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MODERATION OF INTERGROUP MEMORY BIAS VIA CROSSED CATEGORIZATION

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ABSTRACT

Previous work has established a bias-reducing effect of making cross-cutting social categorizations salient on explicit forms of intergroup bias. We tested whether the benefits of crossed categorization would be observed at the level of biased information processing in intergroup contexts. In line with predictions, when targets differed from the perceiver along two dimensions of social classification, this convergence of categorization accentuated the tendency for perceivers to recall more positive than negative information about their own groups relative to others. In contrast, when a second dimension of classification cut across the first, this recall bias was reduced. The findings are considered within the context of developing work on the positive effects of making cross-cutting categorizations salient for intergroup relations.

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INTRODUCTION

In increasingly multi-cultural, multi-ethnic, and multi-religious societies there are now a multitude of ways in which we can be the same as, or different from, others. There are many groups to which people may belong and to which people now realise they belong. Initial observations by anthropologists and sociologists (e.g., Evans-Pritchard, 1940; Levine & Campbell, 1972) provided the impetus for psychological work into phenomena associated with recognition of multiple and cross-cutting group affiliations. Of particular interest to social psychologists was the observation that cross-cutting multiple affiliations may have beneficial effects for intergroup relations. In this article we expand on recent work that has systematically tested the benefits of such crossed categorization.

Deschamps and Doise (1978) were amongst the first to propose that "crossing" two orthogonal dimensions of group membership may hold the potential to improve intergroup relations. In their

"crossed categorization" paradigm, two dimensions of social categorization are made simultaneously salient for participants making group-relevant social judgements (for a theoretical review/integration see Crisp, Ensari, Hewstone, & Miller, 2003; for a literature review: Crisp & Hewstone, 1999; for meta-analyses: Migdal, Hewstone, & Mullen, 1998; Urban & Miller, 1998). Take, for example, gender and age; instead of considering only females versus males or young versus elderly, in crossed categorization situations perceivers attend to both of these dimensions. Then females and males can be seen to *share* a common category; both females and males can be young, or both females and males can be elderly. For young females then, the cross-cutting membership "young" becomes salient, so a shared membership can be perceived with *young* males. On the other hand, young females will also be even more different (compared to comparison on just one dimension) to elderly males, who have two *non-shared* memberships with young females. By emphasizing the fact that whilst two groups may be different along one criteria for social categorization, they can also be the same according to a second criteria, Deschamps and Doise argued that perceivers would come to view outgroups as psychologically less differentiated from the ingroup, and so accordingly evaluate them more positively. Put another way, crossing social categorizations could be an effective strategy for reducing prejudice and discrimination.

Despite its initial promise, empirical tests of the notion that crossed categorization could reduce intergroup bias have failed to provide coherent evidence for bias-reduction (e.g., Brown & Turner, 1979; Singh, Yeoh, Lim, & Lim, 1997; see Crisp & Hewstone, 1999, for a review). Why might this be so? An analysis of the target comparisons used in such studies may provide some answers. Almost all studies addressing bias-reduction have tested whether ingroup favouritism is of lower magnitude against composite "mixed groups" (comprising one shared membership with the perceiver, and one non-shared membership) compared to single outgroups. Typically, comparing multiple mixed groups with single outgroups in this way reveals no consistent bias-reduction effect. Furthermore, composite double outgroups are consistently evaluated less positively than even single outgroups (see Crisp, Hewstone, & Rubin, 2001; Experiment 1). The apparent ineffectiveness of creating composite mixed membership groups for bias-reduction can be explained with reference to the strength of the outgroup components of such groups. Specifically, negative information has a greater attentional value than positive information in social perception (for a recent review see Rozin & Royzman, 2001). Since outgroup membership seems inherently negative in associative terms (e.g., Dovidio, Evans and Tyler, 1986; Fazio, Jackson, Dunton & Williams, 1995; Otten & Wentura, 1999) we would expect outgroup components of crossed category composites to exert more influence over judgements than the ingroup (positive) components. In line with this, mixed affiliation targets (one ingroup and one outgroup) are evaluated as negatively as single outgroups (both comprise one outgroup membership), and double outgroups more negatively than either of these (comprising two negatively valenced outgroup memberships; see Brown & Turner, 1979, for a similar argument and convergent findings).

