

Improving Intergroup Relations in the Internet Age: A Critical Review

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In this Internet age where computer classrooms, smart phones, and tablet devices are becoming the norm, it is timely that social and educational psychologists integrate such technologies within the field of intergroup relations to develop innovative, effective, and validated tools to promote intergroup harmony. This critical review article introduces a new online contact strategy—Electronic- or E-contact—that allows for physically segregated ingroup and outgroup members to synchronously interact online, in a prestructured format. The synchronous nature of the intergroup interaction allows for the engagement of self in the contact situation that in turn strengthens the effectiveness of E-contact in promoting intergroup harmony. Previous research investigating online contact is reviewed, and an evaluation of a best-practice E-contact framework is provided. This framework is based on the successful 9-week Dual Identity Electronic Contact (DIEC) program that has been shown to maintain reductions in intergroup bias between Muslim and Christian students at 3 time periods: 2 weeks, 6 months, and 12 months post-DIEC intervention. Limitations of the Internet with regard to potentially creating negative contact are also highlighted to offer a balanced critique. Finally, future research designs are proposed to further support and enhance the success of E-contact research to improve intergroup relations and promote peace.

Keywords: bias reduction, electronic(E)-contact, intergroup relations, Muslims and Christians, online intergroup contact

We live in an ever-increasing technological age. Computers, smart phones, and the Internet are commonplace. Approximately 71.7% of US citizens reported household Internet use (U.S. Census Bureau, 2013). Similarly, 79% of European Union (EU) households had Internet access in 2013 and 62% reported daily usage (Eurostat, 2013). Furthermore, with the advent of smart phones and tablet devices, more and more individuals around the world are turning to the Internet to engage in social networking online (eMarketer, 2013; Pew Research Center, 2013). Consequently, one could argue that several types of computer-mediated communication (CMC) are now routine. Interestingly, however, it appears that few social and educational psychologists have yet to fully integrate this online technology into developing new tools, strategies, and/or platforms to effectively promote intergroup relations. Clearly, methodologies that incorporate CMC are needed because they also highlight practical and innovative ways in which intergroup contact strategies can be used and implemented.

The current article aims to explore the role that the Internet can play in facilitating more positive intergroup relations. Within the discipline areas of social and educational psychology, we review the growing body of research that has implemented online technology to promote intergroup contact. On this basis, we propose a

best-practice framework informed by both social psychological and collaborative learning concepts to help stimulate rigorous and theory-driven research. Specifically, we argue that a combination of contact strategies needs to be integrated into a *continuum of contact* (Crisp & Turner, 2010), rather than the standard approach of examining each strategy independently, to effectively promote intergroup relations. We end with a call to action for researchers and policymakers to consider the powerful role that carefully structured use of online technology can play in promoting more peaceful and harmonious intergroup relations on an international level.

Previous Research on Intergroup Contact Strategies

Within the discipline of social psychology, there has been a plethora of research that highlights the positive consequences of cooperative or collaborative contact for intergroup relations (e.g., Pettigrew & Tropp, 2006). The most conventional strategy researched over the past 60 years to combat the aversive effects of prejudice has been Allport's (1954) Contact Hypothesis or Intergroup Contact Theory (Pettigrew, 1998). According to this approach, greater intergroup harmony is said to occur through direct contact between opposing group members in the presence of core facilitating conditions. These include the following: (a) a perception of equal status among both groups within the contact situation; (b) institutional support; and (c) working cooperatively as opposed to competitively to (d) achieve a common goal (Pettigrew & Tropp, 2005). Furthermore, Pettigrew (1998) has suggested that an additional critical factor is the potential for friendship to develop beyond the interaction itself.

Although there is much accumulated evidence to attest to the efficacy of the contact approach (Pettigrew & Tropp, 2006), re-

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searchers need to develop and test new contact techniques to continue to improve the theory's effectiveness, especially in contexts where it remains difficult and inappropriate to foster face-to-face (FtF) contact such as in situations characterized by high intergroup tension (Crisp & Turner, 2010; Turner, Tam, Hewstone, Kenworthy, & Cairns, 2013). Consequently, there has been a great focus within the contact literature in uncovering more *indirect* or *distal* forms of contact to address this critical limitation (Dovidio, Eller, & Hewstone, 2011). These strategies do not require two individuals to physically meet face-to-face in the same location. The two most widely researched strategies include *Extended contact* and *Imagined contact*. Recent research has also emerged supporting the efficacy of *Vicarious contact*.

Extended Contact

Extended contact involves the individual becoming aware that an ingroup member has an outgroup friend (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997). According to Wright et al., extended contact is purported to result in more positive intergroup outcomes via four mechanisms including the following: (a) *Ingroup norms* where the ingroup member acts as a positive ingroup exemplar, providing a source of information as to how other fellow ingroup members should understand and act within the intergroup context; (b) *Anxiety reduction* via the ingroup member's positive actions toward the outgroup member which in addition to facilitate future positive outgroup impressions; (c) *Outgroup norms* where the outgroup member acts as a positive outgroup exemplar, assisting to break down stereotypes and increasing the perceived variability of the outgroup. Knowledge of a cross-group friendship also provides the ingroup member with evidence that the outgroup member has positive feelings toward the ingroup and would like to engage in harmonious, productive relations with the ingroup; and (d) *Inclusion of the other in the self (IOS)* where through knowledge of an ingroup member's friendship with an outgroup member, one begins to see the outgroup member as becoming more closely associated with the self, resulting in a more positive response toward that outgroup.

