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Elaboration enhances the imagined contact effect

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ABSTRACT

Recent studies have shown that imagining intergroup contact can improve attitudes held toward a range of social groups. We extended research on imagined contact by testing an elaborated task variant designed specifically to enhance future contact intentions. In three experiments imagined contact heightened intentions, elaborated imagery enhanced this effect, and these enhancements were attributable to both reduced intergroup anxiety and an increase in the reported vividness of the imagined scenario. Furthermore, prior contact enhanced the vividness with which imagined scenarios were envisaged, with concurrent benefits for future contact intentions. Results also supported the notion that elaboration creates a more accessible contact script upon which to base future judgments of intention. We discuss the implications of these findings for a developing model of imagined contact effects.

Introduction

Imagined intergroup contact is "the mental simulation of a social interaction with a member or members of an outgroup category" (Crisp & Turner, 2009, p. 234). Previous research has established the technique as a valuable addition to existing intergroup contact strategies, with positive impacts for both explicit (Turner, Crisp & Lambert, 2007a) and implicit (Turner & Crisp, 2010) intergroup attitudes, projection of positive traits to outgroups (Stathi & Crisp, 2008), and reductions in negative self-stereotyping (Crisp & Abrams, 2008; Abrams et al., 2008). It serves as both a versatile experimental paradigm for exploring the psychological processes underlying the impacts of social contact, as well as a practicable, low-cost, and easily implemented technique for promoting inclusion and tolerance for multicultural diversity (Crisp, Stathi, Turner & Husnu, 2008).

The aim of this research was to further isolate the conditions under which imagined contact would be maximally effective. In particular, we tested (a) whether previous benefits of imagined contact for attitudes and stereotyping would be translated into a positive effect on intentions to engage in future contact (b) whether an elaborated instructional set would further enhance resulting intentions to engage in future contact and (c) the psychological mechanisms that give rise to these effects.

Intergroup contact theory

Intergroup contact theory maintains that the most effective way to reduce prejudice and intergroup discrimination is through positive intergroup contact (Brown & Hewstone, 2005; Pettigrew, 1998). Allport's (1954) original statement of the contact hypothesis asserted that contact between members of different racial and ethnic groups will promote positive attitudes and reduce prejudice if the contact situation embodies equal status, common goals, co-operation, and institutional sanctioning. Both experimental and field studies have supported the general claims of the hypothesis (Cook, 1984; Harrington & Miller, 1992; Jackson, 1993). Pettigrew and Tropp (2006) recently conducted an extensive meta-analysis, observing a highly significant effect of contact on prejudice. Their findings show that contact reduces prejudice regardless of target group, age group, geographical area or contact setting, and that there is a basic positive impact of contact even in the absence of Allport's four conditions. In short, while there may be facilitating conditions that improve its effectiveness, contact basically *works*.

Contact theory has become a sophisticated account of the conditions under which intergroup interactions have benefits for intergroup relations, and it has provided an important grounding for elaborated variants of the basic concept. For instance, we now know that a unique form of contact, cross-group friendship, is more effective at improving outgroup attitudes than less intimate forms of contact (Pettigrew & Tropp, 2006; Turner, Hewstone & Voci, 2007b; Turner, Hewstone, Voci, Paolini & Christ, 2007c). In addition, the extended contact effect (Wright, Aron, McLaughlin-Vope & Ropp, 1997) has shown us that *vicarious* experiences–learning that people we know engage in positive interactions with outgroupers (even if we ourselves do not)–can also help promote positive perceptions (with both adults, Paolini, Hewstone, Cairns & Voci, 2004; and children, Cameron, Rutland, Brown & Douch, 2006).

Imagined intergroup contact

Imagined contact is the distillation of what we have learned from direct and extended contact, combined with more general findings

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about the impact of mental simulation on social behavior. Research has shown that simply imagining a particular social context can evoke cognitive and behavioral effects similar to those experienced in the context itself. For instance, Garcia, Weaver, Moskowitz and Darley (2002) demonstrated that simply imagining being in a crowded room led to significantly less helping behavior, in line with the typical bystander apathy effect (Darley & Latane, 1968; Latane & Darley, 1968). Imagined *contact* research has found that simulating positive social interactions with outgroupers can improve outgroup evaluations, and, just like actual contact, it does so by reducing intergroup anxiety (Turner et al., 2007a; see also Stathi & Crisp, 2008; Turner & Crisp, 2010). These studies have ruled out informational load (Turner et al., Experiment 1), stereotype priming (Turner et al., Experiment 2), positive affective priming and non-relevant social interaction (Stathi & Crisp, Experiment 2) as alternative explanations for the imagined contact effect (see Crisp & Turner, 2009). It is, uniquely, the mental simulation of positively toned intergroup contact that improves intergroup attitudes in these studies.

