

The single factor fallacy:
Implications of missing critical variables from an analysis of
intergroup contact theory¹

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Abstract

The single factor fallacy occurs when social scientists model their applied work largely around a single factor. The problem generally arises when either a highly relevant theory is ignored or when missing key variables distort the results. Examples of this fallacy are drawn from the expanding research literature on intergroup contact, where we discuss the implications of missing critical variables from the analysis (including segregation, effects of negative as well as positive contact, extended contact, and contact when the outgroup is in the majority). The policy issues involved include racially desegregated schools, minority protest, the impact of neighborhood diversity, and anti-immigration voting. Three suggestions for avoiding the fallacy are emphasized – the use of mediation-moderation analysis, longitudinal research and multilevel analysis. We end by outlining five simple principles, based on our own experience in the U.S. and the U.K., that may increase the impact of social scientists' research on public policy.

Many social scientists want their theory and research findings to inform social policy. This is especially true of social psychologists.

Indeed, the Society for the Psychological Study of Social Issues and the journals it sponsors are dedicated to this purpose. Moreover, many social scientists have their favorite theories and research findings that they have spent years developing and wish to apply to social policy. These two inclinations set the scene for repeated and unfortunate occurrences of what can be termed *the single factor fallacy*.

Of course, social scientists are painfully aware that the world is highly complex, that virtually all social phenomena are multivariate. Yet strong beliefs in our own work lead all too often to the attempt to build one's applied work largely around a single factor. This paper discusses this problem first by providing some actual examples of the phenomenon and then offers suggestions for avoiding the problem. The illustrative cases are all drawn from work on one specific theory – intergroup contact (Brown & Hewstone, 2005; Hewstone & Swart, 2011; Pettigrew, 1998, 2011, 2016; Pettigrew & Tropp, 2006, 2008, 2011) – on which we have focused our own research attention. The fallacy generally arises in two forms – either a relevant rival theory is ignored or missing variables distort the results.

Unconsidered Rival Theories

Intergroup Contact and Stereotype Threat

The first example involves the implications for racially desegregated schools in the United States of two well-established theories in social psychology (Pettigrew, 2011), namely intergroup contact and stereotype threat. Positive outcomes of most intergroup contact have now been firmly established by a series of meta-analyses (Davies et al., 2011; Lemmer & Wagner, 2015; Pettigrew & Tropp, 2006, 2008, 2011). Literally hundreds of studies throughout the world demonstrate that intergroup contact with many different target outgroups – racial, ethnic, gays and straights, mentally and physically impaired and unimpaired, etc. – typically leads to a host of positive outcomes.

Given such contact benefits, one is tempted to project this on to interracial schools and expect largely positive effects. But this would completely ignore other psychological processes that are equally well established – a classic single factor fallacy. Research shows that intergroup threat can retard and sometimes even reverse the effects of intergroup contact. As Pettigrew and Tropp (2006) noted in discussing the results of their meta-analysis, "Not all contact experiences are positive, of course. Although most of the contact studies in our analysis focused on positive contact outcomes, some recent work has shown that negative intergroup experiences can enhance feelings of anxiety and threat and hinder the development of

positive orientations toward the outgroup” (p. 767; see also Pettigrew & Tropp, 2011, Chapter 12).

It is hardly surprising that threat is a key factor that can mitigate the positive effects of contact. Think of Steele’s (1997, 2010) incisive work on *stereotype threat*. He and his colleagues show across race, gender, and nationality that people perform less well when in the presence of a member of an outgroup that stereotypically is believed to perform better than their ingroup. Thus, on tests of mathematical ability, women do less well in the presence of men, white Americans less well in the presence of Asian-Americans, and African Americans less well in the presence of white Americans.

Ignoring the intergroup contact research literature and other psychological processes and focusing alone on stereotype threat, one might conclude that desegregated schools across race, gender and nationality would not be a wise social policy – another example of the single factor fallacy. Obviously, both phenomena must be carefully considered in designing effective integrated schools. Ways to maximize the benefits of intergroup contact while minimizing stereotype threat must be devised – a far more complex task than simply attending to one or the other of these concerns. But even this might be merely a two-factor fallacy – as we discuss later.

A Potentially Negative Effect of Intergroup Contact

Another example of the fallacy arises from recent research that is concerned with the ability of minorities to mobilize for change, and a possible unintended negative effect of intergroup contact. Minority members typically reveal less prejudice against the majority after typical intergroup contact - although this change is generally less than the simultaneous prejudice reduction of majority members (Tropp & Pettigrew, 2005). At first reading, this latter result seems beneficial for intergroup relations. But if the minority is still subject to continued discrimination, they need to protest their mistreatment. Yet liking your oppressors deters protest. Numerous studies demonstrate that minority members who have experienced the most intergroup contact are in general more reluctant to protest for change (Dixon et al., 2010; Saguy, Tausch, Dovidio & Pratto, 2009; Wright & Lubensky, 2008; for a review see Becker & Tausch, 2016).

Some writers have seized on this phenomenon alone to argue against the value of intergroup contact in general. Here we encounter another example of the single factor fallacy. As usual, this one process is not the whole story of how intergroup contact affects minority protest. At least three other processes at the individual level of analysis must be considered. First, intergroup contact also improves the attitudes of members of the advantaged group toward both the disadvantaged group and intergroup policies. Mallet,

Huntsinger, Sinclair and Swim (2008) reported that majority members who showed greater perspective taking of the minority were most likely to join in collective action to oppose hate crimes committed against African Americans as well as gay men and lesbians. Cakal, Hewstone, Schwär, and Heath (2011) showed that white South Africans' positive contact was associated with support for black South Africans' cause; and Fingerhut (2011) found that positive contact often motivates heterosexual allies' involvement in the LGBT movement. This effect weakens majority members' resolve to maintain the discriminatory status quo and encourages the minority to believe that protest could succeed (Pettigrew & Tropp, 2011).

Second, intergroup contact allows the disadvantaged to ascertain to what extent majority members are aware of the moral inconsistency of their position, which can then be exploited in protests for change. In America's Civil Rights Movement, black Southerners who knew whites best realized that many whites did in fact sense Myrdal's (1944) "American dilemma," that they worried that racial discrimination may somehow be "unAmerican" and "unChristian." Thus, the Movement ensured that protests made full use of national and religious symbols from flags to the singing of the national anthem and church hymns.

Third, and most importantly, intergroup contact can also heighten a disadvantaged group's sense of *group relative deprivation*

(Pettigrew, 2015, 2016; Smith, Pettigrew, Pippin & Bialosiewicz, 2012; Walker & Smith, 2002). Contact provides the opportunity for minorities to learn what the majority possesses that is denied them. Thus, Poore and his colleagues (2002) found that group discrimination ratings were markedly higher for Inuits who had had contact with mainstream Canadian culture.