Much evidence has accumulated for the Extended contact strategy (Dovidio, Eller, & Hewstone, 2011; Turner et al., 2013; Turner, Hewstone, & Voci, 2007; Turner, Hewstone, Voci, & Vonofakou, 2008), with recent evidence demonstrating that Extended contact can be effective in reducing levels of prejudice, particularly when direct contact with that outgroup is low (Eller, Abrams, & Gómez, 2012). Extended contact has also been found to be effective in facilitating more positive intergroup attitudes and expectancies, even when the factors of direct friendship and the quantity and quality of prior intergroup contact were controlled (Gómez, Tropp, & Fernández, 2011).

Imagined Contact

Imagined contact (Crisp & Turner, 2010) constitutes another form of indirect contact that has gained solid evidence in the literature. Here, the individual is asked to engage in a positive imagined interaction with an outgroup member. Imagined contact is founded on the principle that the act of engaging in mental imagery can elicit a similar emotional and motivational response that parallels a real intergroup contact experience (Dadds, Bovb-

jerg, Redd, & Cutmore, 1997). Through imagining a successful interaction with the outgroup, concepts normally associated with successful intergroup interactions are activated, such as feeling less apprehensive about intergroup contact. An attributional mechanism is also thought to account for the ability of imagined contact to improve one's attitudes toward the outgroup. This mechanism facilitates the extent to which the individual attributes a positive attitudinal orientation toward the outgroup and their contact with the outgroup (Crisp & Husnu, 2011). Furthermore, by requiring participants to write down what they imagined during the imagery task, the quality of the participant's imagination and positive attributional mechanisms are reinforced.

The positive effects of imagined contact in improving outgroup attitudes have been demonstrated among a number of outgroups including the elderly, individuals who identify as homosexual, individuals with a disability, and Muslim individuals (Husnu & Crisp, 2010; Turner & Crisp, 2010; Turner, Crisp, & Lambert, 2007). Imagined contact has been found to produce significantly more positive explicit and implicit intergroup attitudes and future intentions regarding intergroup contact (Crisp & Husnu, 2011; Miles & Crisp, 2014; Turner & Crisp, 2010; Turner, Crisp, & Lambert, 2007).

Vicarious Contact

Finally, an additional form of indirect contact that is currently being explored is Vicarious contact. Based on Bandura's (1986) Social Cognitive Theory, it has been postulated that simply observing a positive interaction between an ingroup and an outgroup member can result in greater intergroup harmony (Gómez & Huici, 2008). According to the Vicarious contact framework, the observation of models engaging in positive intergroup contact provides a means for the viewer to see how to successfully engage in intergroup contact. Through observing models, the individual may acquire new behavioral patterns, or apply those previously learnt but strictly reserved for ingroup interactions (Mazziotta, Mum-mendey, & Wright, 2011). Furthermore, if an individual is highly motivated to perform a certain behavior, through viewing it as leading to positive expectancies, and they have high levels of self-efficacy in their ability to realize that behavior, this will also increase the likelihood of that behavior being performed.

Mazziotta et al. (2011) provide preliminary evidence for the effectiveness of Vicarious contact within both university and community samples in the German context. The authors found that among Caucasians, video-based Vicarious *intergroup* contact led to significantly lower levels of anxiety, higher levels of self-efficacy, greater willingness to engage in contact, and more positive affect toward the 'Chinese International Student' outgroup compared with either *ingroup* contact or presentation of the outgroup member acting alone. Further studies have also looked at the role of vicarious contact in promoting greater intergroup harmony through reading stories of positive intergroup contact with encouraging results (Cameron & Rutland, 2006; Liebkind & McAlister, 1999; Vezzali, Stathi, & Giovannini, 2012).

Nevertheless, the limitations of indirect contact strategies must be acknowledged, and new and improved strategies developed. Additionally, given the computer advancements over the past decade, new types of online intergroup contact strategies may hold the key. One such strategy is Electronic- or E-contact. E-contact

has the potential to address some of the limitations of existing indirect contact strategies, and in doing so, can offer an alternative efficacious option to researchers interested in promoting intergroup harmony.

What Is E-Contact and How Can It Address the Limitations of Existing Indirect Contact Strategies?

White and Abu-Rayya (2012) originally developed the term E-contact and defined it as “computer mediated contact involving an engagement of self in the intergroup relationship” (p. 598). Here, ingroup and outgroup members never physically meet but engage in a synchronous text-based interaction which is mediated by online technology. This original definition can be expanded to include other forms of online interaction such as video-based or a mixture of text and video-based communication (as noted in Figure 2). In contrast to the contact strategies discussed previously, E-contact can be considered *indirect*, in the sense that the contact can be non- FtF (e.g., through text) and is mediated by a computer device or software. Individuals are not required to be in the same physical space when interacting, but rather the same cyber space. Consequently, E-contact can also be considered a more *direct* form of contact in that the synchronous nature of the Internet text chat tool ensures individuals interact in real time, allowing for the actual engagement of self in the immediate contact situation (White & Abu-Rayya, 2012). Hence, E-contact can act as a bridge between more distal, indirect forms of intergroup contact and direct, FtF intergroup contact. Additional advantages of E-contact include the following:

Engagement of the Self

Previous indirect contact strategies have largely ignored the role of self-engagement in the intergroup contact situation to promote positive intergroup relations. For example, in the Extended contact paradigm the majority member is simply required to self-report how many outgroup friends they have, or how many ingroup members they know who have outgroup friends. Such self-reporting requires the participant to have minimal personal engagement or emotional involvement in the contact situation. This is also the case for Vicarious contact. Here the participant is required to passively observe an interaction between ingroup and outgroup members. Finally, the Imagined contact paradigm involves some self-engagement in the contact situation in the sense that participants are required to ‘imagine’ meeting an outgroup member. However, interacting via imagination may limit the extent to which one experiences actual, real-time involvement in the interaction with an outgroup member.

