement, "I'm also a practicing Catholic [Protestant] and go to services and social events at my local church." The chat moderator then asked participants to introduce themselves. Following this, participants completed a collaborative task with their E-contact partner. This task, which was guided by Allport's (1954) facilitating contact conditions, required the interaction partners to work together to develop one strategy each to assist future first-year students in their transition to university, under the supervision of the chat moderator. At the end of the chat, the moderator concluded the exchange by thanking both interaction partners for their contributions to the collaborative task. The online interaction lasted approximately 10 minutes. Once participants logged out of the chat room, they were asked to complete a post-chat questionnaire, which asked them to comment, via a free response, on the interaction, their chat partner, and the chat tool. This questionnaire was

administered to probe participants for suspicion, and any participant who reported awareness of the pre-programmed nature of the interaction was marked for exclusion from the study. Participants then completed the dependent measures.

Participants assigned to the baseline condition were asked to complete a category-unrelated filler task, which required them to visualise a positive nature scene and then write about what they imagined (see SOM 2 for baseline instructions). This task, adapted from Turner, Crisp, and Lambert (2007), allowed us to control for engagement and positive affect when evaluating the effects of E-contact. Similar to the E-contact condition, participants in the baseline condition had 10 minutes to complete this task before completing the dependent measures. At the completion of the study, the experimenter asked participants in both experimental conditions about any comments or questions they had about the study before debriefing them. Participants who reported suspicion about the true aims of the study were marked for exclusion.

Results

The E-contact Effect

As no participants expressed suspicion about the ‘realness’ of the interaction or the true aims of the study, they were all included in the main analyses. Table 1 displays the means and standard deviations for all the measures by condition and religious group. In support of H1, compared to the baseline condition, E-contact significantly improved outcome expectancies, $F(1,82) = 7.15, p = .009, \eta_p^2 = .08$, reduced intergroup anxiety, $F(1,82) = 9.17, p = .003, \eta_p^2 = .10$, and improved outgroup attitudes, $F(1,82) = 12.72, p < .001, \eta_p^2 = .13$. Across all dependent measures there were no main effects for religion (all $ps > .05$), and religion was not found to moderate the E-contact effect (all $ps > .05$).

Mediation Analyses

As outlined in H2, it was predicted that participants in the E-contact (vs. baseline) condition would report more positive outcome expectancies for outgroup contact, which in turn would reduce outgroup anxiety, and therefore would result in improved outgroup attitudes. This serial mediation model, which is displayed in Figure 1, was estimated using the PROCESS macro for SPSS (Hayes, 2013) with 10,000 samples and 95% percentile bootstrap confidence intervals (CI). Prior to estimating the model, outcome expectancies, intergroup anxiety, and outgroup attitudes were standardised. The baseline condition was coded as 0 and the E-contact condition was coded as 1. In the analyses below, Catholic and Protestant were treated in the same sample because religion was not found to moderate the E-contact effect on all dependent measures and the two religious groups demonstrated similar patterns of correlations between the variables (see Table 2). In support of H2, the specific indirect effect through both mediators was significant, $\beta = 0.15$, $SE = 0.07$, 95% CI [0.04, 0.32]. Alternative specific indirect effects, where only one variable (i.e., outcome expectancies or intergroup anxiety) functioned as a mediator within the full model, were also estimated. The specific indirect effect through outcome expectancies was not significant, $\beta = 0.003$, $SE = 0.05$, 95% CI [-0.10, 0.12]. Conversely, the specific indirect effect through intergroup anxiety was approaching conventional levels of significance, $\beta = .16$, $SE = 0.11$, 95% CI [-0.01, 0.40].

Despite finding support for our mediational hypothesis, three additional exploratory mediation analyses were estimated. Although there was a strong rationale to expect outcome expectancies to precede feelings of anxiety and threat (Plant & Devine, 2003; Schlenker & Leary, 1982), we first tested a serial mediation model where the order of outcome expectancies and intergroup anxiety was switched, with intergroup anxiety and outcome expectancies serially mediating the E-contact effect on outgroup attitudes (see Figure S1 in SOM 3). In this revised model, outcome expectancies did not predict outgroup attitudes, and