Before concluding too quickly that inter-group contact undermines progress, the reader might reflect on historical and contemporary examples. Historically, consider the active engagement of Whites in both the Civil Rights Movement in the U. S. and in the anti-apartheid struggle in South Africa. Nelson Mandela, in his autobiography *Long Walk to Freedom* (1994), writes of the many people who shared with him “the ups and downs of the liberation struggle” (p. 104), including Joe Slovo, Ruth First, and Bram Fischer - all of them white. Opposition to interracial cooperation was, in fact, a key policy difference that divided the Pan-Africanist Congress from the African National Congress. A more contemporary example is found in the “LGBT+” movement in the United Kingdom, which has a culture of involving heterosexual people (Russell, 2011) in, for example, gay-straight campus alliances.

All three of these complex processes must be considered when we extrapolate contact theory’s effects to the macro-level of societal

protest. Unfortunately, to date, we know of no study that investigates all three of these individual-level processes simultaneously. However, multi-level analyses are now being published that do answer directly the objections of these critics of contact theory.

For example, Kauff et al. (2016) tested the critics' claim, that contact held back social change, in two cross-sectional general population surveys, one across 22 European nations (using European Social Survey data), and one using national data in Switzerland. Both studies used multi-level techniques, which importantly take account of the fact that individuals are nested in higher-order units, such as neighborhoods and regions, an approach which underlines that the effects of contact are not merely interpersonal, but also occur on a broader, societal level (see discussion of the 'contextual effect' of contact, below). Kauff et al. found that majority members' positive contact *positively* influenced ethnic minority members' support for ingroup rights at the societal level. Specifically, minority members were more likely to support anti-discrimination laws and immigrant rights when living in social contexts in which majority members have positive intergroup contact experiences.

Thus, this research provided evidence across two studies in support of a "mobilization," rather than a "demobilization," hypothesis: majority members' favorable contact at the social context level was

associated with *increased* willingness on the part of the minority to endorse their ingroup rights. In addition, both studies replicated the positive association between majority members' intergroup contact and their greater support of minority rights, in line with the first process considered above (see also Dixon, Durrheim, & Tredoux, 2007).

Kauff et al.'s (2016) confutation of prior assertions may well reflect the operation of the three individual-level processes proposed above. Later we will return to this promising use of multi-level analyses to combat single factor fallacies.

Missing Critical Variables

Intergroup Contact and Segregation

A half-century ago, many investigators repeatedly found that racial prejudice and discrimination were greatest in those areas of the racially segregated South that had the highest proportion of Black citizens - an apparent threat effect, first studied by Key (1949) and later confirmed in several papers (e.g., Blalock, 1967; Pettigrew, 1957; Pettigrew & Campbell, 1960; Pettigrew & Cramer, 1959; see Oliver & Wong, 2003). But these studies all took place in areas with strict segregation. The early investigators (including this paper's first author) failed to see that these negative effects of diversity could be offset by the greater intergroup

contact that could ensue if there were no structural barriers to the contact. These dual, albeit opposing, effects of diversity – greater threat and greater contact – have now often been demonstrated (e.g., Pettigrew, Wagner, & Christ, 2010; Wagner, van Dick, Pettigrew & Christ, 2003; Wagner, Christ, Pettigrew, Stellmacher, & Wolf, 2006). Hence, by concentrating exclusively on white threat from the proportional size of the Black population, researchers committed the single factor fallacy by ignoring the role of racial segregation limiting positive interracial contact effects.

Unfortunately, Putnam (2007), a political scientist, in a much-publicized paper repeated this mistake five decades later (Pettigrew & Tropp, 2011, pp. 164-67). Failing to control for either intergroup contact or neighborhood segregation, he found that intergroup diversity *increased* intergroup (and even ingroup) distrust. Studies that did take account of either contact or segregation yielded a different picture.

Looking first at the importance of taking account of measures of intergroup contact, in a study aimed at comprehensively testing Putnam's (2007) claims, Schmid, Al Ramiah and Hewstone (2014) investigated the relationship between objective and perceived neighborhood ethnic diversity and both trust (outgroup, ingroup and neighborhood trust) and intergroup attitudes in a large neighborhood-based sample of the general population (ethnic majority and minority)

of the UK. They tested these relationships while accounting for intergroup contact and perceived intergroup threat, thereby examining potential indirect effects of diversity on trust and attitudes via these two mediators. (For reasons of space and for comparison with Putnam's, 2007, study, we focus here on the results for the ethnic majority and objective diversity).

In their data analysis, Schmid et al. calculated direct, indirect and total effects of both actual and perceived diversity on all three types of trust, and intergroup attitudes, separately for the White British majority and the ethnic minority samples. Direct effects simply involve the estimation of direct relationships between diversity and the various outcome variables. Indirect effects refer to the mediated effects of diversity on the outcome variables, such that one is able to assert indirect relationships between diversity and trust and attitudes, via intergroup contact and perceived threat. Total effects refer, then, to the sum of the direct and indirect effects for each of the outcome variables, which allow us to gauge the overall, or net, effect of diversity on each outcome once the mediators were accounted for.

Schmid et al. found that for the majority (White-British) respondents diversity was directly associated with lower outgroup and neighborhood trust, similar to effects reported by Putnam (2007) and others. Yet, unlike Putnam's (2007) findings, they did not observe a

significant negative effect of diversity on ingroup trust, or on outgroup attitudes. Using the additional measure of contact, they were also able to show an effect that Putnam's analysis did not - namely that greater diversity was associated with increased contact with ethnic minorities in the neighborhood. And this effect in turn was associated with reduced intergroup threat perceptions. Consequently, all indirect effects of diversity via the mediators of contact and threat were positive, for all types of trust as well as outgroup attitudes. The total effects of diversity on trust and attitudes were all non-significant for trust, and were, in fact, positive for outgroup attitudes. These findings show that any direct negative effects of actual diversity in the neighborhood were canceled out once the indirect effects via intergroup contact were taken into account.

Looking next at the importance of segregation measures, Uslaner (2012; see also Rocha & Espino 2009; Rothwell, 2012), using the same survey data set as Putnam (2007), but carefully including segregation measures, found in multiple analyses that it was neighborhood segregation and not diversity per se that related to intergroup distrust.

Laurence, Schmid and Hewstone (under review) subjected the White-British data of Schmid et al. (2014) to further analysis by entering objective measures of neighborhood segregation. They

suggested that whether outgroup exposure generates processes of threat and/or contact (and thus how it affects prejudice) will not solely depend on the *size* of the outgroup in a community but also on how groups are distributed across it, i.e., the level of *segregation*. As Laurence et al. noted, at equally high levels of outgroup exposure, residents may potentially perceive outgroups as a greater threat in more segregated communities. With segregation, because outgroups will be more spatially concentrated, this may, as Allport (1954, pp. 18-19) himself noted, “exaggerate the degree of difference between groups”, making the outgroup “seem larger and more menacing than it is.”