Self-engagement is critical to promote successful intergroup relations. For example, Comerford (2003) demonstrated that interactions that require personal engagement and emotional involvement assist individuals to build empathy with the outgroup. These interactions can also provide participants with an alternative demonstration of group norms relating to tolerance and acceptance of outgroup members. Research has demonstrated that interventions employing active self-engagement tend to produce more enduring change beyond the experimental session (Oskamp, 2000; White & Abu-Rayya, 2012; White, Abu-Rayya, & Weitzel, 2014). As E-contact requires individuals to personally engage in real-time

with an outgroup member over the electronic medium, it can potentially better prepare individuals for direct, FtF contact, and thus also lead to more positive long-lasting attitude change (White et al., 2014).

‘Intergroup’ Means Involving Both Minority and Majority Members

Contact research more generally, and contact strategies more specifically, have focused predominantly on only one side of the intergroup relationship, usually the majority group. For example, Tropp and Pettigrew’s (2005) meta-analysis reported that 70% of contact studies examined the majority group only, with less than 10% of studies simultaneously involving majority and minority groups. This majority-centric focus has occurred despite the fact that ‘intergroup’ means *both* majority and minority members interacting with one another, and that encouraging self-engagement of *both* majority and minority members in the contact interaction is necessary for the promotion of harmonious intergroup relations (Shelton, 2000; White, Harvey, & Verrelli, in press). Unlike existing indirect strategies, the synchronous exchange underpinning E-contact ensures that this new strategy provides the opportunity for both minority and majority groups to be self-engaged in the contact situation, and thus guaranteeing that actual *intergroup* contact is the focus.

Synchronicity in Contact

Whereas during Extended, Imagined, and Vicarious contact there is no opportunity for real and direct synchronous interaction, E-contact allows for this. The synchronous online interaction, which takes place in E-contact, more closely replicates a FtF interaction by requiring simultaneous participation from both ingroup and outgroup members (Johnson, 2006). E-contact provides an immediate and more natural form of communication, similar to direct contact, as each individual’s ideas and thoughts are responded to instantly (University of Wisconsin-Madison, 2011). Interacting in a fast, dynamic, synchronous way can also create a more positive impression of the other in the online environment (Kalman, 2008; Liu & Ginther, 2002). Real-time interaction ensures that an immediate feeling of contact is established (Ng, 2007). Given that researchers are interested in discovering new contact strategies that resemble direct contact, when direct contact is not possible or appropriate, it is critical that these new strategies more closely replicate the qualities of direct FtF contact.

A Theoretical Framework: Implementation of Allport’s Facilitating Conditions

A further advantage of E-contact is its potential to integrate Allport’s facilitating conditions for contact into its theoretical framework. Although Extended, Imagined, and Vicarious contact acknowledge that they derive their contact concept from Allport’s notion that contact is important for prejudice reduction, rarely do they systematically integrate Allport’s facilitating conditions into their respective paradigms.

Recently, Kuchenbrandt, Eyssel, and Seidel (2013) reported finding that implementing collaboration in imagined intergroup contact did indeed enhance the positive effects of imagined contact

on intergroup attitudes, trust, anxiety, and empathy when compared with the standard imagined contact intervention. Other than this, however, no other indirect contact studies have integrated Allport's principles of equal status, cooperation, pursuit of common goals, and institutional sanctioning, and as a result of this omission, are more likely to be testing mere exposure effects with the outgroup, rather than contact itself as conceptualized by Allport. In contrast, several researchers have systematically integrated all of Allport's four facilitating conditions into an online contact situation (see Austin, 2006; Hoter, Shonfeld, & Ganayim, 2009; Mollov & Schwartz, 2010; White & Abu-Rayya, 2012; Yablon, 2007). Pettigrew and Tropp's (2006) extensive review of contact research has shown that the more of Allport's conditions tested in research designs, the stronger the contact-prejudice relationship is, with r increasing from $-.204$ to $-.287$.

Allport's condition of equal status can be incorporated into online intergroup contact interventions by having the same number of ingroup and outgroup members of the same age, educational level, and gender interacting with one another. Additionally, text-only interactions that require participants to discuss their religious and ethnic identity, for instance, maintain group distinctiveness and membership, but at the same time remove physical cues that might otherwise harm feelings of equal status among participants during direct contact (Sutton, 2001). Cooperation and pursuit of common goals can be integrated into an E-contact intervention through requiring students' to work on a structured online task in a collaborative way in order to come up with a group solution for the task, as opposed to individually. Additionally, Allport's (1954) condition of institutional support can be operationalized by E-contact programs being sanctioned by parents or schools. Finally, sufficient time is needed to create the potential for Allport's cooperative contact relationship to develop (McKenna, Green, & Gleason, 2002; Pettigrew, 1998). Thus, it is imperative that online contact takes place over a number of sessions to ensure that Allport's facilitating conditions for contact have enduring positive effects on intergroup harmony.