the specific indirect effect through both mediators was not significant, $\beta = 0.002$, $SE = 0.03$, 95% CI [-0.07, 0.07]. Furthermore, only intergroup anxiety was found to mediate the relationship between E-contact and outgroup attitudes, $\beta = 0.31$, $SE = 0.13$, 95% CI [0.09, 0.61]. Second, we tested a model where outgroup attitudes and outcome expectancies serially mediated the E-contact effect on intergroup anxiety (see Figure S2 in SOM 3). In this revised model, outgroup attitudes and outcome expectancies were found to serially mediate the E-contact effect on intergroup anxiety, $\beta = -0.10$, $SE = 0.04$, 95% CI [-0.19, -0.03]. Alternative specific indirect effects, where only one variable (i.e., outgroup attitudes or outcome expectancies) functioned as a mediator within the full model, were also estimated. The specific indirect effect through outgroup attitudes was significant, $\beta = -0.28$, $SE = 0.10$, 95% CI [-0.51, -0.10], whereas the specific indirect effect through outcome expectancies was not, $\beta = -0.15$, $SE = 0.10$, 95% CI [-0.37, 0.03]. A final mediation model was tested where intergroup anxiety and outcome expectancies acted as parallel mediators of the E-contact effect on outgroup attitudes (see Figure S3 in SOM 3). In this revised model, intergroup anxiety, $\beta = 0.31$, $SE = 0.13$, 95% CI [0.09, 0.61], but not outcome expectancies, $\beta = 0.003$, $SE = 0.05$, 95% CI [-0.10, 0.12], was found to mediate the relationship between E-contact and outgroup attitudes.

Discussion

Despite the widespread religious segregation in Northern Ireland, there has been an extensive evaluation of intergroup contact as a strategy to reduce prejudice between Catholics and Protestants (Hewstone & Hughes, 2015). While some have acknowledged the need to examine indirect contact strategies that actively overcome the barriers that divide these two communities (e.g., Turner et al., 2013), we are aware of no experimental attempt to do so. To address this gap in the literature, the current study experimentally evaluated the effectiveness of a novel indirect contact strategy, E-contact, which provided Catholics and Protestants with

the opportunity to meet a member of the other community in a positive, collaborative, and goal-orientated online interaction. As predicted, compared to the baseline condition, E-contact improved both Catholic and Protestant participants' expectations of outgroup contact, reduced intergroup anxiety, and improved outgroup attitudes. Furthermore, there was provisional support for the proposed mechanism via which E-contact improved outgroup attitudes; the data suggested that the E-contact effect may operate serially through improved outcome expectancies and reduced intergroup anxiety.

The E-contact Effect and its (Potential) Mechanisms

The current study contributes both to the growing literature in support of E-contact as an effective prejudice-reduction strategy in contexts of segregation (e.g., Walther et al., 2015; White & Abu-Rayya, 2012) and to the extensive literature that has argued in favour of the benefits of indirect contact in Northern Ireland (e.g., Paolini et al., 2004, 2007; Tam et al., 2009; Tausch et al., 2007; Turner et al., 2013). In comparison to the effects of extended contact, which can be inconsequential if the outgroup contact is peripheral to an individual's social network (Tausch et al., 2011), E-contact was found to be beneficial despite the interaction partners being strangers. Moreover, in comparison to past contact research in Northern Ireland, this study provides initial experimental evidence to support the causal relationship between positive intergroup contact and improved intergroup outcomes amongst both Catholics and Protestants. It should be emphasised that this is not a trivial point of contrast (see Pettigrew, 1998). If intergroup relations researchers want to continue to promote intergroup contact as an effective strategy to improve relations in Northern Ireland, they must become less reliant on cross-sectional survey data and evaluate the effects of contact experimentally. We are optimistic that these initial findings will encourage future research in this direction.

While past research has documented the mediating role of anxiety reduction in

explaining the E-contact effect (White & Abu-Rayya, 2012; White et al., 2018), the current findings may clarify why anxiety is a key mediator. Building on the work of Plant and Devine (2003), E-contact reduced Catholics' and Protestants' intergroup anxiety, in part, by improving their expectations about outgroup interactions. A strength of the current study was that it designed the intergroup interaction to include Allport's (1954) facilitating contact conditions, which are largely absent from research conducted in Northern Ireland. In structuring the online exchange to include a collaborative and goal-orientated task, E-contact may have provided participants with the necessary mastery experience to increase their perceived abilities in presenting a desired impression towards the outgroup. In doing so, the E-contact programme increased participant's self-efficacy and seemingly reduced the anxiety that often results when anticipating an outgroup interaction (Stephan & Stephan, 1985). By also limiting the interaction to a text-based exchange, participants were afforded a high degree of psychological control over the contact situation, which may have further reduced their levels of intergroup anxiety (Amichai-Hamburger & McKenna, 2006).