It is, however, necessary to recognize that imagined contact, while a useful tool for promoting positive perceptions, is unlikely to have the same effect that more direct forms of contact can produce. Direct experiences are credited with stronger attitude formation than indirect experiences (Fazio, Powell & Herr, 1983). A recent comparison between direct and extended contact confirms this: actual contact is stronger at reducing prejudice than extended contact (Paolini, Hewstone & Cairns, 2007; Turner et al., 2007b). It may be, however, that the real value in imagined contact is not as a replacement for existing interventions, but as an important facilitating component of an integrated intervention package. Imagined contact may be effective as a *preparatory* measure, instigating an interest in, and appreciation of, the value in actual intergroup contact (and eventually promoting the engagement of actual contact, thus providing access to all the benefits of actual contact that may otherwise remain unrealized). For this reason we believe it is important to consider the possible impact of imagined contact on *intentions* to engage in future actual contact.

Imagery and intentions

The ability to envisage the future and regulate behavior accordingly is a highly functional human cognitive ability, and one that is bound up with mental simulation (Kahneman & Tversky, 1982). Accordingly, mental simulation is regarded as critical in the selection, rehearsal, preparation and planning of goal-directed behavior (Marks, 1999). Conscious simulation is important for goal-directed behavior because it enables the individual to more effectively target and perfect behavior toward the goal (Pham & Taylor, 1999). Taylor, Pham, Rivkin and Armor (1998) have emphasized the behavior-regulatory role of mental simulation, suggesting that mental rehearsal of the process necessary to reach an envisioned end causes the individual to identify and organize the steps involved in the activity, creating a plan of action. Anderson (1983) found that those students who invented scenarios of themselves donating blood subsequently reported greater *intentions* to donate than did students who had not imagined themselves doing so. In sum, mental simulation of some behavior leads to greater intentions to carry out that behavior in the future. We extended these ideas to the imagined contact paradigm. We hypothesized that, similar to other forms of mental simulation, imagined contact would enhance intentions to engage in future actual contact.

Experiment 1

In Experiment 1 we aimed to provide an initial test of the hypothesis that imagined contact would enhance intentions to engage in future actual contact. It was hypothesized that those participants instructed to imagine contact with an outgroup member (in this case British Muslims) would be more likely to express greater intentions to engage in future contact than those participants asked to imagine a control scenario.

Method

Participants

33 British non-Muslim undergraduate students at the University of Kent, 9 male and 24 female, aged between 18 and 24 ($M = 20.5$), were randomly allocated to one of two conditions: control vs. imagined contact. The target group was British Muslims. Participants received course credit for taking part in the research.

Procedure

At the start of the experiment the researcher told participants that they were participating in a study based on their perceptions of attitudes about various social issues. Participants then were given one of two possible sets of task instruction. Previous research on imagined contact has tested an extensive variety of control conditions, including non-relevant positive interaction (Stathi & Crisp, 2008), outgroup priming (Turner et al., 2007a, Experiment 2), neutral contact (Turner et al., Experiment 1) and no-contact control scenes (Stathi & Crisp, Experiment 3; Turner et al., Experiment 1). The benefits of imagined positive contact have been demonstrated against all of these conditions. As such, in Experiment 1 we used the standard no-contact control scene used in previous research (Stathi & Crisp, 2008; Turner et al., 2007a). Participants were asked: "I would like you to take a minute to imagine 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)."

We also used the imagined contact task instructions that have been used successfully in previous studies. Participants assigned to the imagined contact condition received the following instruction: "I would like you to take a minute to imagine yourself meeting a British Muslim stranger for the first time. During the conversation imagine you find out some interesting and unexpected things about the stranger." Previous research has sometimes included the phrase "interesting and unexpected things" (Turner et al., 2007a) and sometimes not (Stathi & Crisp, 2008). As with the varied control conditions tested, this phrase has made no difference to the effectiveness of the imagined contact instruction in previous work (see Crisp et al., 2008). For comparability to the Turner et al. studies, which focused on intergroup attitudes, we also used this version of the instructions (in Experiment 2 we explicitly further this comparison).

In both conditions, participants were given 1 min to imagine the scene. In order to further reinforce the effects of the imagery task, participants were then instructed to "Describe as many aspects of the scenario you just imagined as possible" for 1 min on a response sheet. Participants were then asked to complete the dependent measures and finally feedback questions before being thanked and debriefed.

Dependent measures

To measure intentions to engage in future contact participants were asked to respond to four items. These were adapted from Ratcliff, Ratcliff, Czuchry, Scarberry, Thomas, Dansereau and Lord (1999)'s measure of behavioral intentions. Participants were asked the following questions: "How much do you intend to interact with British Muslims in the future?" (1 = *not at all,* to 9 = *very much*), "How much time do you think you might spend learning about Islam in the future?" (1 = *none at all,* to 9 = *a lot of time*), "How important do you think interacting with British Muslims is?" (1 = *not at all important,* to 9 = *highly important*), and "How willing would you be to attend a mosque gathering to learn more about Islamic beliefs and practices?" (1 = *not at all willing,* to 9 = *very willing*). The mean of these four items

was taken as a composite index of intentions to engage in future contact ($\alpha = .82$).