Evidence for Long-Term Effectiveness

Indirect contact strategies have principally been evaluated for their immediate or short-term effectiveness, with imagined contact often being referred to as a "first step" in the continuum of contact (Crisp & Turner, 2010). Researchers investigating Extended and Imagined contact strategies (Cameron & Rutland, 2006; Cameron, Rutland, & Brown, 2007; Vezzali, Capozza, Giovannini, & Stathi, 2012; Vezzali, Capozza, Stathi, & Giovannini, 2012) have reported effects lasting for approximately 1 week postintervention. For example, Vezzali, Capozza, Giovannini, & Stathi (2012) studied Imagined contact over multiple sessions among a sample of Italian schoolchildren. The authors reported significantly more positive behavioral intentions to interact with immigrant children and significantly lower implicit bias compared to the control condition, measured at one week post-intervention. Similarly, Vezzali, Capozza, Giovannini, & Stathi (2012) reported elevated levels of trust toward the immigrant outgroup within the imagined contact condition compared to the control condition at one week postintervention. Nevertheless, it has been acknowledged that Imagined contact is not likely to have as powerful or long-lasting effect compared with more direct forms of contact (Crisp &

Turner, 2010). Furthermore, one of the few studies to date examining the longitudinal effects of Extended contact did not produce any significant findings over a 7-month period compared with direct FtF contact in terms of intergroup outcomes (Feddes, Noack, & Rutland, 2009).

In contrast, E-contact has been implemented across multiple (eight) sessions with initial evidence demonstrating enduring long-term effects on improving intergroup relations outside of the experimental setting. For example, White and her colleagues (White & Abu-Rayya, 2012; White et al., 2014) conducted a school-based E-contact intervention across eight weekly sessions that demonstrated that intergroup bias reduction was maintained for 12 months postintervention. Importantly, the multiple E-contact sessions allowed for actual cross-group friendships and Allport's facilitating conditions to develop over time accounting for the robust long-term effects of sustained intergroup harmony (White, Abu-Rayya, Bliuc, & Faulkner, 2015). Continued longitudinal evidence for the effectiveness of E-contact is further needed to support the robust effects demonstrated to date.

Potential to Be Less Anxiety Provoking Than Direct Contact

Meeting an outgroup member can be a particularly anxiety-provoking experience (Pettigrew, 1998). If intergroup anxiety is too high initially, such as in FtF contact, then the contact experience can likely be negative and/or avoided altogether. Therefore, moderate levels of anxiety to begin with may be thought of as optimal. Amichai-Hamburger and Furnham (2007) were one of the first to provide an in-depth examination of how online intergroup contact, compared with direct contact, is associated with an experience of lower anxiety. In contrast to direct contact, communicating online can allow individuals to have greater control over how they present themselves and formulate their comments (Amichai-Hamburger & McKenna, 2006). For example, individuals have greater time to think and prepare their answers, with the ability to edit their comments before sending them to their chat partner. Consequently, this may facilitate the creation of more positive impressions in an online interaction, resulting in less intergroup anxiety. In addition, salient features that clearly denote outgroup membership, such as physical appearance or accent, which may heighten anxiety during FtF contact, can be rendered invisible with text-only online communication (Bargh & McKenna, 2004; Ma, 1996; Sheeks & Birchmeier, 2007). Indeed, similar to existing intergroup contact research, anxiety has been found to mediate the effects of E-contact in reducing intergroup bias (White & Abu-Rayya, 2012). Research is currently investigating whether E-contact is more effective in reducing anxiety compared with other indirect strategies such as imagined contact (White, Turner, & Harvey, 2015).

Facilitation of Self-Disclosure

Another factor that has been suggested to result in more positive intergroup attitudes is the level of self-disclosure within the intergroup situation (Harwood, 2010). The Internet can potentially facilitate this. Indeed, McKenna et al. (2002) have shown that online exchanges tend to involve greater levels of self-disclosure between individuals and greater intimacy than FtF exchanges, and

at a faster rate. McKenna et al. also found that those who meet online tend to report greater liking for each other and feeling better acquainted with each other as opposed to those who meet FtF.

Amichai-Hamburger and Furnham (2007) posit greater self-disclosure and intimacy to be due to a number of characteristics of the online medium. First, one may experience a greater sense of anonymity while communicating online, which results in a greater willingness to take 'risks' in the interaction in terms of disseminating personal information about oneself. Furthermore, the removal of salient factors that denote group membership, such as physical appearance, via text, may lead individuals to feel more comfortable within the online interaction and thus more willing to self-disclose. Nevertheless, group membership cues such as one's ethnicity or religion can still be incorporated into a text-chat via a discussion concerning each group member's distinct beliefs, practices, and customs. Thus synchronous text-chat can also be considered as a useful strategy to promote generalization of effects to the outgroup as a whole (Hewstone & Brown, 1986). The Internet also facilitates meeting others who may share interests and values, and this in turn can result in greater self-disclosure, intimacy, and perception of common identities, a factor which has been shown to mediate the relationship between contact and prejudice reduction (Gaertner & Dovidio, 2000). Future research however must clarify the role of self-disclosure provided by the Internet in promoting more positive intergroup attitudes, and whether it is easier to achieve greater self-disclosure via E-contact as opposed to other contact strategies.