This interpretation of the data, however, should only be made in light of the following considerations. An alternative mediation model, where outgroup attitudes and outcome expectancies were positioned as serial mediators of the E-contact effect on intergroup anxiety, was found to fit the data equally well. It appears that E-contact, and contact in general, may also improve people's expectancies about the course of outgroup contact by directly improving their evaluations of the outgroup. To the extent that outcome expectancies encompass concerns about one's behaviour being viewed as prejudiced by the outgroup, as was the case in the current study and previous research (Plant & Devine, 2003), it is plausible that perceiving the outgroup as friendly and warm may create the expectation that they will be more lenient or fair when interpreting one's behaviour during the interaction. Contact with a positive, relative to a neutral or even negative, outgroup exemplar may then directly

improve people's perceptions of the outgroup as a whole, which in turn improves their outcome expectancies and reduces their intergroup anxieties. It is also plausible that outcome expectancies, intergroup anxiety, and outgroup attitudes are cyclically related; thus, both the originally hypothesised model and the alternative model may be equally important in elucidating the E-contact effect. Moreover, although these findings are the first to demonstrate a causal relationship between positive intergroup contact and improved outcome expectancies (cf. Plant & Devine, 2003), the dependent measures were assessed at the same time. Further research is now needed to experimentally manipulate these factors to clarify the underlying mechanisms.

Strengths, Limitations, and Future Directions

In contexts of conflict and segregation, past studies have evaluated the E-contact effect at the conclusion of a multifaceted and long-term E-contact programme. Specifically, Walther et al. (2015) assessed outgroup prejudice at the end of a yearlong E-contact programme in Israel. Moreover, Rickard et al. (2014) highlighted the potential benefits of the 'Dissolving Boundaries' cross-border E-contact programme, which was administered over an entire academic year, for promoting intercultural awareness in Ireland. Although such interventions are commendable and should be the ultimate goal for all intergroup contact research (see Pettigrew, 1998), this research has not established whether the benefits of E-contact on intergroup attitudes manifest immediately or require multiple sessions to be useful in contexts of conflict and segregation. Past research has also been unable to eliminate the possibility that the E-contact effect was the result of factors unrelated to the immediate E-contact situation, such as participants benefiting from opportunities for vicarious contact or pursuing direct contact opportunities in between online sessions over the course of the long-term programme. The current findings may help to address these concerns by demonstrating immediate improvements in intergroup outcomes at the conclusion of a single interaction,

which was limited to a synchronous online exchange, with no opportunity for vicarious or direct outgroup contact. However, in the absence of a long-term follow-up evaluation, it is important not to overstate the benefits of a single session of E-contact. Despite observing medium-to-large effect sizes in the current study, E-contact may be more valuable in promoting enduring attitude change when administered across multiple sessions as part of a long-term E-contact programme. In support of this, White and her colleagues observed a reduction in intergroup bias at the conclusion of eight E-contact sessions, which was sustained at 6- (White & Abu-Rayya, 2012) and 12-months (White et al., 2014) post-intervention.

One concern that must be taken into account when undertaking experimental tests of attitude-change strategies is demand characteristics. In this case, we must consider the possibility that participants may have realised that the task they were completing was designed to improve intergroup relations and reported more positive attitudes to meet the expectations of the experimenter. However, we took steps to avoid this. In particular, the cover story for participants in the E-contact condition indicated that the study was about trialling a new chat tool, and in doing so, coming up with advice for new undergraduate students for a student union handbook. The outgroup membership status of the E-contact partner only became clear from the proto-typicality of their name and some of the facts about themselves given during introductions. No participant commented on the intergroup nature of the interaction. We are therefore confident that the findings were not due to demand characteristics.

In addition, while no participant expressed suspicion over the ‘realness’ of the interaction, it should be acknowledged that participants were not informed that they were interacting with a pre-programmed outgroup member and chat moderator until debrief. Nonetheless, we observed similar positive effects to past E-contact research that involved an

online interaction between real community members (White & Abu-Rayya, 2012). This comparison should not imply that simulated interactions with pre-programmed responses are a convenient substitute for real online exchanges. Future research should evaluate this possibility by considering the pre-programmed version of E-contact as a preparatory stage for E-contact with a real outgroup member (for a similar argument, see White, Harvey, & Abu-Rayya, 2015).

