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# "Fury, us": Anger as a basis for new group self-categories

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**Abstract**

We tested the hypothesis that shared emotions, notably anger, influence the formation of new self-categories. We first measured participants' ($N$ = 89) emotional reactions to a proposal to make university assessment tougher before providing feedback about the reactions of eight other co-present individuals. This feedback always contained information about the other individuals' attitudes to the proposals (four opposed and four not opposed), and in the experimental condition emotion information (of those opposed, two were angry, two were sad). Participants self-categorized more with, and preferred to work with angry rather than sad targets, but only when participants' own anger was high. These findings support the idea that emotions are a potent determinant of self-categorization, even in the absence of existing, available self-categories.

Keywords: Emotion, self-categorization, social identity, attitudes

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The role of self-categorization – defining oneself in terms of a salient group membership – in shaping emotions has been highlighted by a growing literature on group-based emotions (Iyer & Leach, 2008; Mackie, Devos, & Smith, 2000; Smith, 1993). What we feel when the interests of a group are advanced or threatened depends on the extent to which we define ourselves as members of that group. However, this literature has largely neglected the possibility that the reverse relation might also hold: Emotions might provide a basis for self-categorization and the emergence of new social identities (Kessler & Hollbach, 2005; Thomas, McGarty, & Mavor, 2009). It is this possibility that we sought to test in the present research.

The paucity of research on how emotion might shape group identities is all the more striking when viewed from the perspective of theories that emphasize the communicative role of emotions in allowing us to calibrate our own orientation to events and to other people (Fischer, Manstead, & Zaalberg, 2003; Manstead & Fischer, 2001; Parkinson, 1996, 2001; Parkinson, Fischer, & Manstead, 2005; Peters & Kashima, 2007). A separate line of research in the tradition of self-categorization theory (SCT; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987) suggests that the degree to which individuals' attributes 'fit' with each other (in terms of compatibility and content) in a particular context influences the extent to which they see themselves as sharing a group identity (Blanz, 1999; Oakes, 1987; Oakes, Turner, & Haslam, 1991).

Integrating these perspectives, we propose that shared emotions have the potential to influence self-categorization, including the formation of 'new' self-categories (e.g., Drury & Reicher, 2000; Peters & Kashima, 2007). Although previous research has examined the effect of emotion and mood on categorization and information processing (e.g., Bramesfeld & Gasper, 2008; Gable & Harmon-Jones, 2010; Gasper & Clore, 2002; Isbell, Lair, &

Rovenpor, 2013; Schwarz & Clore, 2002; Zivot, Cohen, & Kapucu, 2013), this has not directly addressed the role of emotion in *self*-categorization, particularly in interaction with emotional information coming from others. The only existing test of this hypothesis has shown that emotions – and anger in particular – strengthen pre-existing self-categorization when the emotional reaction is shared within this group (Livingstone, Spears, Manstead, Bruder, & Shepherd, 2011). However, the idea that emotion can evoke a *new* group identity, purely on the basis of a shared emotional response, has never been tested. Providing such a test is the primary goal of the current research.

Building on the SCT principles of comparative and normative fit (Oakes, 1987), we developed the concept of 'emotional fit' as a basis for our prediction that shared anger would lead to particularly strong tendencies to self-categorize with others (Livingstone et al., 2011). *Emotional fit* refers specifically to the fit between the content of an emotion and group-based representations and action. Thus, when an event evokes anger in the self, the knowledge that others share this emotion should reinforce – or in the present case, actually *create* – an "us–them" distinction (Livingstone et al., 2011). This is because appraisals underlying anger refer more to another agent as the source of injustice (Frijda, 1986), and the target of opprobrium (i.e., the relevant outgroup), making it more relational and potentially more "groupy" than other emotional reactions such as happiness (Livingstone et al., 2011; see also Thomas et al., 2009) or, in the present case, sadness.

