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# Grandparent-Grandchild Contact and Attitudes Toward Older Adults: Moderator and Mediator Effects

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*Two studies tested the intergroup contact hypothesis in the context of the grandparent-grandchild relationship. The hypothesis suggests that contact with an out-group member has more influence on attitudes toward the out-group when group memberships are salient. In Study 1, the predicted link was found but only for grandparents with whom the grandchild had more frequent contact. The second study examined only the most frequent grandparent relationship and replicated the effect. This study also investigated the role of various mediators of the link between quality of contact and attitudes, as well as quality of contact and perceived out-group variability. Perspective taking, anxiety, and accommodation mediated the effects of contact on attitudes, whereas individuation and self-disclosure mediated the effects of contact on perceived out-group variability. Moderated mediational analysis indicated that the moderating effect of group salience occurs between quality of contact and the mediator, not between the mediator and attitudes.*

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**Keywords:** *intergroup contact; moderator effects; mediator effects; ageism; grandparent-grandchild relationship*

**T**he notion that contact with an individual out-group member leads to attitude change concerning the out-group has intrigued social psychologists for decades (Allport, 1954). However, even early examinations of the “contact hypothesis” noted that mere contact is not sufficient to engender attitude change (Allport, 1954). As a result, research has examined a catalog of facilitating conditions for intergroup contact. Scholars have sug-

gested that contact should be cooperative (Sherif, 1966), equal status (Cook, 1978), in a close long-term relationship (Pettigrew, 1997; Wright, Aron, McLaughlin-Volpe, & Ropp, 1997), include observation of shared values and disconfirmation of stereotypes (Cook, 1978), should be pleasant (Amir, 1976), and should enjoy institutional support of authorities (Allport, 1954; Cook, 1978). The current research examines an additional condition that has received increasing scholarly interest. As part of a concern with the generalization from contact with specific out-group members to attitudes toward the out-group as a whole, recent theorizing has emphasized the importance of group membership salience in interaction.

Hewstone and Brown (1986) drew on social identity theory (Tajfel & Turner, 1986) in suggesting that generalization from specific out-group contact situations to general out-group attitudes is only likely if contact is “intergroup” (group memberships are salient: Hewstone & Lord, 1998). As Van Oudenhoven, Groenewoud, and

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Hewstone (1996) have shown, it is not necessary that category salience be maintained at all times, but it is essential that categorical salience is introduced into the contact setting at some time, and not at such a late stage that the out-group member is already seen as atypical. When group memberships are not salient, people are likely to be treated as individuals with no connection to any group, and hence contact with them will not have implications for change in views of the group as a whole (see also Rothbart & John, 1985; Weber & Crocker, 1983). Hewstone and Brown's approach also argues for the *appropriateness* of maintaining group salience. Ignoring group memberships ("decategorization": Brewer & Miller, 1988) is difficult to accomplish and is resisted by individuals who are strongly identified with, or invested in, their social groups.

This perspective is backed by research showing that contact with more "representative" members of out-groups is more likely to lead to attitude change (Brown, Vivian, & Hewstone, 1999). Contact with members of out-group *subgroups* also results in more change when those subgroups are more typical of the entire group (Park, Ryan, & Judd, 1992). Also, contact with out-group members who are perceived as *atypical* is *not* found to influence more general attitudes; they are subtyped (Weber & Crocker, 1983). Survey research with real groups has also supported the intergroup contact hypothesis. Brown et al. (1999) found that the intimacy of respondents' contact with out-group nationalities predicted the desire to live in other countries only among those who rated their out-group contact as high in group salience. Brown, Maras, Masser, Vivian, and Hewstone (2001) found similar effects examining British ferry passengers' attitudes toward French people, and Voci and Hewstone (2003) reported that salience of group memberships moderates the relationship between contact and attitudes toward Italian immigrants.

In this context, it is worth noting that group salient contact is not, per se, beneficial. Indeed, group salience is often *negatively* correlated with quality of contact (Islam & Hewstone, 1993; Voci & Hewstone, 2003). It is as a *moderator* of the contact-attitude link that group salience is important. It is possible that there is an optimal level of group salience that would ensure generalizability while not engendering poor quality contact. However, the nature of that level would undoubtedly vary quite considerably across contexts and people. A more productive direction for research may be in the context of Pettigrew's (1998) longitudinal model whereby closeness and intimacy are developed in a relationship *before* group salience is added (see also Cook, 1978; Hewstone, 1996).

This article examines the moderating role of group salience in a new context. Whereas previous work has

examined attitudes toward ethnic or national out-groups, we examine whether *age* salience moderates the link between the quality of grandparent-grandchild contact and attitudes toward older adults. No previous work has examined the role of group salience in determining attitudes concerning age. Age is unique for a number of reasons (outlined below), and hence we believe that testing the hypothesis with age-related attitudes is an interesting addition to the literature.

#### *Age as a Social Category*

In some ways, age operates similarly to other intergroup distinctions. Age is a fundamental dimension of social categorization, rivaling race and gender for importance (Brewer & Lui, 1989; Fiske, 1998). Young children easily identify age categories and have negative stereotypes of age out-groups (Seefeldt & Ahn, 1990). Young adults also hold negative attitudes toward older adults in ways that resemble their feelings about other out-groups (Kite & Johnson, 1988; Perdue & Gurtman, 1990). As with race and gender prejudice, it has also been shown that these negative attitudes are at times internalized, such that older adults will display out-group favoritism (Hummert, Garstka, O'Brien, Greenwald, & Mellott, 2002), an established phenomenon in the general literature on intergroup relations (see Jost & Hunyady, 2002). Research also demonstrates, as with other groups, that stereotypical conceptions of older adults are complex and multidimensional, involving "substereotypes" that range from positive to negative (Hummert, 1990). Finally, people use similar strategies to respond to age discrimination as they do other forms of discrimination (e.g., *social mobility* in young women using makeup to appear older, and older people using plastic surgery to appear younger: Harwood, Giles, & Ryan, 1995). Thus, age can operate similarly to other categorical distinctions.