Finally, we would like to make three suggestions regarding future research on E-contact in Northern Ireland and abroad. First, the use of an undergraduate, and likely largely middle-class, sample in the current study is not representative of Northern Ireland society at large. Undergraduate students are, for example, more likely to experience intergroup contact at university than individuals living in segregated, working-class communities (McKeown, 2013). Future research should examine the impact of E-contact using a community, or even better, a probability sample. Second, two outcome variables have been identified as especially important in the aftermath of a conflict: forgiveness of the outgroup (Tam et al., 2007), and the restoration of intergroup trust (Tam et al., 2009). Having established the basic effect of E-contact on outgroup attitude, future research should consider whether its effects extend to these context-relevant dependent measures.

Third, the use of a baseline comparison condition in the current study, which comprised a category-unrelated filler task, limits our ability to firmly conclude if the disclosure of outgroup membership was required for prejudice reduction or whether an online interaction with no disclosure was sufficient in itself. In this regard, past E-contact research (e.g., White & Abu-Rayya, 2012) has compared participants in the intergroup E-contact condition (i.e., E-contact between participants of different religions) to an intragroup E-contact condition (i.e., E-contact between participants of the same religion). While this procedure has allowed researchers to control for the effects of a positive online interaction, intragroup contact may

increase solidarity and identification with the ingroup and, in so doing, increase outgroup prejudice (Voci et al., 2015). Consequently, an intragroup comparison condition may inadvertently inflate the E-contact effect. Recently, however, Maunder, White, and Verrelli (2018) conducted a study concerning stigma reduction towards people with schizophrenia, which compared intergroup E-contact with two different controls, namely intragroup E-contact and a baseline condition. Their findings demonstrated that, compared to the two controls, intergroup E-contact significantly reduced stigma. Importantly, no significant differences were observed between the two control conditions on measures of negative intergroup emotions and prejudice, suggesting that a baseline condition may be a viable comparison group when examining the E-contact effect, at least in some intergroup settings. Nonetheless, future research is needed to examine the E-contact effect against a number of possible control conditions, such as E-contact with an individual whose membership is not specified, intergroup E-contact that does not fulfil Allport's (1954) facilitating conditions, and outgroup salience but no contact.

Conclusion

This experimental study has provided initial evidence supporting the capacity for E-contact to overcome the physical and psychological barriers that prevent prejudice reduction in Northern Ireland. The study demonstrated that E-contact improved both Catholics' and Protestants' attitudes toward the other community, improved their expectations about interactions with the outgroup, and reduced their feelings of intergroup anxiety. Pragmatically, these findings contribute to the role of intergroup contact as a peace-building intervention in Northern Ireland by identifying a novel indirect contact strategy that does not require segregated communities to meet physically in order to be effective. With the growing emphasis on shared and interreligious education (McKeown, 2013), E-contact may have the potential to facilitate curriculum-based collaborations and shared educational opportunities

between Catholic and Protestant students attending segregated schools. In this context, E-contact may be a useful strategy for educators and policymakers in their efforts to reduce segregation and improve intergroup relations.

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Table 1

Means (Standard Deviations in Parentheses) of Measures by Condition and Religious Group

	E-Contact		Baseline	
	Catholic	Protestant	Catholic	Protestant
Dependent Measures	<i>n</i> = 25	<i>n</i> = 21	<i>n</i> = 18	<i>n</i> = 22
Outcome expectancies	3.96 (0.76)	3.97 (0.64)	3.68 (0.63)	3.51 (0.45)
Intergroup anxiety	1.78 (0.64)	1.54 (0.45)	2.09 (0.51)	1.96 (0.56)
Outgroup attitudes	7.10 (1.01)	7.53 (0.58)	6.46 (1.09)	6.59 (1.33)

Note. Possible ranges were 1–5 for outcome expectancies and intergroup anxiety (higher scores = more positive expectancies or more intergroup anxiety), and 1–8 for outgroup attitudes (higher scores = more positive attitudes).

Table 2
Correlations Among Dependent Measures

	1.	2.	3.
1. Outcome expectancies	–	-.56**	.35*
2. Intergroup anxiety	-.63**	–	-.57**
3. Outgroup attitudes	.38*	-.56**	–

Note. Catholics are below the diagonal, whereas Protestants are above the diagonal.

* $p < .05$. ** $p < .001$.