Research Examining E-Contact Strategies

Although some researchers have recognized the potential of the Internet as a tool to promote more positive intergroup relations (see Amichai-Hamburger & Furnham, 2007; Amichai-Hamburger & McKenna, 2006; Hoter et al., 2009; Walther, 2009), few have empirically evaluated these strategies in a sufficiently rigorous fashion. The majority of available interventions were developed within the field of education and implement Allport's (1954) Contact Hypothesis to foster collaborative learning. Nevertheless, it must be emphasized that most of the existing research comprises field studies which have not been rigorously conducted. Additionally, the findings of these studies are largely descriptive in nature. None of the studies discussed in this section implement a control group for instance. Furthermore, intergroup variables such as anxiety remain largely unexamined. For example, Mollov and Schwartz (2010) report a preliminary case study during which Israeli and Palestinian University students participated in a number of email exchanges together over a 2-month period. They implemented Allport's (1954) contact conditions into their program which required students to discuss and educate the outgroup member with regard to their religious practices. Mollov and Schwartz noted that most of the exchanges were friendly, with both groups collaborating in a cooperative way to learn and teach the other regarding their respective religious holidays. However, it is unclear whether the participants themselves reported these outcomes or these findings were solely concluded from experimenter observation. Furthermore, there was no evaluation of the extent to which this intervention sustained any improvements in intergroup relations over time.

Similarly, Austin (2006) discusses the 'Dissolving Boundaries' project, initiated in 1999, linking schools within Northern Ireland and the Republic of Ireland that continues to be implemented and evaluated today. This project integrates tenets from both Allport's (1954) Contact Hypothesis and Gaertner and Dovidio's (2000) Common Ingroup Identity Model, whereby similarities between distinct groups are more readily recognized through the development of a common identity. Small groups of primary- and high-school-age students, and their teachers, used online videoconferencing to engage in a range of collaborative tasks together. These online meetings were supplemented with FtF meetings between partner schools. The outcomes of this program to date have included greater cultural awareness, greater student tolerance of difference, greater teacher recognition of similarities among Catholics and Protestants among those involved in the program, and development of skills in using technology. The program also helped to promote social inclusion across mainstream and special needs schools.

More recently, Hoter et al. (2009) developed an online collaborative learning course for Secular Jews, Orthodox Jews, and Arabs in Israel, a context characterized by conflict and animosity. The authors also applied Allport's (1954) facilitating conditions of contact to an online collaborative learning setting via their Online Intergroup Contact Hypothesis (OICH) Model. The OICH not only includes Allport's four conditions, but additional conditions including the following: the discussion of only nonconflictual content; gradual, intergroup contact over at least one year; a move from text-based to face-to-face encounters; and teachers must also be of the same cultural background as the students. Students enrolled in the course completed tasks such as creating video clips and developing an educational game. These tasks were based on subjects taught in the schooling system such as science, mathematics, current affairs, health, drama, and music. Students worked collaboratively in a synchronous and asynchronous format online via forums, blogs, video conferencing, and eventually FtF meetings. Although the effectiveness of the OICH program was not evaluated via changes in pre- and posttest outgroup attitudes, student comments provided open-ended feedback indicating that the program helped them develop greater intergroup empathy and greater feelings of commonality. Most notably, students reported gradual contact from text-based to FtF as a highly positive means of engaging in intergroup contact, especially with regard to feeling less threatened in the intergroup setting, a greater sense of equality, and a greater ability to be more open and express their feelings in a constructive manner, as opposed to if they had just been asked to work together in a FtF context.

Finally, one of the longest lasting online cross-cultural education programs is the Soliya Connect program, first established in 2003. Today, more than a decade later, the program links students from more than 100 universities and 27 countries in the Middle East, North Africa, South Asia, Europe, and North America. Soliya involves online videoconferencing where students can connect globally to a "community of peers and engage in facilitated, sustained and substantive dialogue, and build respectful relationships across national, cultural, religious and ideological boundaries" (Soliya Connect Program, 2013). Although quantitative and qualitative feedback from participating students and teachers is positive, long-term evaluations of the Connect program's effects on improving intergroup anxiety, trust, bias, and prejudice have

not been conducted. Furthermore, the theoretical basis of the program is not clearly articulated.

Nevertheless, limited conclusions can be made from these preliminary studies because of their nonexperimental nature and lack of rigorous evaluation. More robust, experimental, and longitudinal research designs are needed to gain a clearer picture of the short- and long-term effectiveness of online programs of this kind. Nevertheless, as these preliminary findings show, the online intergroup contact format itself holds great promise as a tool to promote greater intergroup harmony, particularly for physically segregated groups or situations characterized by high intergroup tension.

The Development of a Best Practice Framework for E-Contact

As noted in the previous section, the last decade has demonstrated an increase in the number of online programs involving intergroup contact. To maximize the potential strengths of E-contact to promote greater intergroup harmony and to ensure greater rigor within research, it is imperative that a best-practice framework for future research is developed. One of the most rigorous examinations of the E-contact framework to date was recently conducted within the Australian context through White et al.'s (2014) 'Dual-Identity, Electronic-Contact' (DIEC) program, as summarized in Figure 1. Here 92 Muslim high-school students and 96 Christian students, attending religiously segregated schools, interacted with one another online via a text-only chat forum for one 50-min session per week, over eight consecutive weeks. During the weekly online sessions, Muslim and Christian students worked together to discuss how aspects of their respective

religious beliefs and practices could help create an environmentally sustainable Australia. A best practice framework for E-contact research thus includes the following elements:

An Experimental Design With Rigorous Pre- and Posttest Evaluation

Experimental designs, where levels or types of contact are manipulated and control groups are adopted, allowing researchers to clearly delineate the causal role of contact on prejudice reduction. Moreover pre- and post- designs help with understanding the change or reduction in prejudice that has taken place because of the contact intervention. In the instance of the DIEC program, Muslim and Christian school students were randomly allocated to either the *intergroup* E-contact or the Control program that involved only *ingroup* E-contact. Such an experimental design allowed for confident conclusions that any changes in outgroup attitudes were a direct result of the DIEC program. Importantly, the design of the program also measured changes in *both* the Muslim and Christian students' outgroup attitudes—providing an accurate picture of changes in the *intergroup* relationship. Furthermore, advancing the design of previous studies, pretest differences in affective and cognitive factors were measured in order to gain a complete understanding of any change over time (12 months), from pre- to posttest.