Results and discussion

On the composite measure of intentions participants who imagined contact reported greater intentions to engage in future actual contact ($M = 5.93$, $SD = 1.67$) than did participants in the control condition ($M = 4.69$, $SD = 1.26$), $t(31) = -2.39$, $p = .023$, $d = .86$. In other words, when individuals were instructed to imagine contact with a British Muslim stranger they subsequently reported greater intentions to engage in future social contact with British Muslims in general.

Experiment 2

In Experiment 1 we observed an increase in intentions to engage in future contact following a typically employed imagined contact task instruction. This is consistent with what we know about the impact of mental imagery on future intentions to engage in the envisaged behavior (Pham & Taylor, 1999). However, there may be ways to enhance the impact of imagined contact on intentions. In particular, we propose that the *extent of elaboration* involved in the imagined scenario will have a direct impact on subsequent intentions.

We argue that the more elaborate the imagined contact scenario, the greater impact the task will have on contact intentions. We derive this prediction from research by Anderson on the psychological link between imagination and intention (Anderson, 1983). Drawing upon script theory (Abelson, 1981; Schank & Abelson, 1977), Anderson argued (and showed) that imagining a scenario increases intentions because it creates an available behavioral script that can be easily brought to mind when making judgments about intention. To manipulate the strength of the behavioral scripts Anderson (1983) asked participants to carry out the imagery task a different number of times. He hypothesized that repetition would create stronger and more available behavioral scripts, and so enhance intentions to a corresponding extent. To measure the strength of the hypothesized behavioral script Anderson asked participants (amongst other things) how *vivid* their imagined scenario was. Results supported the hypothesis that manipulations designed to enhance the vividness of the imagined scenario (in this case repetition) heightened future intentions. Later research has supported the idea that enhancing the vividness of imagined scenarios will enhance subsequent intentions and behavior, whether this be through thinking specifically about actions (vs. reasons; Ten Eyck et al., 2006); or about process (vs. outcome; Greitmeyer & Wurz, 2005; Taylor & Pham, 1998). In sum, anything that enhances the vividness of the imagined scenario leads to consequently stronger effects on intentions and behavior.

Following Anderson and other's work on imagery and intention we hypothesized that instructing participants to imagine a more elaborate, vivid contact scenario would create a stronger behavioral contact script and thus enhance future contact intentions. Furthermore, consistent with the above theorizing, we predicted that the impact of elaboration on intentions would be mediated by reported vividness of the imagined scenario. As well as being central to Anderson's (1983) research on intention, more generally vividness has been a key focus of research on mental imagery (Marks, 1999). It is defined as "a combination of clarity and liveliness. The more vivid an image, therefore, the closer it approximates an actual percept" (Marks, 1972, p.83) and according to McKelvie (1995) vivid visual imagery has characteristics resembling the real scenario in that it is generally clear, bright, sharp, detailed and lively. Our elaborated instructions to imagine should therefore have a greater impact on intentions because they create a more vivid, cue-rich simulation that makes the imagined behavior subsequently more available at the judgmental phase.

We therefore compared our elaborated instructions with the standard instructional set, and tested whether the enhanced vividness of the imagined scenario following the elaborated instructions would mediate the predicted impact on intentions. In order to integrate the predicted vividness-intentions link with existing research on imagined contact we also measured intergroup attitudes and intergroup anxiety. It is well established that attitudes are a predictor of intentions (Ajzen & Fishbein, 1980), and previous work on imagined contact has shown anxiety to predict intergroup attitudes (Turner et al., 2007a). We therefore expected any enhancement of intentions to be predicted by an improvement in intergroup attitudes. Establishing this detailed psychological roadmap for how imagined contact fosters future contact intentions (via attitudes, anxiety and vividness) would represent a significant advance in our understanding of the underlying cognitive and emotional dynamics of imagined contact effects.

Finally, we reasoned that the vividness of the imagined contact encounter would be influenced by the extent of participants' prior actual contact experiences, irrespective of the experimental manipulation[1]. The more experience a person has with outgroup contact, the more knowledge will be available to them when constructing the imagined scenario, leading to a more vivid simulation. We further predicted that, for the reasons outlined earlier, vividness would also mediate the relationship between prior contact and intentions to engage in future contact following imagined contact.

Method

Participants

Sixty British non-Muslim undergraduate students at the University of Kent, 15 male and 45 female, aged between 17 and 46 ($M = 21.0$), were randomly allocated to one of two conditions: imagined contact vs. elaborated imagined contact. Participants received course credit for taking part in the research.

Procedure

At the start of the experiment the researcher told participants that they were participating in a study based on the perceptions of attitudes on various social issues.