Laurence et al. found that neither outgroup size nor level of segregation was directly associated with outgroup attitudes. However, there was a strong and significant *interaction* between the two. Specifically, increasing exposure had a strong negative association with outgroup attitudes in segregated communities. Further analysis supported the idea that this relationship emerged as a result of processes of threat and positive inter-ethnic contact being moderated by segregation.

In sum, the evidence for “the Putnam effect” is, at best, quite mixed. European researchers often fail to replicate the effect (e.g., Gesthuizen, Van der Meer & Scheeper’s, 2008, study in 28 nations). For

a fuller response to Putnam, see Hewstone (2015) and Abascal and Baldassarri (2015); and for a meta-analysis of the effects of diversity on trust, see van de Meer and Tolsma (2014). In short, the Putnam effect does sometimes occur, but far from always; it is stronger in the U.S. than in Europe; it is most likely to occur on measures of neighborhood trust; and it is heavily qualified, even wiped out, when a measure of contact is included in the analysis.

The Putnam paper offers a striking example of the importance of omitted variables in social science analyses. And here the single factor fallacy has had serious effects on public policy. Publicizing his thesis widely, Putnam's contentions gained immediate media attention. Considered alone without reference to intergroup segregation, his findings were widely interpreted as having shown that intergroup contact has negative effects. A Google search uncovers such headlines as "diversity is our destruction," "Harvard study says diversity is bad for you," and "diversity harms human relations." A *Wall Street Journal* columnist cheerfully pronounced "the death of diversity" (Henninger, 2007).

Questionable results related to controversial public policies – such as racial desegregation – will be quickly seized upon by political partisans and contorted further to fit their ideological preferences. Of course, no social scientist should be held responsible for the headlines that others

write about their research. But it reminds us of our responsibilities and that our research can have consequences, for better or worse.

The Shortcomings of Cross-Sectional Analyses

In fluid intergroup situations that feature fast change, critical factors are often overlooked by cross-sectional analyses. A pertinent example is provided by the 2016 Brexit vote in England and Wales (*The Economist*, 2016). (Scotland voted overwhelmingly to remain in the European Union.)

Surveys of individuals repeatedly indicated that anti-immigration attitudes played a significant role in the surprisingly large leave-the-EU vote. But a macro-analysis by local authority areas showed precisely the opposite pattern of voting. Areas with relatively large immigrant populations, especially cities such as London, voted heavily to remain in the EU, while areas with relatively few immigrants voted heavily to leave the EU. But when a longitudinal analysis is applied, the key variable emerged: *the speed of change* in the immigrant population. Areas with modest immigrant populations in 2000 that had witnessed more than a 200% rise in immigrants by 2015 voted an astounding 94% to leave the EU.

This striking result is another example of the delicate balance between threat and contact discussed earlier. London and other major English cities had had long experience with immigrants, and had

increased their diversity relatively gradually. Time had reduced threat and enhanced positive intergroup contact. But for small towns and rural districts threat prevailed and optimal contact was as yet minimal. Once again we witness these dual effects of diversity.

If researchers had employed only the cross-sectional macro-approach, they would have missed a key factor in the Brexit election. There is a generic warning in this example. Social processes that entail rapid change require longitudinal research designs. Key variables are likely to reflect this change, and cross-sectional designs will routinely overlook them.

Negative vs. Positive Intergroup Contact

Another variant of the single factor fallacy occurs when absolute conclusions are made on the basis of one factor and even one study. A signal example is provided by Barlow et al. (2012). They claimed that, although positive contact is more common, negative contact has a stronger effect on levels of prejudice. Although not the focus of their investigation, this pattern has also been found in several other studies (e.g., Bekhuis, Ruiter, & Coenders, 2013; Graf, Paolini, & Rubin, 2014). But other studies have found the effect of positive contact on prejudice to be larger than that of negative contact (e.g., Aberson & Gaffney, 2009; Pettigrew & Tropp, 2011; Pettigrew, Tropp, Wagner, & Christ, 2011). In addition to the inconsistent findings across these

studies, only the results of Barlow et al. (2012, Study 2), Graf et al. (2014) and Pettigrew and Tropp (2011) uncovered statistically significant differences between the effects of positive and negative contact on prejudice.

Barlow and her colleagues titled their paper: “The contact caveat: Negative contact predicts prejudice more than positive contact predicts reduced prejudice.” Such a flat assertion violates Karl Popper’s (1959) famous swan example in discussing his falsification thesis. If you believe *all* swans are white, only one black swan is required to prove you wrong. Indeed, one reference actually cited in the Barlow paper describes in detail precisely such a black swan – with positive intergroup contact yielding a much larger effect than negative contact (Pettigrew & Tropp, 2011, p. 190). Obviously, other important variables are involved in the effects of positive and negative intergroup contact.

Recent work by Fell et al. (under review) has subjected this important domain to further analysis, moving on from the question of positive *versus* negative contact (which effect is greater?), to ask whether, and if so how, experiences based on the two types of contact *interact*. They reported five studies testing both the main effects and interactions of positive and negative contact across different contact settings in various countries, using cross-sectional, longitudinal, and

multi-level survey designs. They found evidence for interactions between positive and negative contact in all five studies. They then described and conceptually defined four specific interaction patterns: "buffering" (positive contact reducing the effect of negative contact), "positive augmentation" (negative contact increasing the effect of positive contact), "poisoning" (negative contact reducing the effect of positive contact), and "negative augmentation" (positive contact increasing the effect of negative contact). Across the five studies, Fell et al. found interaction profiles matching all of the specific patterns save "poisoning." This suggests once again that multiple mechanisms are likely to be involved.

Our conclusion is not that negative contact does not matter. Of course it does. But we need to be exceedingly careful about overselling ostensible novel effects based on limited data. Even if subsequent evidence were to overturn it, Tropp's (2007) report that contact does not reduce prejudice when minority members perceive discrimination against their racial group offers a timely reminder that contact interventions do not replace a commitment to social justice and fair treatment but, rather, go hand-in-hand with them. On the theme of social justice, the valenced nature of contact also turns out to be important for the issue, considered earlier, of whether intergroup contact has a "sedative" effect on minority members, making them

reluctant to protest for change (for reviews, see Dixon, Levine, Reicher, & Durrheim, 2012; Wright & Baray, 2012).

Thus far, research on this demobilization hypothesis has, like most studies on intergroup contact, measured contact as a uni-dimensional construct, such as contact quality. In recent research, Reimer et al. (in press) studied the relationships between both positive and negative contact and collective action among LGBT+ students. In a first, cross-sectional study, they found that once they had accounted for negative contact, positive contact with advantaged-group members was no longer associated with *less* perceived discrimination or collective action. Instead, they found that negative contact was associated with *more* collective action. This suggests that since negative and positive contact are often correlated (especially among minority-group members), prior research may have confounded the *presence* of positive contact with the *absence* of negative contact.