We tested these hypotheses by presenting undergraduate student participants – in groups of nine – with an emotion-evoking scenario (proposals to make university assessment tougher) and assessing their emotional reaction to it, and then varying whether or not the apparent emotional reaction of other participants was communicated to participants. The information given to participants showed that four of the eight other participants were against the proposals. In the experimental (but not the control) condition two of these felt angry, and

the other two felt sad. This design allowed us to focus on the role of emotion – and anger in particular – over and above the attitude that the emotion may signal, which was constant across angry and sad targets. In particular, the design permitted a comparison between a condition in which targets and the participant matched only in attitudes and one in which they matched in attitudes *and* anger. The critical test of our hypothesis was whether self-categorization would be influenced by the presence of this emotional information. If emotions provide a meaningful basis for self-categorization, then self-categorization with these participants should be affected by the content of the targets' emotions, in interaction with participants' own level of anger. Specifically, it should be greater when own anger is high, and the content of the targets' emotion is known to be anger.

We examined self-categorization using two indicators (social distance and shared categorization) derived from a sociogram, a non-reactive, unstructured measure that allows respondents to describe social relationships in terms of spatial location (Moreno, 1953). Although the sociogram is typically used to examine inter-personal relationships, we adapted it to examine participants' subjective sense of shared categorization with others. We were also concerned with the behavioral outcomes of the processes described above, and specifically whether any effects of self-categorization would translate into a desire to work together with those who shared one's own emotional reaction. A third outcome measure therefore involved the selection of other participants as team members for a subsequent task. We expected that this selection would follow a similar pattern to that predicted for the self-categorization measures described above.

## Method

### Participants and Design

Ninety undergraduate students of psychology participated in return for course credit. One participant was subsequently excluded because of a number of missing data, leaving a

final sample of 89 participants (81 female, eight male; *M* age = 19.57 years, *SD* = 1.83). The study had a 2 (other participants' emotions communicated vs. not communicated) condition between-subjects design. Sample size was determined by a combination of participant availability and the need for adequate power to test the two- and three-way interactions described below.

**Materials and Procedure**

Participants were tested in group sessions, and were told that they were being grouped with eight of the other participants. They each sat in front of a computer in the same room. All materials with the exception of the sociogram were presented via computer, and no interaction took place between participants. Their first task was to respond to questions about their hobbies/interests, university society memberships, time of day preference (morning/evening/neither), favorite animal, and favorite color. They responded by typing answers into text boxes.

Participants were then presented with a bogus but nevertheless plausible report arguing that it had become too easy to obtain high grades on university courses, and that steps were being taken to make university assessment tougher. Participants' *anger* ("The proposed measures against degree inflation make me feel… angry/resentful/annoyed/furious"; $\alpha$ = .912), and *sadness* (sad/hopeless/miserable/dejected; $\alpha$ = .877) in response to these proposals were measured using 4-item scales ranging from 1 (not at all) to 12 (extremely). To disguise our focus on anger and sadness, measures of happiness and indifference were also taken.

**Communication of targets' emotion**. Participants were then presented with a table ostensibly summarizing the biographical information and attitudinal responses of the other eight participants. This information was pre-determined. In the *emotions communicated* condition, the table contained biographical information, attitude to the proposal for tougher grading, and their dominant emotion about the proposal for tougher grading. The table

indicated that four (targets 2, 5, 6 and 9) of the eight other participants were against the proposal. Of these four, two (targets 2 and 6) were angry and two (targets 5 and 9) were sad. The remaining four participants did not oppose the proposal. Of these four, two (targets 1 and 8) were pleased and two (targets 3 and 7) were indifferent. In the *emotions not communicated (color)* condition, the dominant emotion about the proposal for tougher grading was replaced by information about participants' favorite color. Each emotion was matched with a specific color (angry = blue; sad = red; indifferent = green; happy = yellow), so that in a basic perceptual sense, the information differentiated between targets to the same extent in both conditions. This also ensured that the presence or absence of targets' emotion was not confounded with information load or visual content. The remaining biographical information was also varied among participants so that it was not systematically related to attitudes or emotions.

**Sociogram**. Social distance and shared categorization were measured using a sociogram, consisting of a sheet of white paper in landscape orientation with a '+' printed in the center of the page. Each participant in the session had ostensibly been assigned a unique number from 1 to 9; participants were always assigned the number 4.

Social distance was assessed by asking participants to write their own number ('4') next to the '+' to represent themselves, and then the numbers of the other eight participants elsewhere on the page, with greater distances indicating greater social distance. The social distance score for targets 2 and 6 (the 'angry' targets) combined was calculated by averaging the distance in centimeters between the participant and each of these targets. A similar score was calculated for targets 5 and 9 (the 'sad' targets).