In order to determine the quantity of prior contact with British Muslims, participants were asked: "How many British Muslims do you know?" "In everyday life, how often do you encounter British Muslims?" "In everyday life, how frequently do you interact with British Muslims?" and "In everyday life, how much contact do you have with British Muslims?" on a scale from 1 (*none*) to 7 (*a lot*). To determine the quality of contact participants were asked to characterize their contact with British Muslims based on the following adjectives: *superficial-deep; natural-forced; unpleasant-pleasant; competitive-cooperative; intimate-distant* on bipolar scales ranging from 1 to 7. These standard items used in previous cross-sectional contact research (e.g., Voci & Hewstone, 2003) were included to explore the impacts of prior contact on vividness and intentions.

Following this, two sets of instructions designed to invoke different levels of elaboration of participants' imagined interaction with an outgroup member (in this case a British Muslim) were used. Participants assigned to the standard imagined contact condition received the instructions used in Experiment 1: "I would like you to take a minute to imagine yourself meeting a British Muslim stranger

[1] There was no theoretical reason to expect prior contact to influence elaborated imagined contact to a greater or lesser extent than standard imagined contact. Rather we predicted prior contact to exert an independent, not interactive, impact on the vividness with which participants could generate an imagined contact scenario. As such, we conducted the prior contact analysis separately from the analysis of the experimental manipulation of elaboration.

for the first time. During the conversation imagine you find out some interesting and unexpected things about the stranger."

To increase the vividness of the imagined scenario we used a method derived from the literature on goal pursuit (Gollwitzer, 1999). This work has shown that that more powerful and predictive intentions to engage in future behavior arise from the formation of elaborated behavioral plans specifying *when* and *where* the relevant actions should be executed ("implementation intentions"). Instructions to form behavioral scripts that include these elaborations produce more accurate and faster responses to specified cues in the critical situation (Webb & Sheeran, 2004); in other words, the behavioral script becomes more available and more likely to influence thought and action. We therefore used a similar method to increase the vividness of the imagine scenario here. Participants assigned to the elaborated imagined contact condition received the following modified instructions:

> I would like you to take a minute to imagine yourself meeting a British Muslim for the first time. While imaging this think specifically of *when* (e.g. next Thursday) and *where* (e.g. the bus stop) this conversation might occur. During the conversation imagine you find out some interesting and unexpected things about the stranger.

We reasoned that directing participants to focus on more specific details of the scenario they imagined would create a more rich, detailed scenario and consequently provide more available contextual cues when it came to the judgmental phase of the study, resulting in enhanced future contact intentions. Remaining procedural elements were the same as in Experiment 1.

Dependent measures

In order to measure the *vividness* of the imagined scenarios, participants in the imagined contact conditions were asked "the imagined scenario in my mind is…" after which they had to state the degree to which the image was: *faint-vivid; fuzzy-clear; dim-bright; vague-sharp; dull-lively; simple-detailed* on bipolar scales ranging from 1 to 9. The mean of the items was taken as a composite measure of vividness ($\alpha = .94$). Adapted from Stephan and Stephan (1985) *intergroup anxiety* was measured by asking participants the extent to which in a future encounter with a British Muslim they would feel: *awkward; suspicious; angry; embarrassed; calm; annoyed; irritated; frustrated; anxious; tense; furious; comfortable; relaxed; confident; hostile*, all from 1 (*not at all*) and 7 (*very much*). The mean of the items (with reverse coding where appropriate) was used as a composite measure of intergroup anxiety ($\alpha = .87$).

To measure outgroup attitudes we adapted Wright et al. (1997)'s scale whereby participants were asked to state how they felt toward British Muslims in general, based the following bi-polar scale items: *cold-warm; positive-negative; friendly-hostile; suspicious-trusting; respectful-contempt; admiration-disgust*, anchored from 1 to 9. A mean outgroup attitude index was formed from all of these items, reverse coded where appropriate ($\alpha = .88$). To measure intentions we expanded the 4-item scale used in Experiment 1 to a 10-item scale (additional items included "How much do you expect to enjoy interacting with British Muslims in the future?" "How willing would you be to participate in a discussion group that includes both Muslims and non-Muslims that will focus on issues of religious and cultural differences in the UK?"). All items had appropriate responses anchored from 1 to 9. These items were combined to form a mean index of intentions to engage in future contact ($\alpha = .91$).

Results and discussion

Preliminary analysis

There were significantly greater intentions to engage in future contact reported by participants in the elaborated imagined contact condition ($M = 5.90$) compared to the standard imagined contact condition ($M = 4.26$), $t\ (57) = -4.26$, $p < .0005$, $d = 1.13$. Outgroup attitudes were also significantly more positive following elaborated imagined contact ($M = 6.52$) compared to standard imagined contact ($M = 5.79$), $t\ (58) = -2.03$, $p = .047$, $d = .53$. Consistent with expectations participants reported that the scenario they imagined was significantly more vivid in the elaborated imagined contact condition ($M = 6.07$) compared to the standard imagined contact condition ($M = 4.69$), $t\ (58) = -3.30$, $p = .002$, $d = .87$. Participants also reported significantly less intergroup anxiety in the elaborated imagined contact condition ($M = 2.29$) compared to the standard imagined contact condition ($M = 2.79$), $t\ (58) = 2.30$, $p = .025$, $d = .60$, see Table 1.