In a second, longitudinal study of the same minority group in several European universities, Reimer et al. found that over time, negative, but not positive, contact with majority-group members predicted (more) perceived discrimination and, indirectly, more collective action intentions. Together, these studies underline the importance of measuring and studying both negative and positive contact, and not drawing conclusions too hastily.

Unexpected Effects of Direct Intergroup Contact:

Forms of Extended Contact

Even if there are some contexts in which direct contact does not yield reliable positive effects, it might still have other positive *indirect* effects, which were not envisaged by Allport (1954). So we turn next to the phenomenon of *extended contact*. This refers to the impact on prejudice of knowing about, or observing (so-called *vicarious* contact), at least one, and preferably more than one, ingroup member who has an outgroup friend (Wright, Aron, McLaughlin-Volpe, & Ropp, 1997).

Pettigrew and Tropp (2006) deliberately excluded tests of extended cross-group friendship from their meta-analysis, because they do not involve face-to-face contact. However, this relatively-recently identified form of contact is important and effective in its own right (for a comprehensive narrative review, see Vezzali, Hewstone, Capozza, Giovannini, & Wölfer, in press). Indeed, Zhou et al. (under review) recently completed a meta-analysis of 76 studies with 156 effect sizes from 26,873 participants and reported an aggregate relationship between extended contact and intergroup attitudes of $r = .28$, which reduced to $r = .17$ after controlling for the contribution of direct friendship. Perhaps surprisingly, these results indicate that extended contact predicts intergroup attitudes almost as well as direct friendship, and, moreover, it is especially effective for people with few

direct cross-group friends or who live in segregated rather than mixed communities (Christ et al., 2010).

One mooted advantage of extended contact is that it can function to prepare people for direct contact. Schofield, Hausmann, Ye, and Woods (2010) report evidence for this in a longitudinal study showing that extended contact prior to college was, in addition to other factors such as direct contact, a predictor of the formation of cross-group friendships during college among White and African Americans. Their model did not, however, control for later extended contact.

More recently, Wölfer, Schmid, Hewstone, and van Zalk (in press) examined the developmental dynamics between intergroup contact and intergroup attitudes using a large Swedish sample of almost 4,000 adolescents (13 to 18 years) and young adults (19 to 26 years) who were followed over four years. Notably, this research used a measure of extended contact derived from social network analysis. This method overcomes the psychometric weakness of the conventional measure of extended contact, which requires respondents to report on their ingroup friends' level of outgroup contact. Longitudinal Growth Models, which estimated the extent to which initial scores of variables (i.e., intercepts) affect the change of variables over time (i.e., slopes), suggested that both contact scores

bi-directionally enhanced each other. Although both direct and extended contact decreased over time, the intercept of extended contact did buffer the negative slope of direct contact and vice versa, thus providing some support for the positive longitudinal effect of extended contact on future direct contact.

Finally, Wölfer et al. (under review) systematically investigated this longitudinal effect across four large longitudinal studies. Cross-lagged models provided consistent evidence for the effect of extended contact on future direct contact, while mediation analyses in two studies that also measured intergroup anxiety (Studies 3 and 4) indicated that this effect can be explained by a reduction in intergroup anxiety. This result is consistent with the meta-analytic finding that anxiety reduction, together with increased empathy, is a major mediator of intergroup contact effects generally (Pettigrew & Tropp, 2008).

Taken together, this body of research confirms that, in principle, even if there is no reliable effect of direct contact, it may still have indirect effects whereby learning about someone else's experience of direct contact encourages others to take up contact opportunities that they might otherwise have missed.

An even broader conception of extended contact considers the level of contact in a social context (e.g., neighborhood, workplace, or

school) in which a respondent is located. Previous research on intergroup contact effects has focused on the impact of individual-, micro-level contact on prejudice. Yet several recent studies have shown that for such social contexts as regions and districts, a higher contextual level of intergroup contact is also associated with less prejudice (e.g., Wagner, Christ, Pettigrew, Stellmacher, & Wolf, 2006). Using multilevel data – with respondents nested within neighborhoods – it is possible to test a *contextual effect* of contact (see Blalock, 1984): the difference between the effect of intergroup contact between social contexts (the *between-level effect*) and the effect of individual-level contact within contexts (the *within-level effect*; see Raudenbush & Bryk, 2002) on prejudice. Evidence for this contextual effect of positive contact would indicate that living in a place in which other ingroup members interact positively with members of the outgroup reduces prejudice. And this reduction goes beyond one's own contact experiences and irrespective of whether one knows the ingroup members experiencing intergroup contact. Thus, a person living in a context with a higher mean level of positive intergroup contact is likely to be less prejudiced than a person with the same level of direct positive contact, but living in a context with a lower mean level of intergroup contact.

Christ et al. (2014) tested these predictions in seven multi-level

studies (five cross-sectional and two longitudinal), all using large samples of the general population, drawn from multiple countries and measuring context at various levels (regional, district, census tract, and neighborhood). With a range of pertinent individual and, where possible, context-level controls, they consistently found that the between-level effect of intergroup contact on prejudice (i.e., the effect of contact across contextual units, such as neighborhoods and regions, that varied in their aggregate level of contact) was significantly larger than the within-level effect (i.e., the conventional analysis of differences between individuals in their level of contact), constituting a relatively small effect size of the contextual effect of contact. This work underlines the point that even individuals who have no direct intergroup contact experience can benefit from living in mixed settings, provided that fellow ingroup members engage in positive intergroup contact.

Intergroup Contact when the Outgroup is in the Majority

Another instance of missing critical variables arises from the claim that contact effects on prejudice are diminished when minority members live surrounded by the majority outgroup. Barlow et al. (2013) named this the “wallpaper effect,” to convey the idea that for minority group members, contact with majority group members may be a relatively ineffective predictor of reduced prejudice unless the “wallpaper” of their

lives is minority-dense. For majority group members, however, no such interaction effect was predicted or found; contact was associated with more positive outgroup attitudes for the majority group regardless of context-level diversity.

Here the missing variables are multiple contexts in which the purported effect is tested, because the paper by Barlow et al. (2013) is based on a single study involving data collected in a single context (New Zealand). Given the overwhelming meta-analytic evidence that intergroup contact typically reduces prejudice, for both minority and majority groups (Pettigrew & Tropp, 2006), it is crucial to subject any such claims about caveats to contact to rigorous replication. Schmid, Wölfer, Swart, Christ, Al Ramiah and Hewstone (under review) did just that by testing the "wallpaper" claim in five studies (four cross-sectional and one longitudinal) using data from five different national contexts, two different types of settings (neighborhoods and schools), and involving different minority vs. majority groups. Using multilevel cross-level interaction models, they considered whether the effects of different types of intergroup contact on outgroup attitudes were moderated by relative outgroup size in individuals' residential and school environments. This comprehensive test failed to provide consistent support for Barlow et al.'s prior findings. Instead, intergroup contact was significantly positively associated with intergroup attitudes in most studies.