Shared categorization was assessed by asking participants to indicate how they thought participants should be grouped. They did this by drawing as many or as few circles as they thought appropriate around the numbers representing participants (including their own

number). Self-categorization with targets 2 and 6 (the 'angry' targets) was measured by summing how many of them were included in a group with the self. This yielded a score ranging from 0 to 2. The same was done for targets 5 and 9 (the 'sad' targets) to create a measure of self-categorization with them. The accompanying instructions are available as supplementary materials.

**Selection of task group members**. Participants were told that they would later be performing a task as part of a 3-person group. Although there was no guarantee that they would get to work with the people they chose, they could nevertheless indicate the two fellow participants with whom they would like to work. Participants then selected two other participants from the possible eight. How many of targets 2 and 6 and how many of targets 5 and 9 were selected as preferred group members was measured, providing two scores ranging from 0 to 2.[1]

## Results

Social distance from, shared categorization with, and selection of angry and sad targets as team members were analyzed in mixed ANCOVAs. The design of each ANCOVA included the main effect terms of targets (repeated: targets 2 and 6 v. targets 5 and 9), condition (emotion communicated vs. not communicated [color]) own anger (continuous, mean-centered) and own sadness (continuous, mean-centered). It also included all 2-way interaction terms with the exception of the own anger X own sadness term, and all 3-way interaction terms with the exception of those involving both own sadness and own anger[2]. This model allowed us to test the interactive effect of targets' emotion, condition and own anger while controlling for the effect of own sadness as a main effect and in the interaction terms, and vice versa. An example of the SPSS syntax used can be found in the supplementary materials.

**Social distance**

For social distance, the 3-way interaction between targets, condition and own anger was significant, $F(1, 83) = 9.93$, $p = .002$, $\eta_p^2 = .107$, and is illustrated in the upper panels of Figure 1. The 3-way interaction between targets, condition and own sadness was not significant ($F < 1$), indicating that the effect was uniquely due to own anger rather than own sadness or general negative affect. Further analysis of the interaction involving own anger revealed that the two-way interaction between condition and own anger was highly significant for targets 2 and 6 (the 'angry' targets), $F(1, 83) = 7.50$, $p = .008$, $\eta_p^2 = .083$, but non-significant for targets 5 and 9 (the 'sad' targets), $F < 1$. The two-way interaction between condition and own sadness was not significant for targets 2 and 6 or for targets 5 and 9, $F$s < 1.

Simple effects analyses on social distance to targets 2 and 6 confirmed that when participants' own anger was high ($M + 1SD$), participants felt closer to these targets to a greater extent when the targets' emotions were communicated rather than not communicated, $F(1, 83) = 5.24$, $p = .025$, $\eta_p^2 = .059$. There was also a significant effect of condition when participants' own anger was low ($M - 1SD$), but in the opposite direction – that is, participants felt more distant from these targets when the targets' emotions were communicated, $F(1, 83) = 5.11$, $p = .026$, $\eta_p^2 = .058$.

A second set of planned contrasts tested the social distance to targets 2 and 6 *relative* to targets 5 and 9, which is indicative of a preference for one pair over the other. This revealed that when participants' own anger was high ($M + 1SD$), participants felt closer to targets 2 and 6 rather than to targets 5 and 9, but only when the targets' emotions were communicated, $F(1, 83) = 4.05$, $p = .047$, $\eta_p^2 = .047$ ($F(1, 83) = 2.31$, $p = .132$, $\eta_p^2 = .027$ when emotions were not communicated).

**Shared categorization**

For shared categorization, the 3-way interaction between targets, condition and own anger was also highly significant, $F(1, 81) = 5.69$, $p = .019$, $\eta_p^2 = .066$, and is illustrated in the middle panels of Figure 1. Again, the 3-way interaction between targets' emotion, condition and own sadness was not significant ($F < 1$), indicating that the effect was uniquely due to own anger rather than own sadness. Further analysis of the interaction involving own anger revealed that the two-way interaction between condition and own anger was highly significant for targets 2 and 6 (the 'angry' targets), $F(1, 83) = 7.73$, $p = .007$, $\eta_p^2 = .085$, but non-significant for targets 5 and 9 (the 'sad' targets), $F < 1$. The two-way interaction between condition and own sadness was not significant for targets 2 and 6 or for targets 5 and 9, $F$s < 1.