Table 1
Mean vividness, anxiety, attitudes and intentions as a function of task, Experiment 2.

	Task			
	Imagined contact		Elaborated Imagined contact	
	M	*SD*	*M*	*SD*
Vividness	4.69	1.75	6.07	1.46
Anxiety	2.79	.86	2.29	.83
Attitudes	6.95	1.64	7.82	1.67
Intentions	4.26	1.76	5.90	1.12

Path analysis

We computed a path analyses to investigate the routes through which elaborated imagined contact has its impact on intentions. We predicted on the basis of the theorizing outlined above that elaborated imagined contact would enhance intentions via increased vividness of the imagined scenario. We also predicted, however, on the basis of previous research, that intentions would also be enhanced via concurrent increases in positive attitudes towards the outgroup. Based on Turner et al.'s (2007) findings we know that imagined contact can exert a positive influence on attitudes via reduced anxiety. We also know that attitudes should be related to intentions (Ajzen & Fishbein, 1980). As such, we expected to also observe a mediational route to enhanced intentions via attitudes (which in turn would be mediated by anxiety)[2]. The resulting model revealed two distinct pathways to enhanced intentions following elaborated (vs. standard) imagined contact (see Fig. 1). Sobel Tests reveled that the first pathway via vividness was significant, $Z = 2.84$, $p = .019$, and the second pathway via anxiety (first step) was marginally significant ($Z = 1.81$, $p = .07$) and via attitudes (second step) was significant ($Z = 2.22$, $p = .026$).

Prior contact

We constructed a composite measure of quality × quantity of prior actual contact that has been commonly used in previous research (Voci & Hewstone, 2003). In step 1 the pathway between prior contact and intentions to engage in future contact was significant, $\beta = .395$, $p = .002$. In step 2 prior contact also predicted vividness $\beta = .420$, $p = .001$. In step 3 the path between vividness and intentions was significant while controlling for prior contact, $\beta = .602$, $p < .0005$. Controlling for vividness the significant relationship between prior contact and intentions became non-significant, $\beta = .141$, $p = .205$. A Sobel Test was significant, $Z = 2.95$, $p = .003$. This supports the hypothesis that prior contact can have a positive impact on post-

[2] In the following analyses we computed the analysis separately for each mediator, however using the alternative strategy of including all potential mediators at each step we obtained the same effects (see Kenny, Kashy & Bolger, 1998, for a discussion of the advantages and disadvantages of each method).

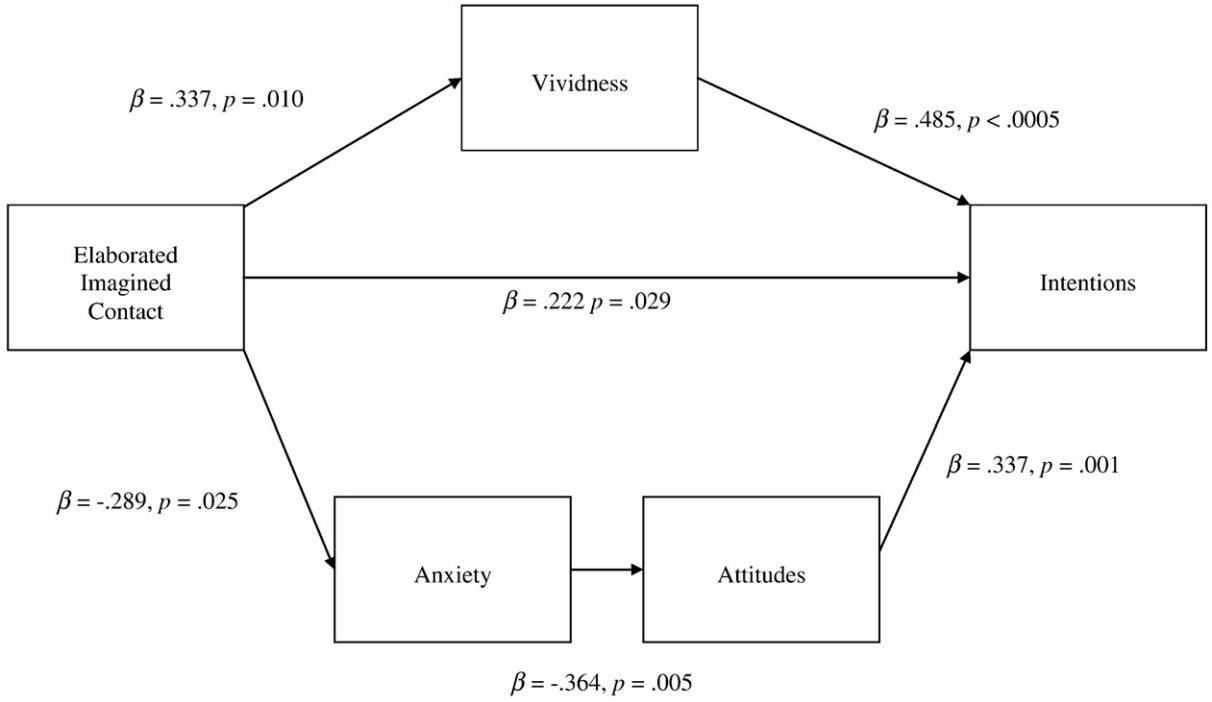

Fig. 1. Mediational model of the two routes to enhanced intentions following elaborated contact.

imagined contact intentions because it affords greater vividness to the simulated encounter[3].