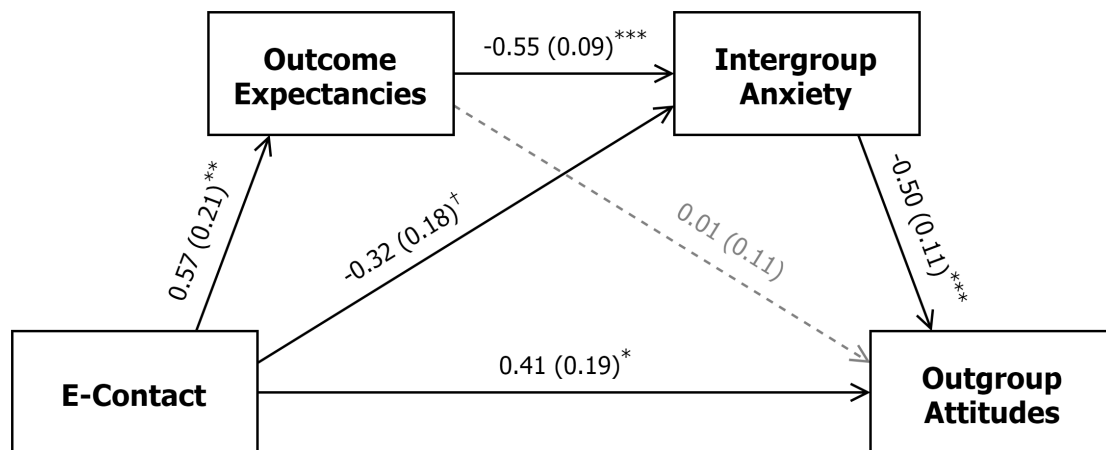


Figure 1. Standardized path model (*SE* in parentheses) for the effect of E-contact on outgroup attitudes serially mediated by outcome expectancies and intergroup anxiety.

$^{\dagger}p = .08$. $^{*}p < .05$. $^{**}p < .01$. $^{***}p < .001$.

Supplementary Online Materials 1
Items for Dependent Measures

Outcome expectancies

1. I am confident that stereotypes don't affect how I interact with a Protestant [Catholic] person.
2. Even if we hadn't met before, a Protestant [Catholic] person would expect me to be prejudiced. (reverse scored)
3. When interacting with a Protestant [Catholic] person, he or she would see me as prejudiced no matter what I did. (reverse scored)
4. When interacting with a Protestant [Catholic] person, I would be unsure how to act in order to show him or her that I am not prejudiced. (reverse scored)
5. Sometimes stereotypes come to my mind when interacting with a Protestant [Catholic] person, even when I wish they wouldn't. (reverse scored)
6. If I were interacting with a Protestant [Catholic] person, regardless of my behaviour he or she would interpret my behaviour as prejudiced. (reverse scored)
7. When interacting with a Protestant [Catholic] person, I would know what to say in order to come across as non-prejudiced.
8. When interacting with a Protestant [Catholic] person, I would imagine that he or she would be watching my behaviour closely for prejudice. (reverse scored)
9. Protestant [Catholic] people do not look for prejudice in Catholic (Protestant) people's behaviour.
10. I am confident that I can respond without prejudice when interacting with a Protestant [Catholic] person.
11. Sometimes Protestant [Catholic] people view normal behaviour of Catholics (Protestants) as prejudiced. (reverse scored)

Intergroup anxiety

How would you feel if you were the only Protestant [Catholic] interacting with group made up entirely of Catholics [Protestants] (e.g., talking with them, working on a project with them)?

1. Awkward
2. Self-conscious
3. Happy (reverse scored)
4. Irritated
5. Impatient
6. Defensive
7. Confident (reverse scored)
8. Careful

Outgroup Attitudes

In general, how do you feel about Catholics [Protestants]?