Perhaps this large new data set should also make us question the accepted view that the effect of contact is stronger for majority than minority group members. This view is empirically based in Tropp and Pettigrew's (2005) meta-analysis comparing overall effects of contact on prejudice between majority and minority groups, which revealed a significantly lower, albeit still significant, effect size for minority ($r = -.18$) than for majority ($r = -.23$) groups. The difference between the effect size for majority and minority groups is small, and not ubiquitous (in Schmid et al.'s, under review, studies of the "wallpaper" effect, for example, minority effects were sometimes larger).

There are several possible explanations for a weaker effect of contact among minority group members, if it turns out to be reliable in the long run. (1) Contact may be less effective for minority group individuals as they may be less likely to believe that they have equal status (Robinson & Preston, 1976), tend to be aware of their group's devalued status in society and may thus expect to be the target of prejudice (Shelton, 2003; Tropp, 2006). (2) Minority members by definition are likely to have more outgroup contact than are majority members. This higher frequency of contact may make any contact experience less salient and the reduced range of contact for minority members may attenuate correlations between contact and prejudice.

(3) Minorities suffer more discrimination at the hands of the majority than vice versa, and Tropp (2007) found that intergroup contact is less effective among minority group members who have experienced discrimination.

But notwithstanding these *possible* explanations for any weaker minority effects, a new meta-analysis is required to ascertain the evidence for each, and to enlarge the database of studies, given the steep rise in contact studies in the last decade or so. The last meta-analysis on this question was done more than 10 years ago (Tropp & Pettigrew, 2005) and the authors could only find 51 independent samples (7.3% of the total 698 samples identified for research on contact with majority *or* minority groups), in which contact outcomes were assessed for both minority and majority status groups. We are currently conducting such a meta-analysis.

Avoiding the Single Factor Fallacy

Once cognizant of the problem, there are many ways to avoid the single factor fallacy. And there are numerous demonstrations in social psychology on how to do so. Recall the famous experiments of Solomon Asch on conformity (Asch, 1955, 1956) and Stanley Milgram (1974) on obedience. Asch carefully repeated his conformity experiment over and over, constantly testing rival explanations for his surprising results.

Milgram, who had studied with Asch, did the same thing with his surprising obedience results. Repeated replications that test new and possibly relevant variables offer a tried-and-true method of avoiding the single factor fallacy in the discipline's most famous investigations.

Moderator-Mediation Analyses Help to Uncover Additional Factors

Checking on rival factors was made easier and greatly enhanced by Baron and Kenny's (1986) seminal paper. It delineated moderators from mediators and provided straightforward testing procedures for each. (For more recent recommendations on tests of mediation and moderation, see Fritz & MacKinnon, 2007; Hayes, 2013; Kenny, Kashy, & Bolger, 1998; Krull & MacKinnon, 2001). This one paper has had a major influence in the analyses of both experiments and survey research. The authors' cogent presentation persuaded many researchers to check for additional factors in their applications. By 2016, Google Scholar listed more than 52,000 citations to Baron and Kenny's highly influential article. Indeed, it is by far the most cited publication ever to appear in the *Journal of Personality and Social Psychology*. It especially influenced both social and personality psychologists. The former began to use more personality variables as possible moderators or mediators, and the latter to use more situational variables in their analyses (Fleeson, 2012; Pettigrew & Cherry, 2012; Reis & Holmes, 2012).

The mass adoption of the Baron-Kenny approach situated analyses into their personality and situational contexts. This advance necessarily acts to deter the single factor fallacy. And the uncovering of mediators in particular often suggests additional important predictor variables. Note in the examples discussed above how frequently the application of moderators and mediators uncovered more complex relationships and the need for additional variables to be taken into account.

We should add here the caveat that in longitudinal designs the distinction between predictors-mediators-outcomes breaks down or becomes fluid. For example, in Van Laar, Levin, Sinclair and Sidanius (2005) multi-wave study, where intergroup anxiety, normally considered as a mediator between contact and prejudice, becomes a predictor at a later wave. In short, the results of longitudinal studies typically support the bidirectional nature of the contact-prejudice relationship, emphasizing that this relationship constitutes a dynamic, reciprocal process (e.g., Eller & Abrams, 2003; Swart, Hewstone, Christ & Voci, 2011).

Consider again the burgeoning intergroup contact literature of recent decades. Brown and Hewstone (2005) provide a detailed review of the many moderating and mediating factors involved in intergroup contact's effects. Smaller, more focused meta-analyses

reveal that two mediators in particular account for contact's reduction in prejudice: optimal contact reduces anxiety about intergroup interaction even as it also induces empathy and perspective taking (Pettigrew & Tropp, 2008).

Here we add a note of caution: The test of mediation is of course only as good as its measures. Although enhanced knowledge does not fare as well in the meta-analysis of the mediators of contact effects, it could be that with different measures (e.g., less focus on learning facts about the outgroup, and more on learning about both similarities and differences) it would fare far better.

These mediational analyses in turn led to the discovery of a host of additional effects of intergroup contact. Besides the often-studied reduction of both explicit and implicit prejudice, these contact outcomes include less interactional anxiety and less individual and collective threat as well as more empathy, perspective taking, outgroup knowledge, intergroup trust and forgiveness, and perceptions of outgroup variability – all of which are positive effects for reducing intergroup conflict (Pettigrew & Tropp, 2011).

Since these outcomes are all antithetical to authoritarianism, it suggests that intergroup contact could diminish authoritarian personality tendencies. This would counter the view of the original work on authoritarianism (Adorno, Frenkel-Brunswik, Levinson, &

Sanford, 1950, p. 973). Indeed, studies have shown that intergroup contact can reduce prejudice among authoritarians significantly (Hodgson, Harry & Mitchell, 2009; Pettigrew & Tropp, 2011). But authoritarianism remains a barrier to positive intergroup contact effects by restricting the willingness to participate in the contact in the first place. Only when authoritarians do have the contact can it lessen prejudice. For authoritarians, attaining the intergroup contact is the problem.

Yet, parallel studies on social dominance orientation (SDO) give us reason for more hope. Intergroup contact can effectively reduce SDO levels (Dhont, Van Hiel, & Hewstone, 2014; Shook, Hopkins, & Koech, 2015). For example, in two longitudinal studies conducted in Belgium, Dhont et al. reported lower SDO levels after an intervention, especially among students reporting a higher quality of contact during a school trip to the predominantly Muslim country of Morocco (where the intervention effect on SDO was especially pronounced among students reporting a higher quality of contact), and over a three-month time interval in a survey of adults. Thus contact can impact what are typically thought of as rather stable personality variables.

Only Longitudinal Analyses Can Uncover Critical Change Factors

As we noted in research on the predictors of the Brexit vote, factors of rapid change can only be detected by longitudinal research

designs. Moreover, many of the most important social science applications for social policy entail situations that involve rapid change. Cross-sectional research will overlook these change factors and offer too-simple policy recommendations.