Simple effects analyses on shared categorization with targets 2 and 6 confirmed that when participants' own anger was high ($M + 1SD$), participants self-categorized with these targets to a greater extent when the targets' emotions were communicated rather than not communicated, $F(1, 81) = 6.67$, $p = .012$, $\eta_p^2 = .076$. There was no significant effect of condition when participants' own anger was low ($M - 1SD$), $F < 1$.

A second set of planned contrasts testing shared categorization with targets 2 and 6 *relative* to targets 5 and 9 revealed that when participants' own anger was high ($M + 1SD$), participants shared categorization to a greater extent with targets 2 and 6 than with targets 5 and 9, but only when the targets' emotions were communicated, $F(1, 81) = 6.73$, $p = .011$, $\eta_p^2 = .077$ ($F(1, 81) = 2.96$, $p = .089$, $\eta_p^2 = .035$ when emotions were not communicated).

**Team member selection**

For team member selection, the 3-way interaction between targets' emotion, condition and own anger was also highly significant[3], $F(1, 83) = 6.77$, $p = .011$, $\eta_p^2 = .075$, and is illustrated in the lower panels of Figure 1. The 3-way interaction between targets' emotion,

condition and own sadness was not significant ($F < 1$), indicating that the effect was uniquely due to own anger rather than own sadness. Further analysis on the interaction involving own anger revealed that the two-way interaction between condition and own anger was highly significant for targets 2 and 6 (the 'angry' targets), $F(1, 83) = 7.62$, $p = .007$, $\eta_p^2 = .084$, but non-significant for targets 5 and 9 (the 'sad' targets), $F(1, 83) = 2.19$, $p = .143$, $\eta_p^2 = .026$. The two-way interaction between condition and own sadness was not significant for targets 2 and 6 or for targets 5 and 9, $F$s $\leq 1.1$.

Simple effects analyses on selection of targets 2 and 6 confirmed that when participants' own anger was high ($M + 1SD$), participants selected these targets to a greater extent when the targets' emotions were communicated rather than not communicated, $F(1, 83) = 8.70$, $p = .004$, $\eta_p^2 = .095$. There was no significant effect of condition when participants' own anger was low ($M - 1SD$), $F(1, 83) = 2.67$, $p = .106$, $\eta_p^2 = .031$.

A second set of planned contrasts testing selection of targets 2 and 6 *relative* to targets 5 and 9 revealed that when participants' own anger was high ($M + 1SD$), participants selected targets 2 and 6 to a greater extent than targets 5 and 9, but only when the targets' emotions were communicated, $F(1, 83) = 5.55$, $p = .021$, $\eta_p^2 = .063$ ($F = 1.54$ when emotions were not communicated).

## Discussion

Consistent with our hypotheses, when participants' own anger was high, they felt closer to, shared categorization to a greater extent with, and were more likely to select targets 2 and 6 as co-workers when the targets' emotions were communicated. That is, knowing that these targets felt angry (as opposed to just knowing their attitude) shaped participants' self-categorical relationship with these targets, but only when participants themselves also felt angry. Participants also felt closer to, shared categorization to a greater extent with, and were more likely to select these targets as co-workers than targets 5 and 9 (the 'sad' targets) when

the targets' emotions were communicated, despite the fact that all of these targets ostensibly shared the same attitude towards the situation. These patterns did not emerge in relation to own sadness, suggesting that anger can be especially powerful as a basis for self-categorization in contexts involving transgressions by others. These findings together suggest that the consequences of emotional fit are not simply perceptual; rather, they have the potential to translate into co-ordinated behavior through their effect on perceptions of relevant self-categories – and indeed, by helping to *create* relevant self-categories (Haslam, 1997; Turner, 1991; Turner et al., 1987).

Importantly, these effects occurred despite the fact that the targets' explicit attitudes towards the proposal were identical. We can also rule out alternative explanations based on information load, which was constant across conditions. Moreover, self-categorization with unknown others occurred in the absence of any pre-existing or pre-defined categories that could have directed them towards particular targets. This to our knowledge represents the first demonstration of truly *emergent* or *new* self-categorization on the basis of emotions. To this end, our use of a sociogram method to assess categorization is an innovation that helps to surmount a number of issues when it comes to gauging self-categorization, particularly with 'new' or emergent self-categories. Specifically, verbal (e.g., Oakes et al., 1991) or other spatial (e.g., Schubert & Otten, 2002) measures of self-categorization involve presupposing to some degree the relevance and labelling of relevant categories, as do other methods of assessing self-categorization such as the 'who said what' paradigm (e.g., Blanz, 1999). When it comes to assessing emergent self-categories, such methods present problems such as demand characteristics or other forms of reactivity. In contrast, the participant-driven specification of categories in the sociogram represents a truly 'bottom-up' assessment of emergent self-categorization that is suited to the task of addressing the role of emotion in social identity formation.