However, there are ways in which age operates somewhat differently from other social categories (Harwood et al., 1995). Barring misfortune, people progress through many of the available age categories. Hence, boundaries between age categories are open and permeable, but generally only in one direction. However, transition between the boundaries is only somewhat controllable: Our appearance and age-related social demands can only be manipulated to a limited degree (Coupland & Nussbaum, 1993). Given the *continuous* nature of chronological age, the boundaries between age categories are also more arbitrary and contextually determined than boundaries between more discrete groups (Coupland & Coupland, 1990). These differences indicate that attention to age categories may provide interesting challenges for the intergroup literature. The current research does not directly address such challenges.

Instead, we examine how age categories may function similarly to other social categories and hence may be a context in which to explore more general theoretical intergroup issues.

Ageist attitudes are of concern due to the consequences they have for older adults (Ryan, Giles, Bartolucci, & Henwood, 1986) and indeed for all people as they move toward older adulthood (Giles, 1999). Ageist attitudes are associated with modified communication toward older people (e.g., patronizing talk: Hummert & Shaner, 1994), which has negative consequences for older adults' psychological and physical health (Ryan et al., 1986). Also, negative attitudes may be internalized, which has consequences for health and self-concept with increasing age (Levy, Slade, Kunkel, & Kasl, 2002; Williams & Harwood, 2004). Therefore, we are concerned with examining the origins of ageism and specifically how ageist attitudes may be shaped by relationships with grandparents.

#### *Attitudes Toward Older Adults and the Grandparent-Grandchild Relationship*

Little work on the contact hypothesis has examined intergroup contact in the family. This reflects the emphasis of intergroup social psychology on attitudes toward racial and cultural groups, which have not traditionally met in family contexts. However, with the growth in multiracial, multicultural, and interfaith marriages, intergroup contact in families is growing (Orbe, 1999). Also, other intergroup dynamics are fairly common in family contexts. Recent work has extended the "common ingroup identity" model to "blended" families, where children may live with nonbiological parents and siblings (Banker & Gaertner, 1998). Most directly for the current research, families are by definition intergenerational, and hence intergroup, settings. Indeed, the *majority* of contact between adolescents/young adults and older adults occurs in the family, and such contact is generally more *satisfying* than intergenerational contact outside the family (Ng, Liu, Weatherall, & Loong, 1997; Williams & Giles, 1996). Hence, the family may provide the context in which intergenerational contact has the strongest and most beneficial effects on ageist attitudes.

Examining grandparent-grandchild relationships is congruent with Pettigrew's (1998) suggestion that intergroup relationships featuring "extensive and repeated contact in a variety of social contexts" (p. 76) may be particularly crucial in attitude change, particularly when those relationships are close. Hence, integrating the previously distinct areas of close relationships and intergroup relations is useful here (Mackie & Smith, 1998). A theoretical model guiding much of this work is that of "including other in the self," developed by Aron et al. (in press). They argue that intergroup contact is most likely

to reduce prejudice when it involves a close, intimate friendship with an out-group member (Wright, Aron, & Tropp, 2002). This kind of relationship facilitates "expansion" of the self to include, first, the out-group individual and then the out-group as a whole. That is, the representation of the self comes to include the out-group, and the out-group is accorded benefits usually reserved for the self and in-group members (e.g., empathy).

Aron and colleagues (in press) agree with our view that category memberships *must* become salient to make the close out-group other's identity "available" for inclusion in the self. They illustrate this with reference to their work on the extended (or vicarious) contact hypothesis (Wright et al., 1997). Under some conditions, it may be enough simply to be aware that an in-group member has an out-group friend. Because the fellow in-grouper is part of the self and has an out-group person who is part of himself or herself, it is nonetheless possible for someone who has no direct out-group friends to begin to see members of the out-group as part of himself or herself. This indirect contact reduces negative attitudes toward the out-group (Wright et al., 1997) and increases perceived out-group variability (Paolini, Hewstone, Cairns, & Voci, in press).

Much research has examined associations between grandchildren's contact with their grandparents and ageist attitudes, but it has been largely atheoretical and certainly has not fallen within the mainstream of intergroup contact research. Nonetheless, grandparent-grandchild contact often satisfies various "facilitating conditions" described in intergroup contact research (e.g., contact in a long-term relationship, institutionally supported, noncompetitive). Hence, it is not surprising that some studies find positive attitudes resulting from positive grandparent contact (Knox, Gekoski, & Johnson, 1986; Silverstein & Parrott, 1997). However, other studies have reported no association between contact with grandparents and ageist attitudes (Caspi, 1984; Doka, 1985-1986). Previous studies' inconsistent results may be due to the failure to include an analysis of moderators. We hypothesize that when age-group salience is high, it will facilitate generalization from contact with a specific grandparent to attitudes concerning older adults.

#### *The Present Research*

Unfortunately, no studies on grandparent-grandchild contact have examined either mediators or moderators of the contact-attitudes relationship. In two studies, we examine the intergroup contact hypothesis in the grandparent-grandchild context, with particular focus on the moderating role of group salience. Study 1 compares the explanatory power of the contact hypothesis

for different grandparents with whom the grandchild has, respectively, either more or less frequent contact. Frequency of contact is important in early versions of the contact hypothesis (Allport, 1954; Amir, 1976) and in more recent formulations (Islam & Hewstone, 1993; Pettigrew, 1998). Interestingly, previous work has often examined frequency of contact as a global assessment concerning the out-group—how much contact one has with people from the out-group. Our work focuses instead on a specific relationship and examines contact frequency in that relationship, predicting that personal relationships featuring frequent contact have greater potential for changing attitudes. Study 2 also examines the moderating effect of group salience, focusing exclusively on the relationship involving the most frequent contact. Study 2 extends the research by examining various potentially important *mediators* of the contact-attitudes relationship and by examining mediation and moderation simultaneously.

#### STUDY 1

##### *Method*

Undergraduate students ( $N = 192$ ; 119 female students, 73 male students) from an introductory speech course at a large midwestern U.S. university received course credit for participation. Respondents were on average 19.86 years old ( $SD = 1.71$ ), and most were White ( $n = 167$ , 87%; other groups were represented by fewer than 5 respondents). Respondents completed a questionnaire concerning relationships with (a) their four biological grandparents and (b) older adults (people older than 65) *other than* their grandparents. Sections a and b were counterbalanced, and within section a, two random orders of grandparents were also counterbalanced (for a total of eight versions of the questionnaire). Analysis revealed no order effects. Participants reported on deceased grandparents if they could clearly recall the relationship.