We recognize that longitudinal research is expensive and time consuming. But new analytic techniques for extensive longitudinal designs are now emerging. And as we have illustrated throughout this paper, a swiftly accelerating number of papers are now appearing that employ these new techniques and offer policy-relevant results. But for the present, cross-sectional research will continue to be the typical design for much research. At the least, however, social scientists should be aware that their omission of overtime factors may represent a major weakness in their policy recommendations for swiftly changing situations.

Across-Level Analyses Also Uncover Additional Factors

A less obvious but more frequent type of single factor fallacy involves multiple levels of analysis. An applied model is developed at one level whereas other levels of analysis are ignored. Recall the earlier example of interracial schools. While the intergroup contact and stereotype threat phenomena both need to be considered, other considerations must also be taken into account - often at the macro-level. Thus, the ratio of majority to minority students, the school's use

of so-called “ability grouping,” the ethnic composition of the teachers and staff and other contextual features may well affect how best to balance the intergroup contact and stereotype threat processes.

Consider how such macro-contexts could alter how the balancing of the contact-stereotype threat is achieved. Drawing on the considerable research on interracial schools over the past 60 years, one might well expect greater difficulties in schools with non-diverse staff rosters that employ rigid “ability grouping.”

Place Figure 1 About Here

Fortunately, effective multilevel techniques and software have now been developed that allow researchers to check on the possibility that changes at other levels of analysis make a significant difference in their formulation. Figure 1 organizes six cross-level possibilities for three levels of analysis. Social psychologists work largely at the meso-level of face-to-face interaction. They must concern themselves as to whether their model at the meso-level is importantly influenced by changes at the micro- and macro-levels. We noted that social psychologists increasingly pay attention to personality, micro-considerations (paths B and E in Figure 1) – generally via mediational analyses. The previous example of authoritarians avoiding intergroup

contact is a case in point. But the use of multilevel techniques for checking on institutional, macro-effects is still rare.

However, there are studies now emerging in the literature that correct for this blindspot – we noted earlier one such clarifying example by Kauff et al. (2016). Christ and his colleagues (Christ, et al., 2014), in their work on the contextual effect of contact discussed above also provided an example of a path C link. For three of their seven studies using multilevel analyses of large surveys they could test whether the contextual effect could be explained by differences in social norms between the different social contexts. They demonstrated that intergroup *norms* in an area were significantly more positive in areas with higher levels of contact; and longitudinally, norms could be shown to improve following increased intergroup contact in the area. When norms were controlled, the difference between the within-level and the between-level effect of intergroup contact (the “contextual effect” of contact) was substantially reduced in all cases, and the contextual effect was rendered non-significant. Thus, living in a place where fellow ingroup members interact positively with outgroup members has a benign impact on prejudice, beyond one’s own contact experiences, via social norms that value diversity.

As noted above, this research shows that intergroup contact does not simply affect the attitudes of those who engage in the

contact. The macro level adds to the meso level (path D). Moreover, if prevalent enough, contact can also improve the intergroup norms of an area – an even more important macro influence for intergroup harmony and structural change.

These findings are especially noteworthy, for it is rare that changes at the meso-level of analysis (contact) have been shown to change norms at the macro-level (Pettigrew, 1997). But we may expect in the future many more such findings as multilevel techniques become more widely employed. For excellent reviews of further possibilities of cross-level analyses, see Christ, Sibley, and Wagner (2012) and Christ and Wagner (2013).

From theory and research to policy:

Some guidance in crossing the Rubicon

What are the implications of this analysis for increasing the influence of social psychology in social policy? We believe it strongly indicates the need for social psychologists to think more in multi-level terms. Social policy largely involves *macro-structural* considerations. For instance, what structural innovations are needed that further positive change at the micro- and meso-levels? (Paths D and E in Figure 1). Note that mixed schools, affirmative action, and many other structural reforms necessarily increase intergroup contact. Social

psychologists must consider how to shape these changes so as to maximize the positive effects of this increased intergroup contact while reducing threat. There exist many helpful books and guidelines for increasing such impact (see, e.g., Benyon & David, 2008; British Academy, 2008; Campaign for Social Science, 2015; Council for Science and Technology, 2008; Doig, 2011; Goodwin, 2013; Laudeer, 2014; LSE Public Policy Group, 2011; Research Information Network, 2010; Wilson, 2008). What we present below illustrates some of the principles invoked by others, but is based on our own experiences on both sides of the Atlantic.

A half-century ago, when the first author was president of SPSSI, he advocated that the Society move its office to Washington, D.C. in order to play the role of “honest broker” on social issues (Pettigrew, 1967). The proposal was not for yet another lobbying operation, but rather a social science resource for those in power. Some years later, SPSSI did indeed move to Washington, and its efforts to inject social psychological research findings into the policy arena are increasingly impressive.

But individual scientists can also contribute to public policy. Both authors have long endeavored to do this in their respective nations. The first author has given literally hundreds of public addresses, written popular articles, and served on various policy

commissions and as an expert witness in four school desegregation cases. But his most focused and perhaps most effective work was as a long-term consultant for four U.S. Senators and the U.S. Civil Rights Commission and the U.S. Department of Education. The second author has been equally active in the United Kingdom, albeit for a much shorter period of time. This has led him to five principles that may increase the impact of social scientists' research on public policy. Interestingly, these same principles have also emerged from the policy efforts of the first author as well.

The five principles are: we cannot wait for government officials to come to us – we have to take our message to government; that *think-tanks and other bodies can be used as effective intermediaries to get our message across*; that having impact can take a long time; that what and how you present is crucial; and that we should perhaps settle for being termed (mere) psychologists; and that we have to turn our theory and research into concrete interventions.

Taking our message to government: Around early 2005, in the wave of riots in several northern cities in 2001, the British government announced plans for a *Commission on Integration and Cohesion*. This sounded like a body that should know, or be taught, about contact theory and research. Yet, after a patient wait, and to his chagrin, the second author had to accept that, "If the mountain won't come to

Muhammad then Muhammad must go to the mountain.”² He made some inquiries, found the name of the civil servant in charge, and lobbied him. The lobbying was actually remarkably simple, reinforcing the view that people might actually be very open to your message, but just not know either the message or the messenger. Hewstone was invited to present expert testimony to the Commission. This testimony reviewed the broad evidence, highlighted our understanding of how and when contact works best, and showed its applications to both community relations involving a diversity of social groups (divided by ethnic/racial, religious, age and other categorizations), and, specifically to sectarianism in Northern Ireland. *This resulted in a key role being assigned to promoting intergroup contact in the government’s new policy (see Note 57 of the Commission’s Final Report, ‘Our Shared Future’, 2007).* “Meaningful contact” was presented as a means to overcome “parallel lives” of ethnic majority and minority citizens, and its importance was recognized in the development of Public Service Agreement (PSA) 21. PSA 21 monitors, *inter alia*, “Percentage of people who believe people from different backgrounds get on well together in their local area” and “Percentage of people who have meaningful interactions on a regular basis with people from different ethnic or religious backgrounds”(National Audit Office, 2010).