Experiment 2 established and distinguished the mediating roles of vividness and intergroup anxiety in the relationship between elaborated imagined contact, attitudes and intentions. It was observed, consistent with research by Anderson (1983) and others, that the relationship between contact and intentions was mediated by vividness, such that participants in the elaborated imagined contact condition reported more vividly imagined scenarios, and were more likely to state intentions to engage in future contact with British Muslims. The findings are consistent with research showing that vivid visual imagery has characteristics resembling the real setting (clear, bright, sharp, detailed and lively) (McKelvie, 1995) which in turn leads to heightened intentions (Marks, 1972). Our findings also reinforced previous findings supporting the role of anxiety in imagined contact effects (but showing anxiety is further reduced using the elaborated instructional set) and furthermore, for the first time, showed that the impact of reduced anxiety on attitudes has a further effect of increasing intentions, consistent with a large corpus of work on the Theory of Planned Behavior (Ajzen & Fishbein, 1980).

These findings indicate the existence of two routes to imagined contact effects; through a cognitive (i.e., vividness) and an affective (i.e., anxiety) pathway. The impact of imagined contact on intentions was mediated by reported vividness of the imagined scene, whereas outgroup evaluations were mediated by intergroup anxiety. The role of both affective and cognitive mediating factors have been well-established in the literature on intergroup contact theory, therefore it is not surprising that imagined intergroup contact may involve similar mechanisms.

Finally, independent from the type of imagined contact task (standard or elaborated), the extent of participants' prior contact was positively related to the vividness of the scenario they imagined, which also mediated intentions. This suggests that while imagined contact is ideal as an intervention in contexts characterized by very low levels of contact, the more actual contact participants have had, the greater the impact of imagery on intentions. This finding is consistent with what we know about mental imagery and vividness: Recalled memories of contact will undoubtedly serve to enrich any imagined scenario, with the concurrent benefits on future contact intentions.

Experiment 3

In Experiment 2 we established two routes by which elaborated imagined contact leads to enhanced intentions to engage in future contact. One is based on previous research that has established a role for reduced anxiety in improving attitudes towards outgroups. We have here extended this route to show that the more involving the imagined contact scenario, the greater the impact on anxiety, and in turn on attitudes, and in turn, on intentions. This route is firmly based on research on the Theory of Planned Behavior: Attitudes predict intentions.

The second route is rooted in classic social cognitive research into imagery and intention. Elaborated imagined contact enhances vividness which, in turn, enhances intentions. Our aim in Experiment 3 was to develop a deeper understanding of the cognitive

[3] Although prior contact predicted outgroup attitudes, $\beta = .253$, $p = .053$, there was a weaker impact on anxiety, $\beta = -.175$, $p = .184$. One might have expected prior contact to have predicted anxiety here, as in much previous cross-sectional contact research. However, anxiety here is measured *after* an intervening imagined contact task, which might explain the weaker impact of prior contact on anxiety that we observed.

consequences of elaborated imagery. In particular we wanted to gain a specific insight into the impact of elaboration on the strength of the script formed from imagined contact, and to do this we adopted a different perspective to that taken in Experiments 1 and 2. Anderson (1983) argued that increasing the vividness of an imagined scenario enhances intentions because it represents a strengthening of the *memory* of the imagined scenario. This is important because a strong memory provides the available script needed to enhance judgments about intentions. These ideas are based on the large corpus of research into the *availability heuristic* (Tversky & Kahneman, 1973), which describes the ease with which one can "bring to mind" a psychological concept, whether that be an event, issue, person or object (Sherman & Anderson, 1987). This work shows that a wide range of judgments and beliefs are influenced by the cognitive availability of relevant information (e.g., Ross, Lepper & Hubbard, 1975). Correspondingly research has confirmed that once a behavioral script has been formed (through imagining the scenario) it influences one's expectations and intentions because it is an accessible source of diagnostic knowledge that can be used to make the judgment about one's own intentions (Anderson, 1983; see also Gregory, Cialdini & Carpenter, 1982; Wilson & Capitman, 1982). There is also direct empirical support for the link between imagery and script availability. In a study in which autobiographical memories were randomly selected for recall (Brewer, 1988) the reported vividness of those memories was significantly related to their memorability and the accuracy of recall (see also Lynn, Shavitt & Ostrom, 1985; White, 1989).