##### *Measures*

*Attitudes toward older adults.* Respondents rated their feelings about older adults (people older than 65) *other than* their grandparents on six 7-point semantic differentials from Wright et al. (1997) (1-7: *negative-positive*, *warm-cold*, *suspicious-trusting*, *friendly-hostile*, *contempt-respect*, *admiration-disgust*;  $\alpha = .78$ ,  $M = 5.66$ ,  $SD = 0.90$ ).

*Group salience.* Four items measured age-group salience for the grandchild in interacting with each grandparent. Grandchildren rated their awareness of the age difference between themselves and their grandparent, how much they thought about their grandparent's age, how much their age mattered when talking, and the extent to which the grandparent was "typical" of

other older people (people older than 65). All items had a score from 1 to 7, with high scores denoting high salience (paternal grandfather,  $\alpha = .76$ ; paternal grandmother,  $\alpha = .80$ ; maternal grandfather,  $\alpha = .72$ ; maternal grandmother,  $\alpha = .72$ ). Salience scores were combined for same-lineage grandparents to allow comparison of high- and low-frequency relationships (see below).

*Contact quality.* Two questions assessed quality of contact in each grandparent relationship. Respondents were asked how well they "get along with" the grandparent (*very poorly—very well*), and how "emotionally close" they felt to the grandparent (*very distant—very close*; both items scored 0 to 4, with high scores denoting high-quality contact). These questions were reliable across grandparent relationships (paternal grandfather,  $\alpha = .76$ ; paternal grandmother,  $\alpha = .79$ ; maternal grandfather,  $\alpha = .84$ ; maternal grandmother,  $\alpha = .82$ ). Scores for same-lineage grandparents were combined to facilitate the comparison of high-frequency and low-frequency contact relationships (see below).

*Contact frequency.* Contact frequency was measured with two items, both scored 1 to 6, with high scores denoting high frequency of contact: "During your relationship with this grandparent, approximately how often did you communicate with each other?" (*never—almost daily*), and "For most of your relationship with this grandparent, approximately how far apart have you lived?" (*500+ miles—same town*). The items were assessed separately for all grandparents. Contact frequency scores for same-lineage grandparents (maternal grandmother and grandfather; paternal grandmother and grandfather) were highly related (see Table 1), and so we combined the resulting four items for each same-lineage pair (maternal  $\alpha = .84$ , paternal  $\alpha = .81$ ). As noted above, we suspected contact effects might be more evident in relationships involving more frequent contact. Based on the frequency measure, grandparents were divided into a high-frequency group ( $M$  frequency = 4.40) and a low-frequency group ( $M$  frequency = 3.17). Not surprisingly, the groups were significantly different in terms of the frequency of their contact,  $t(139) = 16.15$ ,  $p < .001$ ,  $r^2 = .65$ .

The measure of contact used here is *relative* rather than *absolute*—relationships in the low-frequency condition are low frequency for that person relative to their other grandparent(s), not relative to frequency in the sample as a whole. We believe that this relative level of frequency serves as a cue to participants concerning whether they can rely on their experience with their grandparent when thinking about the group as a whole. Perceived differences in the frequency of contact can act as a meta-informational cue as to whether information about a specific group member is reliable information

**TABLE 1: Correlations of Contact Quality, Group Salience and Frequency for Four Grandparent Relationships (Study 1)**

	<i>Paternal Grandfather</i>	<i>Paternal Grandmother</i>	<i>Maternal Grandfather</i>
Quality of contact			
Paternal grandmother	.60***		
Maternal grandfather	.06	.18*	
Maternal grandmother	-.08	.02	.54***
Salience of group membership			
Paternal grandmother	.58***		
Maternal grandfather	.33***	.29**	
Maternal grandmother	.27**	.44***	.59***
Contact frequency			
Paternal grandmother	.70***		
Maternal grandfather	.34***	.23**	
Maternal grandmother	.35***	.30***	.74***

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

about a group as a whole. Essentially, the relationship involving the most frequent contact is treated as a sample of observations of adequate size, and a relationship featuring least frequent contact is treated as a sample of observations of inadequate size. This occurs, at least to a certain degree, irrespective of the actual and available sample of observations (see Paolini & Hewstone, 2004). Put more simply, whereas absolute levels of contact might seem to provide an objective insight into frequency of out-group interaction, we suggest that relative levels of contact provide more useful subjective information to individual people. Whether individuals have a high or low level of overall contact, they will rely on their more active relationships when developing impressions of the out-group as a whole.

Of the initial 192 respondents, 27 were excluded as they did not report contact with at least one grandparent of each lineage, or they had missing values for key variables, and an additional 25 were excluded because they reported *equal* contact frequency with maternal and paternal grandparents (final  $N = 140$ ). When the respondents who were included and those who were excluded from the final analyses were compared on attitudes toward older adults, quality of contact (for paternal and maternal lineage), and age salience (for paternal and maternal lineage), no significant differences were found (all  $t$ s  $< 1.33$ , *ns*).

### Results and Discussion

We conducted a moderational analysis adopting the procedure by Jaccard, Turrissi, and Wan (1990; see also Aiken & West, 1991). In the multiple regression equation, the predictors were quality of contact in high- and in low-frequency grandparent relationships, group salience during high- and low-frequency grandparent relationships, and the products of contact quality and

group salience for high- and low-frequency grandparent relationships (prior to multiplication, the means of the terms were zero-centered to avoid problems of multicollinearity; see Cronbach, 1987). The results, reported in Table 2, showed that two variables significantly predicted attitudes: quality of contact in high-frequency grandparent relationships and the quality-by-salience interaction relative to high-frequency grandparent relationships. The decomposition of this latter effect showed that, as predicted, quality of contact in high-frequency grandparent relationships affected attitudes when group salience was high,  $b = .51$ ,  $SE = .12$ ,  $p < .001$ , not when group salience was low,  $b = .12$ ,  $SE = .17$ ,  $p = .50$ . We conclude that the moderating effect of salience is valid only for grandparenting relationships that involve more frequent contact.<sup>1</sup>

These data contribute to the field in three ways. First, it is notable to find support for the intergroup contact hypothesis in the somewhat unique context of attitudes concerning older people. Second, no previous study has provided data concerning the contact hypothesis in the family context. Third, group salience operated as a moderator under conditions of relatively frequent contact, but not in the low-frequency relationships. Previous work on frequency has focused largely on the number of out-group relationships (e.g., Islam & Hewstone, 1993); our study focused on the amount of contact within *one* relationship. Hence, our work suggests more examination of contact in “active” relationships. We would predict contact to be more influential between neighbors when those neighbors talk more often, and between classmates when the class meets more frequently and involves more interaction. For heterosexuals with more than one gay friend, we would expect the gay friend with whom they have the most contact to be most influential in influencing their attitudes about homosexuals.