A useful fall-out from this intervention was also that the second author was also invited onto the technical committee of the Government's Citizenship Survey, which led to questions on contact being added to this huge and valuable survey (sadly terminated when the Labor government was voted out of office). The final part of this story illustrates a further source of frustration in having a policy impact over a sustained period of time. When governments leadership changes, civil servants – the people who actually carry out policy – change posts frequently. It can take a long time to make a good connection; when you've done so, make sure, if you can, that before the day comes when a civil servant (or legislative aide) moves to a new post, they organize a hand-over meeting to connect you to their successor.

Another aspect of taking our message to government is that, as important as we might find our own work (and even if our academic colleagues might agree), this does not mean that someone in government or the policy world will have heard of it. Indeed, governmental officials in both nations have typically never heard of social psychology much less its findings. Here academics can help each other, and have done in the case of both authors. For example one of the second author's colleagues, Dominic Abrams (a later SPSSI president), was instrumental in making links with both the Cabinet

Office and the *Equality and Human Rights Commission* in London; the Commission's former head, Trevor Phillips, not only listened thoughtfully to the views of several social psychologists as to what they had to offer, but has since pushed the work of social psychologists in this field, especially on the effects of contact, and even weaved it into TV programs that reach a far larger audience than our articles. Another colleague in the UK, Rupert Brown, did likewise. Despite having spent many years liaising with two government departments in particular, our work was only brought to the attention of an influential civil servant in another department because of a conversation she had with Rupert! It is a common criticism that government is not coordinated or 'joined up'³; we have to do our bit, helping each other en route, to make it more joined up in recognizing where and when social psychology is relevant.

Use think-tanks and other bodies as intermediaries to get your message across. We might like to think that we communicate clearly, even when we are well networked, and have attended our university's courses on media relations. Nonetheless, in an environment overflowing with data, and with media outlets prioritizing only certain stories, we may struggle to get our message heard. Think-tanks can be useful in this respect. They regularly organize debates, symposia and briefings, have good access to senior officials, and can help you

Commented [LP1]: Is there a clearer phrase?

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get your message across. Likewise charities can provide us with ways to do more effective work, and to reach new audiences. In the UK, think tanks (e.g., Demos and IPPR, the Institute for Public Policy Research) have been very effective in this regard. In the U.S., the Brookings Institute, the Rand Corporation, the Center for American Progress (CAP), and the Urban Institute are the most open to social science research. But a caveat is in order here. There are some so-called “think-tanks,” such as the Heritage Foundation, which are mere political lobbying operations that are closed to any social science input that does not fit easily with their political agenda. SPSSI’s office in Washington can be helpful in making appropriate links.

A good example of a highly-relevant charity is ‘The Challenge’, which the second author has worked with in the UK. The Challenge (see <http://the-challenge.org>) is the UK’s leading charity for building a more integrated society, in which there is understanding and appreciation of each other’s differences. Collaboration in this case has involved talking at various events, undertaking an evaluation of some of the charity’s interventions, and then being selected as one of the eight Commissioners for the Social Integration Commission (see: <http://socialintegrationcommission.org.uk/index.php>), whose aims included exploring the nature and extent of social contact between

people of different ages, ethnicities and social grades; and assessing the impact of social division on the UK economy and society.

Keep at it: Impact takes time. In the case of the second author, his work has had most impact where we have been at it longest, in Northern Ireland; and perhaps it is no accident that this country is fairly small. Further, we were extremely fortunate that a former, long-time colleague and friend, the late Ed Cairns, seemed to have taught most of the officials we met when they were students! Thanks to the subsequent efforts of another current colleague, Joanne Hughes, who specializes in education, we have been able to build on earlier research demonstrating the impact of cross-community contact in Northern Ireland in mixed and segregated communities, to later demonstrate the impact of the Sharing Education Programme (SEP), a series of school collaborative networks comprising over 120 schools. The SEP programme highlights certain educational objectives (superordinate goals) and offers an opportunity for pupils and teachers to interact with each other over a sustained period of time, as pupils and teachers from schools on one side of the sectarian divide visit, and study with, schools on the other side. The theoretical body of work on intergroup contact, and its convincing empirical evidence base (Hughes et al., 2012, 2013), have directly informed the establishment of SEP and the community relations policy agenda in Northern Ireland. It has

also helped shape an emerging policy agenda on school collaboration in Northern Ireland. The high point, in terms of impact, was in June 2008, when the Northern Ireland Education Minister initiated a review of the Department of Education's Community Relations policy. A draft Community Relations policy published in 2010 contained a commitment to "encouraging greater sharing and collaboration across and between all educational settings on a cross community basis." Then, in November 2011 the Northern Ireland Executive released its Programme for Government, in which Sharing Education was highlighted as a priority. This work was flagged in key policy documents (e.g., Equality Commission/Community relations Council, 2010) and the written record of parliamentary proceeding (Hansard, 2010), and we were invited to present evidence in 2014 to the Education Committee of the Northern Ireland Assembly.

What and how you present is crucial. Keep it simple, and keep it short is about the crux of this principle. Members of our discipline may favor theory over practice, and complex models with mediating and moderating processes, but these messages are hard to translate into the policy domain, and, sometimes an effective route is via the popular media. For example, the second author was fortunate enough to be interviewed at length by a national newspaper. He found that this media coverage gave him credibility with government officials as an

“expert” far more effectively than a multitude of peer-reviewed articles had. This apparent need for simplicity poses something of a challenge in the context of this article, where we argue that basing our work largely around a single factor is a “fallacy”.

Specifically, academic social psychology favors quite long, as well as complex, articles. Yet, legislative aides and senior civil servants advise researchers to follow a “1:3:25 Rule” when it comes to presenting research to legislators and heads of government agencies (In the US) and ministries (in the UK). Apparently these leaders will read only one page to begin with; if that page clearly presents something that seems of interest to them, then may read three pages. Only if an idea bowls them over, will they read as many as 25 pages, and anything longer than that is passed on to researchers to read. The same phenomenon holds for American officials. Hence the importance of an Executive Summary in anything we write for the policy world. Those couple of pages of bullet points may determine the fate of your work, so craft them very carefully, make them simple and succinct, and without succumbing to the single factor fallacy.

Turning our theory and research into concrete interventions.

Perhaps the most crucial change we have to adopt is to spend more time thinking about how to *translate* our theory-heavy, lab-based research, typically using student participants into credible

interventions that can be implemented in the field. In the world of public policy, there is especial interest in variables that are amenable to rule writing, manipulation or control in the context of social programs. This explains the success of the 'nudge' approach to behavior change, which led to the formation of a government-funded (now privatized) Behavioural Insights Team (BIT) in the UK (see Halpern, 2015; Thaler & Sunstein, 2008).⁴ A problem faced in trying to translate some social-psychological findings is that they are not always tractable in a policy context in the form of imagining policy interventions that could be incorporated into programs in the form of rules and guidelines. The Sharing Education Programme in Northern Ireland is a good example of how an idea based on sophisticated theory and rigorous research in social psychology *can* be translated into a simple effective intervention – students remain in their religiously-separated school (which, for the time being is what most of their parents prefer), but they also have some goal-relevant, cooperative contact with students from the other main religion (which most of their parents also want).