Based on the research outlined above, we can make the prediction that elaborated (vs. non-elaborated) imagery should produce a behavioral script that is more available for subsequent recall. Specifically, we expected participants imagining a more elaborate imagined contact scenario to report easier and quicker recall of the imagined scenario a day later compared to participants in the standard imagined contact condition. If substantiated this link would provide, along with the findings from Experiment 2, convergent evidence for the idea that script availability is a key outcome following from elaborated imagined contact.

Method

Participants

Sixty undergraduate students (19 male and 41 female) aged 18 to 29 ($M = 20.93$) were randomly allocated to either standard imagined contact or elaborated imagined contact conditions. In this study, to enhance generalizability, the target outgroup (for our Young participants) were the Elderly. Participants received course credit for their participation.

Procedure

Participants entered the laboratory and were given the standard and elaborated imagined contact task instructions used in Experiment 2. They were informed that this task was a simple pre-test and that the study would continue the next day. The following day, participants returned to the laboratory and were asked to recall the scenario that they imagined the previous day, and to complete the dependent measures. After completion participants were thanked and debriefed.

Dependent measures

In order to determine the ease of recall and confidence regarding the imagined scenarios of the previous day, participants were asked to recall the scenario they imagined, and to answer the following three questions: "How easy is it for you to recall details of the imagined scenario?" "How quickly are you able to recall the imagined scenario?" and "How confident are you in the accuracy of what you can recall of the imagined scenario?" anchored 1 = *not at all easy / quickly / confident* to 7 = *very easy / quickly / confident*. The mean of the items was used as a composite measure of accessibility ($\alpha = .44$).

Results and discussion

In order to determine whether participants found it easier to recall the imagined scenario following elaborated imagined contact versus standard imagined contact we computed a t-test. Participants who the day previously had engaged in elaborated imagined contact task reported significantly more accessible memories of the imagined scenario compared ($M = 6.60$, $SD = .534$) compared to participants who received the standard imagined contact instructions ($M = 6.11$, $SD = .687$), $t\ (26) = -2.14$, $p = .042$, $d = .839$. These findings confirmed our expectation that elaborated imagined contact would create a subsequently more available contact script.

This finding is important for our developing understanding of imagine contact effects in several ways. For instance, we now know that elaborated imagined contact not only enhances reported vividness and intentions, but also the availability of behavioral contact scripts formed by the imagined encounter. While it was important to establish the link between research on imagined contact and more general research on imagery through the vividness concept, the demonstration of enhanced script availability opens up a number of distinct routes that can now be pursued from a social cognitive perspective (e.g., the impact of imagined contact on existing and developing memory representations of contact encounters). It is also important to note that in this study we were able to observe an effect of imagined contact lasting across a 24-h period. This is something that, to our knowledge, has not been demonstrated previously and suggests a number of interesting foci for future research (e.g., exploring how sustained imagined contact scripts are dependent upon different implementations).

General discussion

Fifty years of research on intergroup contact has confirmed the clear negative relationship between contact and prejudice (Pettigrew & Tropp, 2006). Yet the question remains how to encourage members of conflicting groups and communities to take the first step and reap the benefits of contact. Imagining intergroup contact may represent a first stage in encouraging those preliminary steps towards engagement with outgroups. In this research we asked whether imagined contact, a new technique that has been shown to benefit intergroup attitudes, could prove an effective method for preparing people to engage in future actual contact. Three studies support the assertion that it can, and we have identified both the conditions under which it will be maximally effective, and the mediational routes that account for these effects.

In Experiment 1 we observed greater intentions to engage in future actual contact with British Muslims after non-Muslim participants imagined a positive contact scenario, compared to controls. In Experiment 2 we explored whether the impact of imagined contact on future contact intentions could be further enhanced by directing participants to imagine a more elaborated intergroup encounter. Compared to participants who received the standard version of the imagined contact instructions we found that participants who engaged in elaborated imagined contact reported subsequently greater intentions to engage with British Muslims, less anxiety towards interacting with this group, and more positive attitudes. Intentions were enhanced via two routes: a) through vividness and b) through reduced intergroup anxiety and improved outgroup attitudes. These findings support previous research (Turner et al., 2007a) that has uncovered the important role of anxiety in imagined contact effects (we have shown that anxiety is

further reduced using the elaborated instructional set). Prior contact enhanced the impact of imagined contact in intentions, independent from task elaboration, and this effect was also mediated by reported vividness of the imagined scenario. In Experiment 3 we provided direct evidence that elaborated imagined contact creates a subsequently more available contact script than the standard imagined contact task. Participants reported that memories of their imagined scenario were easier and quicker to recall, and they were more confident of their accuracy, when they engaged in elaborated imagined contact.

Implications and extensions

Our findings suggest that mental simulation enhances the availability of cues present in the simulated context, enhancing the extent to which people can subsequently bring to mind a relevant event, issue, person, etc. (see also Sherman & Anderson, 1987). Our findings suggest that vivid, elaborated imagery is also important for future contact intentions because it is indicative of heightened contact cue accessibility. These cues (that bring to mind the positive imagined encounter) are then available to guide expectations in subsequent envisaged, intended or actual encounters. Exploring and elaborating the role of availability in imagined contact will be an important focus for future research.