### STUDY 2

Stronger effects of contact on attitudes in Study 1 emerged with grandparents who were seen more frequently, therefore Study 2 focused on grandparent relationships in which most frequent interaction was reported. The goals of the second study were to (a) replicate the moderating effect of group salience found in Study 1, (b) to include a criterion measure of perceived out-group variability in addition to attitudes, and (c) to investigate potential mediators of the effect of grandparent contact on views of the elderly and to examine these simultaneously with the moderator.

The criterion variable in Study 1 was a measure of attitudinal central tendency. As people attend to information about both central tendency and out-group variability when responding to groups, perceptions of out-group variability should also be investigated (Brauer, 2001).

**TABLE 2: Prediction of Attitudes Toward the Elderly: Unstandardized Regression Coefficients (Study 1)**

Predictor Variable	B	SE	p
Quality of contact in high-frequency grandparent relationships	.31	.11	.007
Quality of contact in low-frequency grandparent relationships	.05	.08	.56
Group salience, high-frequency grandparent relationships	.02	.06	.84
Group salience, low-frequency grandparent relationships	-.02	.06	.78
Quality × Salience, high-frequency grandparent relationships	.15	.07	.04
Quality × Salience, low-frequency grandparent relationships	.05	.05	.38

NOTE:  $R^2 = .15$ .

Variability perceptions offer a route to the reduction of prejudice (Hewstone & Hamberger, 2000) and can be affected by contact (Paolini, Hewstone, Cairns, et al., in press; Soliz & Harwood, 2003). Perceived variability is associated with reduced stereotyping, reduced memory for stereotype-consistent information, and enhanced likelihood of stereotype change (Hewstone & Hamberger, 2000; Ryan, Judd, & Park, 1996). Perceptions of group variability are also linked to cognitive processes of subgrouping versus subtyping and hence provide insight into cognitive mechanisms underlying attitude change (Richards & Hewstone, 2001). Hence, we examine whether grandparent contact influences perceptions of variability among older adults and whether such generalization is facilitated by group salience.

We examined a number of potential *mediating* variables in the contact-attitudes relationship to understand more about the *processes* by which contact translates into attitude change. Elsewhere, we have suggested that the process of moving from quality of contact with a specific individual to broader attitudes toward the out-group is a complex one, involving numerous (serial and parallel) mediators (Paolini, Hewstone, Voci, Harwood, & Cairns, in press). Whereas previous research has tended to look at mediators at the *group* level (e.g., Voci & Hewstone, 2003), our research looked at mediators at the *individual* level. This means that, rather than looking at mediators that are relevant to people's reactions to out-group members in general or in hypothetical scenarios (e.g., the use of intergroup anxiety in Islam & Hewstone, 1993), our mediators were tapped at the level of the specific relationship with an out-group member and concerned interaction with the same grandparent with whom we assessed quality of contact. We believe that both types of mediators are necessary for a complete understanding of the mechanisms behind contact

effects (Paolini, Hewstone, Voice, et al., in press). If quality of contact with a specific out-group individual influences more general out-group attitudes, then there may be very specific interactional experiences that affect group-level mediators and serve as mechanisms for such influence. We do not suggest that the individual-level mediators examined here are the only relevant link in the chain. However, experiencing a specific affect, cognition, or behavior in interaction with a particular out-group member (i.e., individual-level mediator) makes it more likely that such a phenomenon might occur or be seen as possible with other out-group members (i.e., group-level mediator). This perception may generalize to expectations for intergroup contact more generally and hence the nature of the out-group as a whole. Our research examined three types of mediators that appear promising: affective, cognitive, and communicative processes.

Increasing attention is now being paid to *affective* processes in intergroup contact and to the manner in which they mediate the effects of contact on attitudes. Pettigrew (1997) focused on the positive affect associated with interpersonal friendship and proposed that this affect promotes empathy. As shown by Batson et al. (1997), empathy is closely associated with *perspective taking*, and taking the perspective of a stigmatized person results in a greater understanding of the effects of prejudice (Coke, Batson, & McDavis, 1978). Thus, we suggest that increased levels of perspective taking in a specific relationship will facilitate taking the perspective of the out-group more broadly and hence may change attitudes concerning the out-group.

*Anxiety* is an affective variable with the opposite effects. Anxiety limits attention and information-processing capacity, which leads to stereotypical cognitive processing (Stephan & Stephan, 1985; Wilder & Simon, 2001). Such processing during intergroup contact leads to stereotype confirmation rather than change (stereotype change requires more active processing: Forgas, 1995; Wilder, 1993). However, close friendships are associated with reduced anxiety (La Greca & Lopez, 1998). If friendship functions as a stress-buffering mechanism (Cohen, Sherrod, & Clark, 1986), then having out-group friends may reduce negative expectations of interactions with other out-group members (Paolini, Hewstone, Cairns, et al., in press). In the current context, we would apply the same logic to close family relationships: A close relationship with a grandparent should result in reduced anxiety during interaction with the grandparent, which in turn should reduce intergroup anxiety with other older adults and enhance positive attitudes.

In terms of *cognitive* mediators, we focused on the extent to which contact allowed for *individuation* of the

grandparent, as an exemplar of the elderly category. Individuation is the acquisition of knowledge about unique attributes of out-group members—in our case the grandparent (Miller, 2002). We argue that close relationships are likely to facilitate the acquisition of individuating information and that this in turn should result in a more sophisticated view of one out-group member's experience, which in turn might translate into more sophisticated understandings of the out-group as a whole. Miller, Kenworthy, Canales, and Stenstrom (in press) show the relative merits of individuating information to reduce group-based bias (Locksley, Borgida, Brekke, & Hepburn, 1980).