Whilst it is clearly important to understand how such *composite* crossed-category groups are perceived and judged, these recent tests of the bias-reduction hypothesis (which compare composite group evaluations) may not be precisely testing Deschamps and Doise's (1978)

original ideas. Deschamps and Doise's theorising was distinctly cognitive in nature (vis-à-vis the affective explanation that applies with the composite group comparisons outlined above). Their model centred on the effects of crossing categories on cognitive representation for each component category *independently* (i.e., rather than composites created by the simultaneous salience of two intergroup dimensions). The model suggested that when an additional basis for social categorization is shared between an in- and outgroup on a target dimension, this basis for an increased perception of overlapping attributes should break down the distinctive "us" versus "them" division. The weakening of category distinctiveness on the target dimension should, in turn, lead to a reduction in evaluative differentiation between the two groups. Although not made explicit in Deschamps and Doise's model, this evaluative consequence of reduced inter-category coherence follows from subsequent evidence for an implicit link between categorization and evaluation (i.e., ingroup membership is inherently positive, and outgroup membership inherently negative; e.g., Dovidio et al.,1986; Fazio et al., 1995). This is also consistent with weakened salience of category boundaries leading to a recategorized, superordinate identity (Jetten, Spears, & Manstead, 1998; see also Turner, Hogg, Oakes, Reicher, & Wetherell, 1987), and corresponds to other bias-reduction models (i.e., Gaertner & Dovidio, 2000). On these accounts, there are good theoretical and empirical reasons to expect additional shared categorization to weaken the coherence of category boundaries, and correspondingly reduce intergroup bias.

Since most work arising from Deschamps and Doise's (1978) theorising has examined the affective consequences of a supposed "fusing" of simultaneously salient categories, little work has examined the cognitive consequences (and evaluative implications) of crossed categorization on the constituent dimensions independently. In the experiment reported here, we tested the bias-reduction hypothesis by focusing not on composite groups, but on the independent (target) constituent following crossed categorization, and examined directly the notion that the implicit link between categorization and evaluation will be moderated by the weakening of category boundaries. We base our predictions on the proposed weakening of the implicit cognitive link between such constituent categorizations (ingroup and outgroup representations independent from the additional categories that cross them) and evaluation. Correspondingly we employed an implicit recall measure of this proposed link.

Intergroup bias can occur at a preconscious level, and implicit associations between affiliation and evaluation seem an integral part of intergroup perception (e.g., Dovidio et al., 1986; Fazio et al., 1995). In these studies, typically ingroup primes in speeded categorization tasks lead to facilitated response times to positive target attributes, whilst outgroup primes facilitate response times to negative attributes (relative to affectively incongruent pairings -- ingroup/negative and outgroup/positive -- or baseline). As well as real groups, generic designators show similar effects ("we" or "us" seem implicitly linked with positive attributes; Perdue, Dovidio, Gurtman, & Tyler, 1990), and this implicit link exists also for artificial groups, (Otten & Wentura, 1999; Otten & Moskowitz, 2000). It is notable, however, that only the latter handful of studies have found implicit bias in the minimal group paradigm. We expand on this research by aiming to uncover minimal group bias on an alternative measure of implicit evaluation: The processing of positive and negative information about ingroups and outgroups.

In addition, despite growing evidence for the malleability of implicit prejudice (Dasgupta & Greenwald, 2001; Blair, Ma, & Lenton, 2001), current work has focused on attempting to change

implicit bias via presentation of disconfirming (positive) information about the outgroup. Many models of bias-reduction instead focus on changing intergroup relations by changing *categorical* representation (e.g., The Common Ingroup Identity Model; Gaertner & Dovidio, 2000). To our knowledge no studies have directly tested whether such category-based (i.e., non-evaluative) interventions can have beneficial effects on processing tendencies and *implicit* intergroup bias.

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Examining the effects on implicit bias of considering additional shared versus non-shared cross-cutting categorizations should also provide a good test of Dechamps and Doise's (1978) original hypothesis. Considering shared bases for categorization should weaken category coherence (a cross-cutting shared membership provides not only a representational link that brings the ingroup and outgroup closer, but also provides a representational overlap between ingroup and outgroup characteristics). Additional shared categorization should weaken the implicit activation of positive and negative attributes following ingroup and outgroup category activation respectively. Importantly, however, when categories converge, category boundaries should strengthen, and so too correspondingly should the implicit links with evaluatively congruent attributes.

To examine these possibilities we compared three conditions: a single categorization baseline, an additional shared category condition, and an additional non-shared category condition. We used artificial groups (Tajfel, Flament, Billig, & Bundy, 1971) for maximal experimental control. Importantly, target evaluations were of the independent constituents following consideration of an additional membership, not the combined categorization formed from the two dimensions. We predicted that in the shared additional category condition, the coherence of the category structure ("us" vs. "them") would weaken and thus attenuate the cognitive basis for differential evaluation of the ingroup and outgroup.