We also note that while we used previously established measures of intention (Ratcliff et al., 1999), some of the items may not have appeared so directly related to intention (e.g., how "important" is future contact to you). Future research should use more varied measures of intention to confirm the effects we have demonstrated here.

We also note that some readers may have concerns over demand characteristics in these studies. Extensive research on imagined contact has ruled out this possibility. Turner et al. (2007a) show that in post experimental debriefing that participants were not able to guess the imagined contact experimental hypothesis. Turner and Crisp (2010) have subsequently shown that imagined contact reduces implicit prejudice measured using response times. It is highly unlikely that participants would have been able to modify their responses on such a task. These studies have also ruled out informational load (Turner et al., Study 1), stereotype priming (Turner et al., Study 2), positive affective priming and non-relevant social interaction (Stathi & Crisp, Study 2) as alternative explanations for the imagined contact effect. It is, uniquely, the mental simulation of positively-toned intergroup contact that improves intergroup attitudes in these studies. Furthermore, the use of a between-subjects design, and in two of the studies a comparison between imagined contact and elaborated imagined contact (which would be indistinguishable from the perceivers' point of view) makes a demand explanation unlikely here. However, future research should continue to use a wide range of possible control conditions to further confirm the unique effects of positive contact simulations on intergroup perceptions.

There are a number of potentially fruitful ways for future researchers to develop our understanding of the role of vividness in imagined contact effects. Establishing its part in enhancing intentions to engage in future contact has provided an important link with prior research on imagery (see Marks, 1999). Elaborating the psychological importance of vividness will be an important endeavor for future research. For instance, might vividness have not only cognitive-perceptual effects but also a social impact? Bandura (1999) argues that encouraging people to "humanize" others is a way of reducing moral disengagement, which can be at the root of conflict and aggression. Perhaps techniques, such as those outlined here, provide the means, through enhanced vividness, to humanize others by promoting a focus on the person.

To date imagined contact has been tested in the laboratory, but we believe that it would readily transfer to educational settings. It involves only a short, simple task, and can be implemented with little obvious expense. It also has the advantage that it can be used even in highly segregated settings where people are not even part of a broader social network in which there are outgroup members. We do not advocate imagined contact as a replacement for existing approaches. In isolation it is likely to yield a lesser impact on attitudes and behaviors than more direct strategies. Rather, we propose it could be valuable in combination with existing contact interventions[4] (for a rebuttal of recent critiques along these lines, see Crisp & Turner, 2010). From our studies we now know that particularly elaborated imagined intergroup contact can reduce anxiety and *prepare* people for successful intergroup encounters. For these reasons we believe that one way in which imagined contact might be usefully applied is as the first stage in a programmatic intervention that also involves the introduction of extended and direct contact interventions at a later stage (a "continuum of contact," see Crisp & Turner, 2009).

In sum, we believe there are four clear novel contributions of the experiments reported in this paper. First, we have demonstrated that imagined contact affects intentions, and that elaboration enhances this imagined contact effect. Since intentions are a key predictor of actual behavior, this is a critical step forward in our understanding of how imagined contact works. Second, we have illuminated vividness as a mediator of imagined contact effects—making an important link with previous research on imagery in a range of domains. Third, we have extended previous work on imagined contact by showing, empirically, why it is important to change attitudes—because they directly enhance intentions. Forth, we have shown, for the first time, that prior contact can enhance the impact of imagined contact. These findings therefore represent a significant advance in our understanding of the underlying cognitive and emotional dynamics of imagined contact effects.

Conclusions

Imagined intergroup contact is a new, effective tool for improving intergroup attitudes and promoting more positive intergroup relations. In three studies we established further benefits of this intervention, specified the conditions under which it will be maximally beneficial, and reported new and extended mediational pathways. Imagining intergroup contact enhances intentions to engage in actual contact. This is especially the case when detailed, elaborate, and cue-rich interactions are envisaged. Intentions are enhanced because elaborated task instructions create more vividly perceived contact scenarios, and because evaluations are improved due to reductions in intergroup anxiety. Elaborated imagined contact is more likely to create cue-rich, highly accessible contact scenarios that will guide subsequent behavior. These findings contribute to a growing number of studies that illustrate the value in mental simulation as a means of improving intergroup relations, and they provide an important guide for policy makers and educators in their efforts to promote tolerance and more positive intergroup relations.

[4] Interestingly there is a precedent for this in other domains. For instance the use of mental imagery to enhance performance is a common method practiced in sports psychology. Research has established that while physical practice continues to be a superior method for motor skills, mental practice produces greater learning compared to no practice at all, and the *combination* of mental and physical practice can be maximally effective to sharpen skills and abilities (Feltz & Landers, 1983).

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