Finally, we examine specific *communicative* dynamics as potential mediators (Harwood & Giles, in press). Considerable research has demonstrated the ways in which *self-disclosure* is central in the *development* of relational intimacy and depth (Brewer & Gaertner, 2001; Laurenceau, Barrett, & Pietromonaco, 1998); indeed, Pettigrew (1997) emphasized it as a key part of the close interaction with out-group friends. The variable has been used previously as a measure of contact quality that successfully predicts intergroup attitude change under conditions where the out-group target is perceived as typical of his or her group (Ensari & Miller, 2002), and self-disclosure has also been examined as an outcome of prejudice reduction (Dovidio et al., 1997). Central to the notion of self-disclosure as a mediator is the idea that it establishes mutual trust and detailed knowledge about the other party that may disconfirm negative attitudes ("personalization": Miller, 2002; see Alicke, Klotz, Breitenbecher, Yurak, & Vredenburg, 1995). Within close relationships, self-disclosure is a manifestation of that closeness and a mechanism by which individuals construct more personalized views of one another. Personalizing the out-group member has the potential of leading to perceptions of the out-group as a whole in more "personalized" terms (in the sense, for instance, of being less likely to treat new out-group members in stereotypical terms).

The second communicative variable examined as a potential mediator is *communication accommodation*. Accommodation (adaptation to a communicative partner) is a crucial signal of interpersonal solidarity, and the absence of accommodation is often a signal of intergroup differentiation (Shepard, Giles, & LePoire, 2001). Specific dimensions indicating a lack of accommodation include overaccommodation (going "too far" in accommodating another: Giles & Williams, 1994) and underaccommodation (paying insufficient attention to the other's needs: Coupland, Coupland, Giles, Henwood, & Wiemann, 1988). Research shows that these constructs are related in predictable ways to grandparent-grandchild relational closeness (Harwood, 2000). As

with self-disclosure, we argue that these are behavioral manifestations of closeness that, once enacted, serve as a springboard for generalization to the out-group—for example, if a close relationship leads to communication that is sensitive to the out-group partner's needs, that will facilitate a broader sensitivity to other out-group members' needs, and that sensitivity may lead to attitude change concerning the group as a whole.

The argument we are making here concerning mediators is compatible with the hypothesized impact of group salience on the process of generalization. In addition to the importance of group-level processing, phenomena occurring at the level of interactions with specific out-group members may also be important in determining particular attitudinal outcomes. This has particular resonance in the current study given the inclusion of attitudes and perceived out-group variability as criterion variables. If *different* variables mediate the contact-attitudes and contact-variability links, this may lead to theoretical developments in understanding how perceptions of the out-group develop on multiple dimensions.

We would also note here that the relationship between quality of contact and some of the mediators we propose is probably bidirectional. For instance, considerable work has shown that self-disclosure plays an important role in the development of relational closeness and hence in determining quality of contact. However, our interest is not in explaining relational closeness as an outcome but rather exploring how high-quality relationships facilitate specific behaviors that may then have more or less power to generalize to perceptions of the out-group as a whole.

Study 2 was conducted in the United Kingdom. We know little about differences between North America and Western Europe in terms of attitudes concerning aging or the nature of the grandparent-grandchild relationship.<sup>2</sup> The majority of cross-cultural work has examined more radical cultural differences (e.g., North America vs. Asia: Harwood et al., 1996). We see no reason to expect that the central processes surrounding intergroup contact would differ in the United Kingdom and the United States. Prior work has spanned the globe without suggestions that regional differences moderate the nature of intergroup contact effects (Pettigrew & Tropp, 2000).

In summary, Study 2 examined the Study 1 moderation effects in the most "active" grandparent relationship. In addition to examining attitudes, we examined perceived out-group variability as a criterion variable. The process by which attitudes change was explored by considering some potential mediators measured at the individual level. Unlike much previous research, we explored mediation and moderation effects *simulta-*

*neously* to understand whether moderation effects occur between predictor and mediator, and/or between mediator and criterion.

### Method

Questionnaires were completed by 100 student volunteers at a large British university (55 female students, 45 male students, aged 19-26 years,  $M = 19.92$  years,  $SD = 1.59$ ). The questionnaire had two counterbalanced sections. The first asked about “the grandparent with whom you currently interact most regularly.” The second asked about “older adults in general (people over 65)”. The measures are described below. Descriptive statistics, scoring, and correlations for measures are reported in Table 3. No order effects were detected.

#### MEASURES

*Predictor variable.* Quality of contact was measured by two items: the Inclusion of Other in the Self (IOS) Scale (Aron, Aron, & Smollan, 1992) and “relative to your other relationships with grandparents, how would you characterize your relationship with this grandparent?” (*not at all close—extremely close*). These two items yielded a reliable index ( $\alpha = .76$ ).

*Moderator variable.* Group salience was measured as in Study 1 ( $\alpha = .72$ ).

*Mediator variables.* *Perspective taking* was assessed with three items from Batson et al. (1997; see Davis, 1994) (see things from her or his point of view, put yourself in other’s shoes, relate to her or him if something personal is disclosed:  $\alpha = .73$ ). To measure *anxiety*, respondents rated their feelings during interactions with their grandparent using four items from previous research (Paolini, Hewstone, Cairns, et al., in press; Voci & Hewstone, 2003) (awkward, happy [R], self-conscious, relaxed [R]:  $\alpha = .87$ ; items denoted [R] were reverse scored). These items were based on Stephan and Stephan’s (1985) original work. *Individuation* was measured with two items (“learn something about differences between elderly people”; “learn some unique information about this grandparent, something that helps you to think about her or him as a specific individual”:  $\alpha = .56$ ). *Self-disclosure* was measured using three items assessing participants’ level of self-disclosure with their grandparents (how much do you express your feelings, how much personal information do you disclose, how personal is the information that you disclose) and three items assessing perceptions of the same behaviors from the grandparent to the grandchild. The six items, from Laurenceau et al. (1998), constituted a reliable measure of reciprocal self-disclosure ( $\alpha = .88$ ). *Accommodation* was measured with seven items from previous work by Williams et al. (1997: He or she compliments me, he or she treats me like a child [R], he or she talks down to me [R], he or she

complains about life circumstances [R], he or she complains about health [R], I talk about topics my grandparent enjoys, I compliment my grandparent,  $\alpha = .75$ ; items denoted [R] were reverse scored). The items assess grandchild and grandparent accommodation as well as grandparent over- and underaccommodation.