Theory-Driven

Theoretically grounded interventions allow researchers to more accurately operationalize the main variables under investigation, which in turn assists in making valid and logical conclusions about the findings obtained. For instance, the DIEC program integrated Allport's (1954) Contact Hypothesis and Gaertner and Dovidio's (2005) Dual-Identity recategorization theoretical frameworks. The DIEC program incorporated Allport's equal status condition by ensuring that the same number and gender of Muslim and Christian students from the same year in high school interacted with one another. Furthermore, students were asked to work collaboratively and discuss how their religious beliefs and practices could work together in harmony to achieve the common (superordinate) goal of creating an environmentally sustainable future for all Australians. Students were required to develop specific solutions such as a water-saving solution, an energy-saving solution, and a recycling solution, which culminated in the development and presentation of a tangible product (a student poster in this case) to their respective classes highlighting these solutions. Finally, the DIEC program was sanctioned by authority through administration under the guiding support of school teachers, principals, and parents. Consistent with the previously reviewed OICH, the research assistants that administered the DIEC program within the schools were of the same religious background as the participants. Importantly, the eight sessions of E-contact were deemed sufficiently lengthy enough for cross-friendship development to occur during the contact situation, as evidenced by an objective analysis of the emotions expressed in text-chat transcripts between Muslim and Christian students (White et al., 2015).

In addition to Allport's Contact Hypothesis, the DIEC program integrated a dual identity recategorization framework in the theory driving the intervention, given that previous literature has recog-

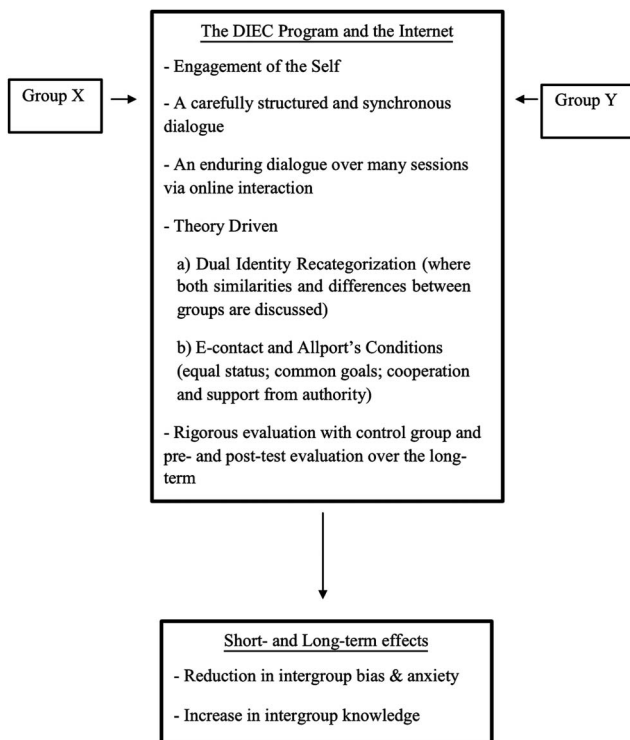


Figure 1. A summary of the strengths and results of the DIEC Program.

nized the important mediating role this plays in the effects of contact in creating greater intergroup harmony (Gaertner, Dovidio, & Bachman, 1996). A dual identity was incorporated into the E-contact intervention by asking Christian and Muslim students to think about ways in which their *different* religious beliefs and practices could help create an environmentally sustainable Australia. Thus, this strategy recognizes *differences* between groups (i.e., their specific religious identities, Christian or Muslim), as well as making *similarities* between the groups salient through the simultaneous recognition of a common, superordinate identity (i.e., their national identity, in this case Australian). A dual identity framework is especially important in intergroup contact situations where *both* minority and majority groups are involved as neither group is required to relinquish their ingroup identity—rather both their ingroup (distinctive) identity and superordinate (shared) identity are made salient (Banfield & Dovidio, 2013).

A Longitudinal Design

With regard to best practice designs, it is commonly recognized that longitudinal research is essential to track critical periods, test models of causal relationships, and provide evidence on optimal times for interventions to promote positive development (Sansón, Smart & Misson, 2011) in intergroup relations between minority and majority members. For example, the DIEC program incorporated a longitudinal design. Here evaluation of outgroup attitudes were assessed longitudinally across four waves: at pretest (Wave 1), 2 weeks posttest (Wave 2), 6 months posttest (Wave 3), and 12 months posttest (Wave 4) with maintenance of bias reduction observed from Wave 1 to Wave 4 among the DIEC cohort (White & Abu-Rayya, 2012; White et al., 2014).