METHOD

Participants and design

42 female undergraduates were allocated to a 3 (categorization: single vs. one additional shared vs. one additional non-shared) x 2 (target: ingroup vs. outgroup) mixed design with repeated measures on the second factor. All participants received course credit or payment for taking part.

Procedure

Categorization task

Participants were categorized on a target intergroup dichotomy via a computerized shape estimation task. Participants were presented with slides, each for 10000ms, which contained figures that varied according to colour and shape. Following a demonstration, participants were required to look at each slide and estimate the number of each category of shape. Although exactly the same slides were presented in all conditions, the number of estimates required varied according to condition. In the baseline condition (no additional dimensions) participants were

required simply to estimate the number of red versus blue shapes (target dimension). In the additional (shared and non-shared) categorization conditions, participants were required to estimate the number of red and blue, *and* circular and quadrangular shapes.

Following this, participants carried out a filler task (creating word combinations) for two minutes whilst the experimenter ostensibly compared the participant's estimates to the actual numbers of shapes in the different categories. Participants were then told which of the two categories of shape, along each dimension tested, they were better at estimating. All participants were categorized into the "red" target category. In the additional category conditions, all participants were categorized into the "red" and "circular" categories.

Participants were then told that previous research had uncovered broad differences between people who were better at estimating the different types of shapes, and to write down (a) which estimation categor(ies) they were in and (b) what they thought the differences between people along each dimension tested might be. To encourage processing of this information, participants were told that they would be asked to recall these additional dimensions at the end of the experiment.

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Participants were then asked to write about what they thought people who were simultaneously in specific (combinations of) categories were like. In the baseline (no additional categories) condition, participants wrote only about people in the (outgroup) blue category. In the additional one shared category condition, participants wrote about people simultaneously in the blue (outgroup) and circular (ingroup; shared) categories. In the additional one non-shared category condition, participants wrote about people simultaneously in the blue (outgroup) and quadrangular (outgroup; non-shared) categories. This constituted the manipulation of baseline versus one additional shared versus one additional non-shared categorization. Following this all measures referred only to the target dichotomy (i.e., the independent constituents, red versus blue groups).

Profiles

Following the multiple category manipulation participants received two personality profiles, supposedly completed by a "red" and "blue" category member in a previous session. Participants were told to study the information carefully as they would need to use it later in the experiment. For the ingroup and outgroup, half the traits were positive and half negative, acquired from pre-testing (-5; Extremely negative, +5; Extremely positive, $N = 21$[1]). These sets were counterbalanced so that half the participants in each condition received six positive and negative traits for the ingroup and another six positive and negative traits for the outgroup, and the other half received the sets reversed. Subsequently, participants completed the measures of evaluation, and then were asked to recall the previously presented traits. To check that participants still recalled the target and additional categories by the end of the experiment, they were asked to write these down and to mark the groups they were in. All participants correctly recalled this information. Finally, participants were thanked, debriefed, and dismissed.

Dependent measures

The measure of bias was the number of positive and negative traits recalled for ingroup and outgroup members from the preceding personality profiles. Recall of these attributes served as a direct measure of the extent to which the implicit link between categorization and evaluation (ingroup/positive and outgroup/negative) was moderated by crossed categorization. In line with the prediction of weakened coherence, we expected the link to break down in the shared additional categorization condition (i.e., lower recall for evaluatively congruent; ingroup/positive and outgroup/negative pairings relative to evaluatively incongruent; ingroup/negative and outgroup/positive pairings) [2].

RESULTS

To test the idea that shared categorization may, via weakened category coherence, also correspondingly weaken the implicit link between group membership and implicit evaluative connotation, we re-coded the recall measures for evaluative congruency [3]. Evaluatively congruent pairings were defined as ingroup/positive and outgroup/negative combinations whilst evaluatively incongruent pairings were defined as ingroup/negative and outgroup/positive combinations.