*Criterion variables.* Attitudes toward older adults were measured as in Study 1 ( $\alpha = .84$ ). Perceptions of out-group *variability* were measured using 12 evaluative scales derived from pretesting of elderly stereotypes among British students (100-mm lines labeled: *caring, self-centered, fit, wise, impulsive, self-confident, fashion-conscious, traditional, painstaking, easy going, honest, and arrogant*). Respondents indicated where the *most extreme* older adults in each direction might fall with two slashes on the line. The distance between the two marks was measured, and the average distance across the scales was calculated ( $\alpha = .93$ ).

### Results and Discussion

*Moderation analyses.* We conducted two regression analyses considering as criterion variables *attitudes* toward the elderly and perceived *variability*. The predictors were quality of contact, group salience during contact, and their product (the means of the two terms were zero-centered). Perceived *variability* was influenced by contact quality only,  $b = 11.06$ ,  $SE = 1.87$ ,  $p < .001$ ;  $R^2 = .28$  (age salience  $b = .77$ ,  $SE = 1.46$ ,  $p = .60$ ; interaction term  $b = 1.06$ ,  $SE = 1.51$ ,  $p = .48$ ). *Attitudes* were significantly affected by contact quality,  $b = .32$ ,  $SE = .11$ ,  $p < .005$ , and by the interaction term,  $b = .23$ ,  $SE = .09$ ,  $p = .01$ ;  $R^2 = .18$  (age salience  $b = -.05$ ,  $SE = .08$ ,  $p = .53$ ). The decomposition of this moderational effect (Jaccard et al., 1990) showed that quality of contact enhanced *attitudes* when group salience was high,  $b = .59$ ,  $SE = .14$ ,  $p < .001$ , not when group salience was low,  $b = .05$ ,  $SE = .15$ ,  $p = .73$ .

*Mediation analyses.* Each of the potential mediators meets the prerequisites for mediation to be examined (Baron & Kenny, 1986; Wegener & Fabrigar, 2000). Each is correlated with both the predictor (contact quality) and the criterion variable (attitudes, variability). Moreover, the predictor and criterion variables are correlated as required for a mediation analysis (Table 3). To test the effects, two regression analyses were performed for each mediator (Table 4). The first analysis examined quality of contact as a predictor of each mediator (column 1); the second examined the joint effects of contact quality and the mediator on the criterion variable (columns 2 and 3). Significance of mediation was assessed using the Goodman (1960) test, which examines whether the relationship between contact and attitude is significantly *reduced* by inclusion of the mediator.



**TABLE 3: Means, Standard Deviations, and Correlations Between Predictor Variable, Potential Mediators, and Criterion Variables (Study 2)**

Variable	M	SD	1	2	3	4	5	6	7	8
1. Contact quality	0.00	0.90								
2. Group salience (1-7)	4.01	1.17	-.25*							
3. Perspective taking (0-4)	2.84	0.76	.57***	-.31*						
4. Anxiety (0-4)	1.22	0.99	-.58***	-.42***	-.64***					
5. Individuation (1-4)	3.00	0.76	.38***	-.09	.35***	-.24*				
6. Disclosure (0-4)	1.98	0.90	.64***	-.19 <sup>(*)</sup>	.59***	-.49***	.55***			
7. Accommodation (0-3)	1.97	0.44	.44***	-.42***	.49***	-.58***	.24*	.42***		
8. Attitudes (1-7)	5.00	0.99	.32***	-.18 <sup>(*)</sup>	.48***	-.46***	.18 <sup>(*)</sup>	.27**	.41***	
9. Variability (0-100)	60.61	18.75	.52***	-.10	.38***	-.37***	.48***	.48***	.25*	.12

NOTE: Contact quality is a predictor variable, salience is a moderator, attitudes and variability are criterion variables, and the remainder are mediators. In all cases, higher scores indicate more of the named construct (more disclosure, more individuation, etc.). The measure of contact quality is the combination of inclusion of other in the self ( $M = 3.78, SD = 1.63$ ; scale from 1 to 7) and closeness of contact ( $M = 2.66, SD = 1.02$ ; scale from 0 to 4). Due to their different scales, they were standardized before being combined. Hence, the mean of the combined scale is zero.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ . <sup>(\*)</sup> $p < .08$ .

**TABLE 4: Mediation in the Relation Between Contact Quality and Dependent Measures (top panel, attitudes; bottom panel, perceived variability) (Study 2)**

Mediator	Contact-Mediator		Mediator-Attitude		Contact-Attitude via Mediator		R <sup>2</sup>	Goodman Test
	b	SE	b	SE	b	SE		
Perspective taking	.48	.07***	.58	.14***	.08	.12	.24	3.55***
Anxiety	-.64	.09***	-.41	.11***	.10	.12	.22	3.28**
Individuation	.32	.08***	.09	.14	.33	.11**	.11	0.62
Disclosure	.64	.08***	.11	.10	.29	.14*	.11	1.08
Accommodation	.21	.04***	.74	.23	.20	.11	.19	2.71**

  

Mediator	Contact-Mediator		Mediator-Variability		Contact-Variability via Mediator		R <sup>2</sup>	Goodman Test
	b	SE	b	SE	b	SE		
Perspective taking	.48	.07***	2.89	2.59	9.55	2.19***	.28	1.10
Anxiety	-.64	.09***	-1.83	1.99	9.76	2.21***	.28	0.90
Individuation	.32	.08***	8.26	2.16***	8.29	1.82***	.37	2.72**
Disclosure	.64	.08***	5.22	2.27*	7.59	2.28***	.31	2.21*
Accommodation	.21	.04***	1.08	4.13	10.71	2.01***	.27	0.26

NOTE: For the relation between contact quality and attitude without mediation:  $b = 0.36 (SE = .11)***, R^2 = .11$ . For the relation between contact and variability without mediation:  $b = 10.94 (SE = 1.80)***, R^2 = .27$ .