Analysis of ‘How’ and ‘When’ the Intervention Works

Hasler and Amichai-Hamburger (2013) have provided a critical review of the importance of testing the moderators (e.g., ingroup identification) and mediators (e.g., anxiety and outgroup knowledge) of online intergroup contact strategies, to better understand ‘how’ and ‘when’ prejudice reduction interventions work. The DIEC research program tested both of these effects empirically. The DIEC program successfully produced short-term (2 weeks posttest) intergroup anxiety reduction and increased outgroup knowledge for DIEC participants. The program also produced short- (2 weeks posttest) and long-term (6 and 12 months posttest) bias reductions for the DIEC cohort. Further to these findings, ingroup identification was shown to moderate the relationship between E-contact and intergroup bias reduction in the short and long term (6-months) for DIEC participants. In other words, the DIEC intervention was most effective in decreasing intergroup bias for individuals with higher levels of ingroup identification. Outgroup friendship was also shown to moderate the relationship between E-contact and intergroup bias reduction in the short and long term (12-months) for DIEC participants, such that students with greater outgroup friendships (outside their religiously segregated school) tended to benefit more from E-contact as evidenced by the extent of their intergroup bias reduction. Similar to previous contact strategies, intergroup anxiety was found to be a significant mediator of the relationship between E-contact and reduced intergroup bias in the long term (6 and 12 month posttest) for DIEC

participants. This intergroup anxiety finding provides empirical evidence for the theoretical claims made earlier that E-contact can reduce intergroup anxiety, and that it in fact mediates the relationship between E-contact and intergroup bias reduction. Although outgroup knowledge increased in the DIEC sample in the short term following the intervention, there was no effect found of outgroup knowledge in mediating the relationship between E-contact and reduced intergroup bias over time.

Structuring the Optimal E-Contact Interaction: When E-Contact Can Go Wrong

Although the online intergroup contact literature has revealed that the Internet can be an advantageous tool for promoting intergroup harmony when used appropriately, negative online contact can also occur (McKenna & Green, 2002). Indeed, a study conducted by Ellis and Maoz (2007) demonstrated the majority of ‘unsupervised’ and ‘unstructured’ intergroup interactions between Israelis and Palestinians online tend to involve negative and ‘dead-end’ arguments that do not seek to resolve conflict (p. 304). Furthermore, given the more anonymous nature of the Internet, less opportunity for direct, visual feedback and reduced supervision (Li, 2007; Moore, Nakano, Enomoto, & Suda, 2012), these factors can enhance the likelihood of more negative interactions, as individuals may feel less accountable for the content they post online or underestimate the social sanctioning of their behavior (Valkenburg, Peter, & Schouten, 2006; Moore et al., 2012). This is best exemplified by the recent instances of cyberbullying (e.g., Sticca & Peren, 2013).

In addition, Pearson et al. (2008) investigated whether a delayed response in an interaction can also work to incite tension in the intergroup relationship, particularly when the two parties are not well acquainted. They examined this through creating an intergroup interaction that took place via closed-circuit TV. Their findings showed that a delay in response in the interaction can increase anxiety and result in disengagement, particularly among those engaging in an *intergroup* as opposed to *intragroup* interaction. This is particularly pertinent point for online interactions where there can be a lack of physical cues. For example, responses can be disrupted if one party walks away from the computer midinteraction unbeknownst to the other party. Technical issues may also impair fluid, synchronous responding between both parties in the online interaction. Supervision of online intergroup interactions may help to mitigate some of these problems.

It is important to note that the potential for negative online contact can in fact outweigh the effects of positive contact experiences in promoting intergroup harmony (Barlow et al., 2012). Given the ease with which online contact can become negative through factors inherent in the online environment, it is important that stringent measures be put in place for contact to be as positive as possible. It is therefore critical that online contact follow a well-established conceptual framework such as that proposed within the DIEC program. For example, E-contact must involve structured tasks that seek to engender cooperation and collaboration between group members, and where common or superordinate goals that are important to all group members are pursued (Kampf, 2011). It is not enough to have groups simply chat online and left to their own devices in terms of discussion topics. There must be a clear structure governing online contact. Nevertheless, although

structure is necessary to facilitate positive contact, this does not require individuals to forego personal agency in their interactions with the outgroup. Rather, personal agency can be encouraged via individuals being free to respond the way they choose within the structured online interaction. Finally, because there is a tendency for greater anonymity, and the potential for greater dis-inhibition to be experienced, online contact must be consistently monitored and supervised by external facilitators (i.e., teachers and researchers) to ensure that the Allport's facilitating conditions for maximum cooperative contact are maintained.

Future Directions

Different E-Contact Modes and Designs

As evidenced in the DIEC program, the long-term effects of online contact involving text-only have been rigorously evaluated. Given the flexibility of the Internet however, there is great potential for E-contact programs to grow in strength and design. Indeed, future research should attempt to implement programs that employ additional forms of E-contact. This could include using 'Facebook' or other similar social networking sites, where individuals have greater access to more personal and disclosing information regarding the outgroup member, such as images, pictures, and greater information regarding their hobbies and interests.

Nevertheless, caution must be taken in designing interventions using 'Facebook' and 'Twitter.' Often these mediums of interacting online are unsupervised, and it is up to the individual themselves to report negative contact. Furthermore, they are quite individualized and often used as social networking tools to increase social capital or self-promotion and are a platform for self-expression, as opposed to providing a space which allows individuals to work together in a collaborative environment (Abell & Brewer, 2014; Ellison, Steinfield, & Lampe, 2007; Kahn, Spencer, & Glaser, 2013). Thus, it may not be conducive to implement an E-contact intervention using these social networking tools. They may be more appropriate tools to *maintain* contact with the outgroup over time as opposed to *initiating* outgroup contact among individuals (Hasler & Amichai-Hamburger, 2013). Finally, research could also investigate intergroup contact via synchronous web-cam-based software such as Skype, which is most representative of direct, FtF contact.