1. Cold-Warm
2. Negative-Positive
3. Hostile-Friendly
4. Contempt-Respect
5. Disgust-Admiration

Supplementary Online Materials 2

Participant Instructions for the E-contact and Baseline Conditions

E-contact condition: Script between a Protestant participant and the pre-programmed Catholic interaction partner and chat moderator

Moderator	Hi guys, and welcome to today's discussion. The two students we have trialling unichat are [Participant] and Colm. To start off, it might be a good idea to introduce yourselves one by one. So, firstly, what do you like to do in your spare time, Colm? Please include in your answer if you're a member of any clubs and societies on campus
Colm	ok. Hi [Participant]! Nice to meet u :) in my spare time i guess i like to read, watch tv, go out with friends to bars and restaurants, and go running. I'm also a practicing Catholic and go to services and social events at my local church
Moderator	Thanks Colm. And what about you [Participant]? Why did you choose to study at Queen's University and what subjects are you currently studying?
Participant	Types response...
Moderator	Great [Participant]. Now Colm, what would you answer to that question?
Colm	sounds good [Participant] :) i'm currently studying biology and i guess i first chose qub becuase i heard it has a good reputation for science subjects. Also, I'm from Derry, and qub is both far enough away so I feel like I'm independent but close enough that I can still see my family and friends from home at weekends. sofar have loved my course and the social side of things, so feel ive made right choice in cominh here
Moderator	Ok, thanks for that guys. Now, what I would like you both to do is complete a task for us in pairs. Work together to come up with two solutions together (1 each) to submit for an introductory manual to be published by the Queen's University Student's Union in their introductory materials for new Level 1 students next year. So, thinking about your experience in first year, what advice would you give to students in terms of how they can best make the transition from School to University? Colm, would you like to start us off?
Colm	sure, ummm... to make as many friends as possible. To be open to new experiences and try new things, which will also allow you to meet people. Having friends or even just distantly knowing people helps with the academic side of uni. You hve people to ask questions, to study with, to support you, and give advice. So youre not in it alone and it also in a weird way teaches you to be independent and build your confidence. That wuld be my advice... what do you think [Participant]?
Participant	Types response...
Moderator	Ok, as we're running out of time we're going to have to end the chat now. Thanks very much for your contribution today guys!! Those are some great suggestions, you two make a good team!
Colm	No worries. it was nice chtting with u today [Participant]. Hopefullt meet u around campus some time :)
Participant	Types response...

Baseline condition

“Please spend the next five minutes imagining you are walking in the outdoors. Try to imagine aspects of the scene about you (e.g., is it a beach, a forest, are there trees, hills, what’s on the horizon).

Please spend the next five minutes writing what you imagined in as much detail as possible.”

Supplementary Online Materials 3
Figures for Exploratory Mediation Analyses

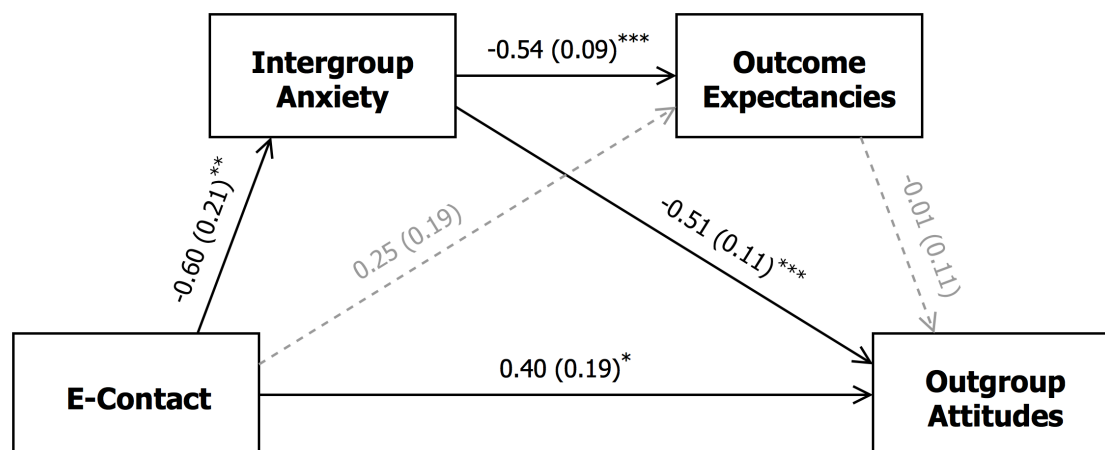


Figure S1. Standardized path model (*SE* in parentheses) for the effect of E-contact on outgroup attitude serially mediated by intergroup anxiety and outcome expectancies.

* $p < .05$. ** $p < .01$. *** $p < .001$.