Contrast analysis (Judd & McClelland, 1989; Kirk, 1982) was employed as our primary means of analysis. This is considered a particularly appropriate analytic strategy for crossed categorization studies (Hewstone, Islam, & Judd, 1993) as it allows a powerful and clear test of the specific, but complex, predicted effects (see also Rosenthal & Rosnow, 1985). To test the specific hypotheses regarding additional shared or non-shared categorization we formulated two orthogonal polynomial contrasts. Contrast A (baseline: -1, additional shared: 0, additional non-shared: +1) tested whether, as predicted, there was an increase in the recall of congruent information following the proposed reinforcing of category boundaries with convergent (non-shared) categorization. Contrast B (baseline: +1, additional shared: -2, additional non-shared: +1) tested whether there would be a decrease in recall for evaluatively congruent information in the additional shared membership condition relative to all other groups. We expected additional shared and non-shared categorization to principally moderate recall of congruent information (which most clearly reflects the strength of the implicit link between categorization and evaluation), rather than recall of incongruent information [4].

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Means and standard deviations can be found in Table 1. As expected there was no variation across condition in terms of recall for incongruent information, Contrast A; t (39) = -.628, p = .534, Contrast B; t (39) = -.171, p = .865. For congruent category-attribute pairings, however, Contrast B (-1, +2, -1) was significant, t (39) = 2.41, p = .021. In line with expectations compared to baseline and non-shared additional categorization conditions (Ms = 1.87 and 2.42), additional shared categorization lowered recall of evaluatively congruent information (M = 1.50). In additional, Contrast A (-1, 0, +1) approached significance, t (39) = 1.72, p = .094. There was a clear trend towards increased recall for evaluatively congruent information following non-shared

additional categorization (M = 2.42) compared to baseline (M = 1.87). It is notable that in the baseline condition, there is almost no difference in the processing of congruent and incongruent information, in line with curvilinear models of schema-relevant recall (e.g., Hastie, 1981; Hastie, Park, & Weber, 1984).

Table 1: Recall as a Function of Crossed Categorization

	Categorization		
	Single categorization (Baseline)	Additional shared categorization	Additional non-shared categorization
Recall of attributes			
Congruent	1.87	1.50	2.42
	(.990)	(.681)	(.764)
Incongruent	1.77	1.97	2.04
	(1.03)	(1.32)	(.988)

Note: Standard deviations are shown in parentheses.

Within-cell correlations revealed an interesting pattern. Whilst recall for congruent and incongruent attributes was unrelated for both baseline, r (15) = -.050, p = .859, and additional non-shared condition, r (12) = .095, p = .768, in the additional shared condition there was a significant correlation between the two, r (15) = .677, p = .006. Consistent with the hypotheses, when participants had considered an additional shared basis for categorization the distinction between congruent and incongruent information appears to have disappeared. Put another way, congruent information appears under normal conditions to be processed distinctly from incongruent information (i.e., schematically, due to its associative link to ingroup and outgroup categorization respectively). This association (and distinction from incongruent information) is maintained when category boundaries converge. When category boundaries diverge, however (as with consideration of an additional shared categorization), this distinction disappears in line with the proposed weakening of congruent information's associative link with categorization.

To summarize, the recall measure used in this study revealed a weakening of the implicit ingroup/positive and outgroup/negative link when a shared additional categorization was considered by participants, and an apparent strengthening of the implicit link when category boundaries converged. These findings thus support the original model of Deschamps and Doise

(1978) and provide specific evidence of the link between category structure and evaluation. If crossing an intergroup dichotomy with an additional shared categorization merges category boundaries it should correspondingly, via the postulated implicit category-attribute link, weaken the tendency to activate positive (ingroup) or negative (outgroup) information accordingly. Conversely, reinforcing a dichotomy with an additional non-shared categorization should strengthen the associative link with evaluatively congruent attributes. The effects observed in this experiment support the notion of the modifiability of the implicit link between categorization and evaluation.

DISCUSSION

The aim of this experiment was to systematically examine and develop theoretical and conceptual ideas with respect to the processes involved in crossed categorization. Focusing on the effects of making additional categorizations salient, not on composites formed from consideration of multiple categories, but on the original dichotomy that is brought into contact with the additional dimensions, we found a consistent trend in line with Deschamps and Doise's (1978) Category Differentiation Model at the level of implicit processing of group-relevant information. We discuss these findings below in the context of a developing understanding of the effects of crossed categorization.

In this experiment additional shared categorization led to a decrease in the processing of evaluatively congruent category/attribute pairings. This suggests that the implicit link between ingroup and outgroup membership and positive and negative attributes respectively weakened along with the proposed weakening of category representation. There was also a weaker tendency for accentuated processing of evaluatively congruent attributions in the non-shared condition, consistent with the notion that reinforced category boundaries can also reinforce intergroup bias. It is notable that it was recall of congruent category-attribute pairings that was moderated and not recall of incongruent pairings, which supports the idea that it is indeed a weakening of implicit psychological links between group membership and positive (ingroup) or negative (outgroup) attributes that is affected by crossed categorization.