Implementing a Continuum of Contact Approach to Improving Intergroup Relations

Rather than developing separate indirect contact strategies and examining their independent effects on outgroup measures to gather whether one strategy is more efficacious than another, what is needed is a more integrative approach, where different contact strategies are combined in a continuum format. For example, Crisp and Turner (2009) proposed the idea of a *continuum of contact*, noting that Imagined contact is a 'first step' to direct contact, and that different types of contact might be maximally effective at different stages of social integration. Thus, moving gradually from indirect to increasingly direct forms of contact might be especially effective in reducing outgroup prejudice. In other words, different forms of contact may have an optimal effect by being introduced sequentially

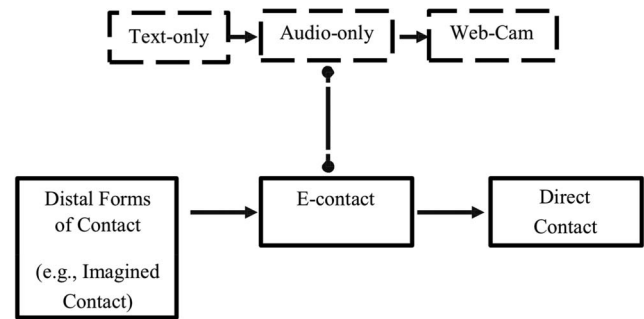


Figure 2. Integrating contact strategies: The Continuum of Contact.

(Crisp & Turner, 2009). Research that examines a continuum of contact strategy may also be able to discern *when* implementation of these strategies is most optimal.

Related to this, the argument proposed in the continuum of contact paradigm is that more distal forms of contact should be introduced before more proximal forms, to enhance the effectiveness of future FtF contact with the outgroup. This sequence, rather than the reverse, or either strategy alone, is more likely to prepare individuals for the benefits of contact because it progressively introduces participants to the outgroup, a technique that should gradually reduce the anxiety that is typically inherent in FtF contact. For example, in contexts where there is a high level of segregation and animosity between groups, it may be thought to initially introduce Imagined contact or other more distal forms as a way of getting to know the outgroup and to reduce reticence to engage in future intergroup contact, given that there is no actual live contact between groups. E-contact, on the other hand, falls part way along this continuum. E-contact is more direct than imagined contact, because it involves actually interacting with an outgroup member, but less direct than FtF contact, because the contact is mediated via computer technology. Accordingly, as discussed previously, E-contact can form a *bridge* between Imagined contact, or other more distal forms of contact such as Extended contact, and FtF contact.

Additionally, varying types of E-contact could then be introduced following successful engagement in more distal forms of contact. As suggested by Amichai-Hamburger and McKenna (2006) this could include moving from a text-only to text-image; audio and then video web-cam before finally meeting face-to-face. If a participant who is initially anxious about interacting with the outgroup is gradually introduced to the idea, via increasingly indirect forms of contact as part of a multistage strategy, when the opportunity does arise for them to interact with an outgroup member the experience is likely to be more positive with associated benefits for intergroup relations. This continuum of contact is demonstrated in Figure 2. However, to date the full continuum has not been tested. It is thus critical that research move toward integrating these different contact strategies to test the long-term efficacy of distal strategies, and whether they actually work in the way they are purported to work: that is, to prepare individuals for direct contact.

Conclusion

In this era of advanced computer technology, it has been argued that, when used appropriately, E-contact has great promise as a strategy to effectively improve intergroup relations. The Internet is a powerful tool with at least 2.3 billion individuals around the world accessing it (Richardson, 2012), thus the potential for researchers to use the Internet as the super highway for the effective reduction of intergroup bias is significant. Importantly, the implementation of E-contact programs to reduce intergroup bias in the long term has already been demonstrated in schools (White & Abu-Rayya, 2012; White et al., 2014), with the possibility for implementation of such tools in universities, workplaces, and even within individual households worldwide. Furthermore, E-contact may be especially appropriate for situations characterized by high intergroup tension and physical segregation between groups, such as those currently being observed in the Middle East and Northern Ireland. Additional research is clearly needed to validate this claim.

It would also be fruitful for future research to continue to investigate how different majority and minority groups experience E-contact. Indeed, research is increasingly beginning to recognize that different groups have distinct goals, beliefs, and expectations of intergroup contact, which can influence their contact experience and subsequent attitude change (Dovidio, Gaertner, & Saguy, 2009; White et al., in press).

Nevertheless, it is still important to consider that while overcoming barriers incurred with other contact strategies, as highlighted in this review, E-contact is not a panacea for prejudice reduction. Ethically, researchers cannot force individuals or schools to participate, as program engagement is a key predictor of successful outcomes. Rather, researchers can offer such individuals or groups alternative strategies to begin a discussion about cultural diversity to discover where their concerns or anxieties about intergroup contact actually lie. In fact, given the promising findings evaluated thus far, in addition to the growing influence of technology in our daily lives, researchers should be encouraged to continue to explore the role that the Internet, computers, and smart phone devices can play in promoting positive intergroup harmony. Policymakers must also take note that rigorously evaluated, theory-driven, evidence-based E-contact interventions have the potential to truly make a positive difference in society.

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