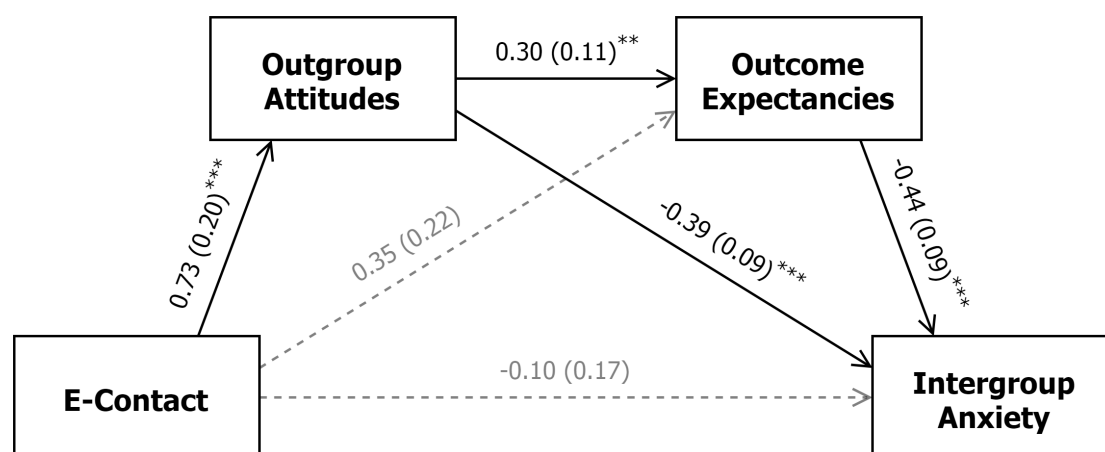


Figure S2. Standardized path model (*SE* in parentheses) for the effect of E-contact on intergroup anxiety serially mediated by outgroup attitudes and outcome expectancies.

** $p < .01$. *** $p < .001$.

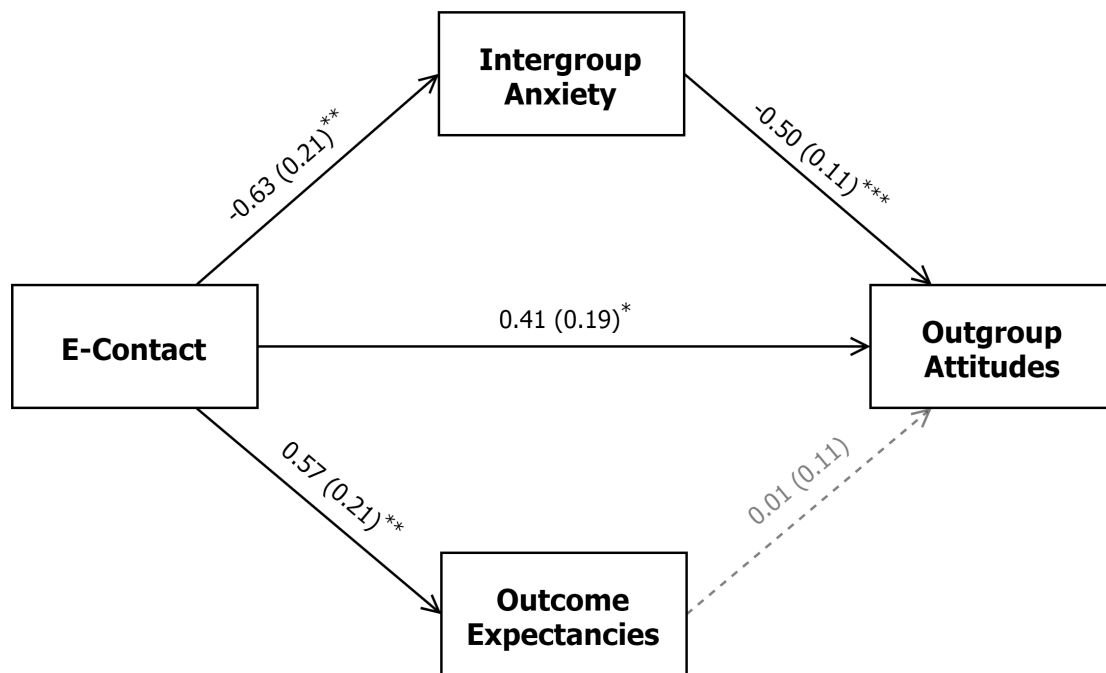


Figure S3. Standardized path model (*SE* in parentheses) for the effect of E-contact on outgroup attitudes mediated by outcome expectancies and intergroup anxiety in parallel.

* $p < .05$. ** $p < .01$. *** $p < .001$.