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

Table 4 shows that perspective taking, anxiety, and accommodation fully mediate the effects of contact quality on *attitudes* when they are examined separately (i.e., the relationship between contact and attitudes is *nonsignificant* once the mediator is included: column 3). However, self-disclosure and individuation, when entered separately, both partially mediate the effects of contact on *perceived out-group variability* (i.e., contact retains a significant relationship with perceived out-group variability even after the mediator is included). The significant mediators were then entered simultaneously into a further mediational analysis. As shown in Table 5, when all significant mediators are entered

together, only *perspective taking* retains significance as a mediator of the contact-attitudes relationship, and only *individuation* mediates the contact-perceived variability relationship.

*Moderated mediation.* First, we checked whether the mediational effects reported in Tables 4 and 5 were moderated by group salience. To do so, we conducted mediation analyses separately for participants with high versus low levels of group salience (median split, median = 4.10; high salience  $N = 49$ , low salience  $N = 51$ ). When the criterion variable was perceived *variability*, no differences emerged in the mediational role of disclosure and individuation. Concerning *attitudes*, the mediation of

**TABLE 5: Simultaneous Mediation in the Relation Between Contact Quality and Attitude (top panel) and Contact Quality and Variability (bottom panel): Unstandardized Regression Coefficients (Study 2)**

Mediator	Contact-Mediator		Mediator-Attitude		Goodman Test
	b	SE	b	SE	
Perspective taking	.48	.07***	.39	.16**	2.28*
Anxiety	-.64	.09***	-.19	.13	1.42
Accommodation	.21	.04***	.38	.24	1.49

  

Mediator	Contact-Mediator		Mediator-Variability		Goodman Test
	b	SE	b	SE	
Individuation	.32	.08***	7.38	2.40***	2.39*
Disclosure	.64	.08***	2.07	2.40	0.86

NOTE: For the relation between contact quality and attitude via mediation:  $b = -.03$  ( $SE = .12$ ). For the relation between contact quality and variability via mediation:  $b = 7.25$  ( $SE = 2.19$ )\*\*.

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

perspective taking, anxiety, and accommodation was significant only when group salience was high (for perspective taking, Goodman test = 2.06,  $p < .04$ ; for anxiety, Goodman test = 1.72,  $p < .09$ ; for accommodation, Goodman test = 2.01,  $p < .05$ ; all tests were nonsignificant with low salience). These moderated mediation effects may occur because the moderator affects the relation between the predictor and the mediator or between the mediator and the criterion variable (Wegener & Fabrigar, 2000). To clarify this point, we examined the presence of moderational effects in the links between contact and each mediator, and between each mediator and the criterion variables. Results showed that the paths affected by group salience are the ones between contact quality and mediators. The decomposition of moderational effects (Jaccard et al., 1990) showed that contact quality affected perspective taking more when salience was high,  $b = .62$ ,  $SE = .92$ ,  $p < .001$ , than when salience was low,  $b = .24$ ,  $SE = .10$ ,  $p < .02$  (moderation significant,  $p < .005$ ). Anxiety was reduced by contact more when group salience was high,  $b = -.87$ ,  $SE = .11$ ,  $p < .001$ , than when salience was low,  $b = -.22$ ,  $SE = .12$ ,  $p = .06$  (moderation significant,  $p < .001$ ). Finally, the link between contact and accommodation was significant only when salience was high,  $b = .26$ ,  $SE = .06$ ,  $p < .001$ ; when salience was low,  $b = .06$ ,  $SE = .06$ ,  $p = .23$  (moderation significant,  $p < .03$ ).<sup>3</sup>

#### GENERAL DISCUSSION

Current theory (Richards & Hewstone, 2001) suggests two ways in which individuals process information about out-group members. When group memberships are salient, individuals are perceived as members of the group, and contact has the potential to change group

perceptions. However, when salience is low, it is unlikely that perceptions of the group will be changed—contact has no implications for group attitudes when the out-group individual's group affiliation is not noticed or processed. Both studies support this prediction for a new out-group in the literature (older adults) and in a new relational context (the family). Study 1 demonstrated that group salience moderates the relationship between contact quality and attitudes for grandparents with whom the grandchild has relatively frequent contact, but not for less frequently encountered grandparents. Combined with the highly significant effects found in Study 2 for the most frequently contacted grandparent, we would suggest that future research might find a role for contact quantity as a necessary but not sufficient element in the contact equation (Allport, 1954; Pettigrew, 1998).

Study 2 further investigated the nature and impact of grandparent-grandchild contact by (a) examining the effects of various mediators in the process and (b) simultaneously examining mediation and moderation processes in influencing attitudes and perceived out-group variability. Study 2 examined only the more frequently contacted grandparent. The effects of the mediators in Study 2 suggest some important directions for theory and research. Specifically, three variables (perspective taking, anxiety, accommodation) were effective in mediating the relationship between quality of contact and attitudes. These three mediators can all be seen as broadly associated with satisfying and enjoyable interaction and how this is communicated. Of these three mediators, perspective taking is the most powerful. Seeing things from the other's point of view and putting yourself "in their shoes" appear to be crucial in connecting contact with a grandparent and out-group attitudes. This finding is consistent with recent research by Aron and colleagues on their self-expansion model. In their view, an out-group member (and, in turn, his or her out-group) can become included within an extended notion of the self (Aron, Aron, & Norman, 2001). Aron et al. (in press) see the other's perspective as a resource that accrues as part of self-expansion. Therefore, close, intimate contact with an out-group member (a friend or, in our case, a family member) results in increased ability to see things from his or her point of view; feelings of empathy for that person; and, as a result, greater understanding and more positive affect toward his or her group.

In contrast, the two variables that mediate the relationship between contact quality and perceived out-group variability (self-disclosure and individuation) both relate to the *uniqueness* of the contact partner as distinct from other group members. These variables characterize relationships that have moved beyond casual contact and into more individuated conceptions of the other.

Our data indicate that for a relationship to affect perceptions of out-group variability, pleasant contact is not sufficient. Rather, out-group individuals must demonstrate their uniqueness. This is theoretically consistent with Miller's (2002) work on individuation. As the individual out-group member is perceived as more unique and complex, so homogeneous perceptions of the out-group become less tenable.