Summing Up

Applied work that shapes social policy is obviously important; after all, it influences human lives. Often in public policy, negative

Commented [MH3]: ADD NOTE: David Halpern, a Downing Street adviser under Tony Blair, was appointed by the UK coalition government in 2010 to establish the 'Behavioral Insights Team' (BIT) to advise the government on employing these principles. In the US, Richard Thaler, advised the White House in a similar capacity. This approach has increased payment of taxes by informing citizens that "75% of residents in your area have paid already", and the second author was intrigued to read recently on his parking violation summons that "most people pay their parking fines" . . .

unintended consequences arise because critical considerations have been overlooked. The single factor fallacy contributes directly to this problem, and we have discussed some of the implications of omitting key variables from any assessment of the efficacy of positive direct intergroup contact on prejudice reduction. Premature or false conclusions may be drawn by overlooking critical variables from the analysis or drawing too-hasty conclusions from an inadequate data base, sometimes even just a single study, sometimes from work in a limited social context. We considered these issues with respect to spatial segregation between groups, the effects of negative as well as positive contact, the effects of direct contact via extended contact, and contact when the outgroup is in the majority.

No study, of course, can consider all possible factors; the social world is too complex for such an ambitious goal. This paper simply argues that social scientists can at least take methodological precautions to ensure that the major factors in any given phenomenon have been addressed. And where they are dealing with matters of such great social import – whether to promote integrated schools, whether neighborhood ethnic diversity is a threat to social harmony and so on – they not only *can* take such precautions, they *must* take them. In addition, where careful cumulative assessments of a body of social-psychological research have been undertaken (see the multiple meta-

analyses of Davies et al., 2011; Lemmer & Wagner, 2015; Pettigrew & Tropp, 2006, 2008, 2011), which attest to its policy potential, neither scientists nor practitioners should be distracted by the issuing of unwarranted and unsubstantiated death certificates for intergroup contact (e.g., Connolly, 2000; Dixon, Durrheim & Tredoux, 2005; McCauley, 2002).

In the preceding section, we addressed the thorny issue of how to more effectively translate good social-psychological ideas, based on solid empirical evidence, into effective policy. We offered some general principles, influenced by our own experience working in the U.S. and the U.K.. Looking back at the claims we have sought to rebut – whereby other relevant theories were ignored, and key variables omitted from the analysis – and looking forward to future policy interventions based on intergroup contact, we conclude that overly pessimistic conclusions have been drawn about this fruitful theory; or, to borrow Mark Twain's phrase, rumors of its death have been greatly exaggerated.

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Endnotes

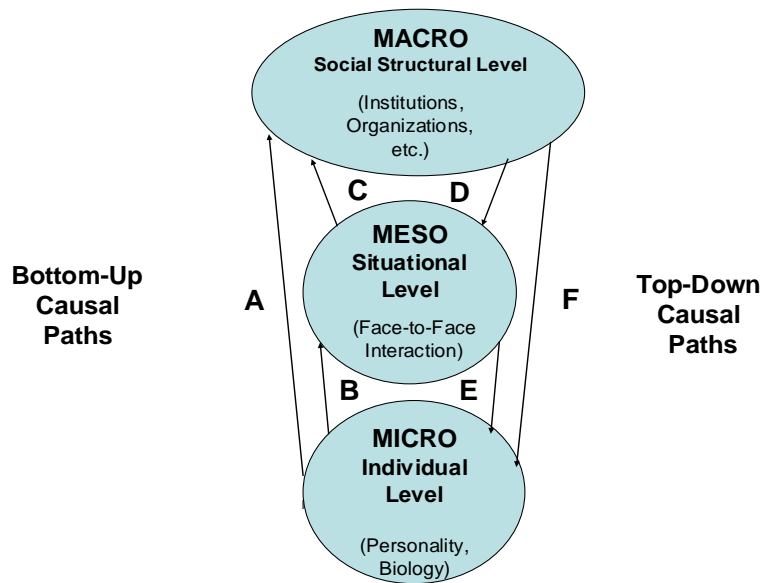
1. The first author pointed out that our finally-agreed title violated the rule of his mentor, Gordon Allport, that no title should exceed eight words. With due regret, we have broken this rule here to make clear that while the single factor fallacy has general relevance, we apply it specifically here to one theory, intergroup contact.
2. The phrase is Francis Bacon's, perhaps itself from a Turkish proverb.
3. This phrase seems not to have permeated to the U.S., but is widely used in the UK. It refers to "all departments or sections communicating efficiently with each other and acting together purposefully and efficiently" (The Free Dictionary).
4. David Halpern, a Downing Street adviser under former Prime Minister Tony Blair, was appointed by the UK coalition government in 2010 to establish the 'Behavioral Insights Team' (BIT) to advise the government on employing these principles. In the U.S., Richard Thaler advised the White House in a similar capacity. This approach has, for example, sought to increase payment of taxes by informing citizens that "75% of residents in your area have paid already", and the second author was intrigued to read recently on his parking violation summons that "most people pay their parking fines" . . .

Author information

Thomas Pettigrew is Research Professor of Social Psychology at the University of California, Santa Cruz. A Harvard Ph.D., he also taught at Harvard (1957-1980) and the University of Amsterdam (1986-1991). He was a Fellow at both the Center for Advanced Study in the Behavioral Sciences and the Netherlands Institute for Advanced Study and has conducted intergroup research throughout the world. He was president of the Society for the Psychological Study of Social Issues (1967-68). And he has received the Society's Lewin Award, twice its Allport Intergroup Research Award, the American Sociological Association's Spivack, William Foote Whyte, Cox-Johnson-Frazier and Cooley-Mead Awards, the Society for Experimental Social Psychology's Distinguished Scientist Award, the Lifetime Achievement Awards of the International Academy for Intercultural Research, the Society for Personality and Social Psychology, the Society for Peace, Conflict and Violence, and the International Society of Political Psychology as well as the University of California's Panunzio Distinguished Emeriti Award.

Miles Hewstone is Professor of Social Psychology and Fellow of New College, Oxford University. He has published widely on the topics of attribution theory, social cognition, stereotyping, and intergroup relations. His current research focuses on the reduction of intergroup conflict through intergroup contact. He is a co-founding editor of the *European Review of Social Psychology*, and a former editor of the *British Journal of Social Psychology*. He has twice been a Fellow at the

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Six Causal Paths From Three Levels of Analysis

Fig. 1. Adapted from Pettigrew (1996).