We must, however, point out two observations with respect to these data. First, overall recall across conditions is rather low (ranging from 1.50 to 2.42 on a scale of 0 to 6). Second, the magnitude of the effects, although significant, is also quite low. The former could be a characteristic of the actual task (accurate free recall of the attributes contained within the presented profiles did appear to be a difficult task for our participants). This could, however, have also led to a suppression of the suggested differentials we observed as a function of categorization (i.e., a ceiling effect on recall). Alternatively, of course, it may have been that the nature of our categorical manipulation may not have been strong enough to exert an effect of higher magnitude than that observed. These observations call for a note of caution in the conclusions we draw. Future work using alternative measures of processing (such as recognition memory or alternative free recall paradigms) would be desirable to address these issues and ascertain a reliable indication of the overall magnitude of the effects. Whilst we must be tentative, the findings are, however, the first to our knowledge that illustrate the effects of cross-cutting categorization on implicit memory processes. As such, they will hopefully provide the

basis upon which future replications can confirm (or refute) and develop the patterns we observed.

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In summary, these findings support and extend Deschamps and Doise's (1978) original bias-reduction predictions in crossed category settings when the focus is on original target dimensions of categorization, rather than composites formed by crossed categorization. The effects on information processing are consistent with the original cognitive model of category differentiation (weakened differentiation with shared categorization; strengthened differentiation with non-shared categorization). We have also specified how implicit evaluations may correspondingly vary as a function of category structure (via dual activation of both congruent and incongruent attributes when ingroup and outgroup representations begin to merge in shared category conditions). The findings are consistent with this model of how implicit bias may be modified by crossed categorization. They could be considered initial steps towards developing a line of work that integrates Deschamps and Doise's original CDM with recent work on the implicit links between categorization and evaluation. In so doing, this work will add to our knowledge of how crossed categorization may be a beneficial tool for policymakers seeking interventions strategies designed to help reduce intergroup bias and enhance social inclusion.

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ENDNOTES

[1] The positive traits were: *competent*, $t(20) = 14.95$, $M = 3.29$; *enthusiastic*, $t(20) = 23.29$, $M = 3.81$; *generous*, $t(20) = 19.38$, $M = 3.43$; *courteous*, $t(20) = 11.29$, $M = 3.14$; *open-minded*, $t(20) = 21.46$, $M = 3.81$; *friendly*, $t(20) = 16.73$, $M = 4.00$; *understanding*, $t(20) = 18.96$, $M = 3.90$; *happy*, $t(20) = 18.65$, $M = 4.19$; *cheerful*, $t(20) = 18.80$, $M = 3.81$; *helpful*, $t(20) = 15.95$, $M = 3.86$; *loyal*, $t(20) = 18.41$, $M = 3.67$; *warm-hearted* $t(20) = 12.20$, $M = 3.62$; the negative traits were: *rude*, $t(20) = -18.34$, $M = -3.86$; *irritating*, $t(20) = -5.85$, $M = -2.57$; *untrustworthy*, $t(20) = -23.37$, $M = -4.24$; *shallow*, $t(20) = -14.29$, $M = -3.62$; *selfish*, $t(20) = -20.14$, $M = -3.71$; *narrow-*

minded, $t(20) = -22.00$, $M = -4.19$; *wasteful*, $t(20) = -11.00$, $M = -2.67$; *lazy*, $t(20) = -7.79$, $M = -2.19$; *impolite*, $t(20) = -11.53$, $M = -3.43$; *spiteful*, $t(20) = -17.82$, $M = -4.29$; *irresponsible*, $t(20) = -13.56$, $M = -3.14$; *insulting*, $t(20) = -20.00$, $M = -3.81$; all p's $< .0005$.

[2] We also included some other exploratory dependent measures in this experiment (some explicit evaluative items following the recall measure), but they yielded nothing of interest with respect to the current hypotheses so we do not discuss them further for the sake of clarity.

[3] This is consistent with the typical approach to examining implicit category-attribute links in person perception (e.g., the Implicit Association Test, Greenwald, McGhee, & Schwartz, 1998; see also Otten & Wentura, 1999).

[4] Moderation would be expected principally on incongruent category-attribute pairings if, for instance, the effects were predicted as a function of an inconsistency resolution process (increased executive processing). The predicted process here, however, was a weakening of the category boundaries and the corresponding link between category activation and evaluation, hence the predicted effects principally on recall for *congruent* attribute pairings.

AUTHORS' NOTE

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