These findings suggest interesting avenues for future research and theory. Previous work on mediators has been fairly limited, focusing primarily on anxiety (Islam & Hewstone, 1993). The current findings suggest that a broader range of variables might be considered as mediators and also that mediators may fall into at least two quite distinct types (and not necessarily ones that reflect our a priori organization). The first type concerns primarily affective relational processes, and these mediate the effects of contact on *attitudes*. These variables support pleasant and satisfying interaction. For instance, the use of humor and social support might be other interesting empirical avenues to explore here. The second type establishes unique insight into the specific out-group member encountered, and these variables mediate the effects of contact on perceived out-group variability. Thus, the *processes* underlying the influence of contact on attitudes are somewhat distinct from those underlying its influence on perceived variability. This suggestion is supported by the weak association between attitudes and perceived out-group variability in Study 2:  $r = .12$ , *ns* (by no means unique to this study; for a discussion and similar effect, see Paolini, Hewstone, Cairns, et al., in press). If this is the case, then it should be possible to manipulate independently conditions that affect these processes. Such independence is theoretically interesting and also has practical applications: For example, interventions aimed at changing *multiple* undesirable aspects of out-group perception may have to include multiple dimensions of contact.

To our knowledge, the only other research to have tested mediation and moderation simultaneously in intergroup contact was conducted by Voci and Hewstone (2003) assessing Italians' prejudice toward immigrants. They found that group salience moderated the path from contact to the mediator (anxiety), but they did not also test for moderation of the path from the mediator to the criterion variable (because in their study, both mediator and criterion variables already referred to the group in general). In the present research, with out-group attitudes as the criterion variable, we again detected consistent evidence that the effect of contact on some of the mediators (perspective taking, anxiety, accommodation) was moderated by the salience of group memberships during contact. We explain these three moderated mediation effects in

terms of the nature of grandparent-grandchild relations, age-based attitudes, and schematic associations with intergenerational communication. When quality contact in a positive family relationship is combined with category salience, we suspect that positive stereotypes of age are activated (Hummert, 1990), and these are associated with perspective taking, reduced anxiety, and accommodation (e.g., "helping" and "sympathy" are common schematic associations with intergenerational communication: Harwood, McKee, & Lin, 2000). In contrast, when salience is low, the notions of warmth, caring, and sympathy that are schematically associated with (positive) intergenerational communication will not be active, and category-related mediators such as reduced anxiety are not instigated. In essence, we argue that activation of positive stereotypes concerning intergenerational communication can result in particularly positive scores on these specific mediators. Age salience boosts impressions of comfort, a lack of threat, and sympathy for the partner; this is evident from the finding that anxiety was reduced by contact only when group salience was high. Such effects are less likely in most interethnic contexts, where even positive stereotypes do not include such warm and tender reactions to the out-group. Indeed, the usual finding is that intergroup contact is associated with *increased* anxiety (e.g., Islam & Hewstone, 1993; Voci & Hewstone, 2003). The lack of moderation in the link between quality of contact and the two mediators connected to perceived variability confirms this reasoning: Neither individuation nor disclosure are involved in age-based stereotyping. Thus, in this case, category salience has no facilitating effect in the activation of the mediators.

Interestingly, the moderating effect of group salience did not emerge in the link from the mediators to attitudes (the criterion). Given that the influence of contact on the mediators was itself moderated by group salience, the mediators might well be more group-salient than they appear. For instance, as argued above, if lower levels of anxiety emerge because an *intergenerational* schema concerning "warm, caring, helping interaction" has been activated (Harwood et al., 2000), then low levels of anxiety are themselves fundamentally tied to the intergroup nature of the situation, and group salience is unlikely to serve any additional generalization function.

These data provide cross-sectional support for the moderating effects of group salience. Other explanations are possible (e.g., as suggested by a reviewer, individuals' perceptions of older people might affect their grandparent interactions *only when* their grandparents are perceived to be old). However, a causal interpretation of our results (i.e., from contact to mediator to outcome) is supported by experimental evidence (e.g., Desforges et al., 1991; Wilder, 1984) as well as analyses of

survey data indicating that the path from contact to attitudes is stronger than vice versa (Pettigrew, 1997). The role of contact frequency in Study 1 also supports a causal interpretation: If evaluations of older people influence evaluations of grandparents, that should happen equally for more and less frequently contacted grandparents. Finally (and perhaps unique to the present context), the grandparent relationship is a lifelong link for the young people in this study—it existed before they developed attitudes toward older adults. We would, nonetheless, advocate longitudinal work on the grandparent-grandchild relationship to further understand the power of this relationship to influence attitudes. We also suggest research that *manipulates* perceptions of the relationship. Most notably, age salience in grandchildren's thoughts about their grandparents could be manipulated (e.g., by writing about ways in which grandparents are similar to other old people or encouraging grandchildren to talk to their grandparents about age-related concerns). Such manipulations, if sufficiently powerful, should increase associations between feelings for the grandparent and more general attitudes toward aging.

## NOTES

1. Theoretically, it is important that group salience specific to the relationship is the key to generalization, rather than a traitlike tendency to experience high group salience. Two pieces of evidence support the importance of relationship-specific group salience. First, we repeated the moderator analyses, replacing the group salience moderator with the measure of group salience for the other grandparent relationship (i.e., in examining the effects of contact with the high-frequency relationship, we used the group salience measure for the low-frequency relationship, and vice versa). Neither analysis demonstrated significant moderator effects, showing that group salience needs to be tied to a specific target. The correlations in Table 1 also refute the notion that group salience is a trait—the correlations involving salience across different relationships in Table 1 are more variable than would be expected from a trait.

2. Observations of media and interpersonal discourse suggest that age-based political correctness is less powerful and that discourses of aging are at times more *explicitly* derogatory in the United Kingdom than the United States. Comparisons of identical attitude measures in our two studies informally support this notion (our data were not drawn from representative national samples). The U.S. respondents in Study 1 ( $M = 5.66$ ,  $SD = .90$ ) scored more positively than the U.K. respondents in Study 2 ( $M = 5.00$ ,  $SD = .99$ ;  $t[289] = 5.49$ ,  $p < .001$ ,  $r^2 = .09$ ).

3. All analyses were replicated incorporating a more general measure of contact with older people (other than grandparents) as a control variable. Four items were used to measure this: number of conversations in a month, number of conversations in a year, number of older people (older than 65) known pretty well, and overall amount of contact (with older people). The variables were standardized and resulted in good reliability (Study 1,  $\alpha = .78$ ; Study 2,  $\alpha = .71$ ). Across both studies, addition of this variable changed none of the significant results.

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