While our design did allow us to at least partially test the effect of emotion over and above that of attitude, further research is needed to disentangle the precise role of emotions as a signal to self-categorization, for example by controlling for any effect of emotion content on the perceived intensity of targets' attitudes. Nevertheless, the present findings go some way to showing that emotions have *particular* value and power in shaping self-categorization because they communicate an impassioned, involved stance towards events, along with claims about possible and proper courses of (collective) action (Frijda, 1986; Livingstone et al., 2011; Parkinson, 1996; Thomas et al., 2009). Moreover, they have the potential to do so in a short-hand, readily-interpretable manner that helps to explain how communication and social co-ordination can occur in unfolding interactions involving groups, from small group settings to larger scale collective events (e.g., Drury & Reicher, 2000).

Relatedly, our focus on anger in the present research should not be seen as suggesting that other emotions such as sadness, or even positive emotions such as happiness play no role in regulating social identity. In keeping with the notion of emotional fit, sadness may be more affirming of a shared identity in certain contexts (e.g., a funeral) than, say, anger (see also Keltner & Haidt, 1999). Further, the specific object of the emotion is also likely to be important. In the present case, the object of the emotion is a potential change that is primarily negative from the perspective of participants. Amongst the constellation of negative emotions that could arise from appraisals of this change, anger is likely to be especially potent in shaping self-categorization because of the its other-focused nature and the action orientation that differentiates it from emotions such as sadness (Frijda, 1986). It follows that if, in contrast, the object of emotion is a potential *positive* change (e.g., something that would be of benefit or would be welcomed by perceivers), then happiness or associated positive, active emotions are likely to be particularly potent as sources of social identity, because they signal an action orientation towards facilitating (as opposed to resisting) the change in question.

Again, the specific role of different emotions in different contexts is an empirical question for future research. The point here is that the power of emotions derives from how they signal the appropriateness of *particular* group-based representations and actions (Smith, 1993). The implications of such processes for social action are also a priority for future research (Kessler & Hollbach, 2005; Thomas et al., 2009), as is an examination of other, behavioral indicators of self-categorization, such as the emergence of ingroup favoritism (Hogg & Turner, 1987; Tajfel, Billig, Bundy, & Flament, 1971).

**Conclusion**

The emotional dimensions of group life have received a growing amount of attention, particularly in terms of the contribution of groups and social identities to the experience of emotions (Iyer & Leach, 2008). What is clear from the present findings is that the relation between social identity and emotion is two-way: Although social identities are a potent source of emotion, it is also evident that emotions can help to *create* social identities. While social categories have been described as 'world-making things' (Reicher, Haslam, & Hopkins, 2005, p.556), it is the interplay between one's own emotional reactions to unfolding events and the emotional reactions communicated by others that can provide a basis from which shared categories actually come into being.

## Footnotes

1. A number of other measures relating to intergroup orientations were included after the measures reported here. These included scales of opinion support (two items) and action support for (two items) and against (two items) the proposal, collective efficacy for (two items) and against (two items) the proposal, and expected validation from team members (four items). These measures are not analyzed here because they are more relevant to hypotheses regarding intergroup behavior, and collective action specifically; they have also not been reported anywhere else.
2. Participants' own anger and sadness were significantly correlated ($r$ = .715). Including own sadness as a covariate enabled us to study the effects of own anger controlling for its shared variance with own sadness. Regression analyses including condition, own anger and own sadness as predictors confirmed that no issues of multi-collinearity emerged when entering own anger and own sadness together; all tolerance statistics > .488.
3. The selection of two individuals without replacement arguably creates interdependence in the selections. For this reason, we also ran a bootstrapped (non-parametric) version of the analysis. This yielded almost identical results; specifically, the 3-way interaction between targets' emotion, condition and own anger was still highly significant, $B$ = -.21, $SE$ = .07, 95% $CI$s = -.352 and -.062.

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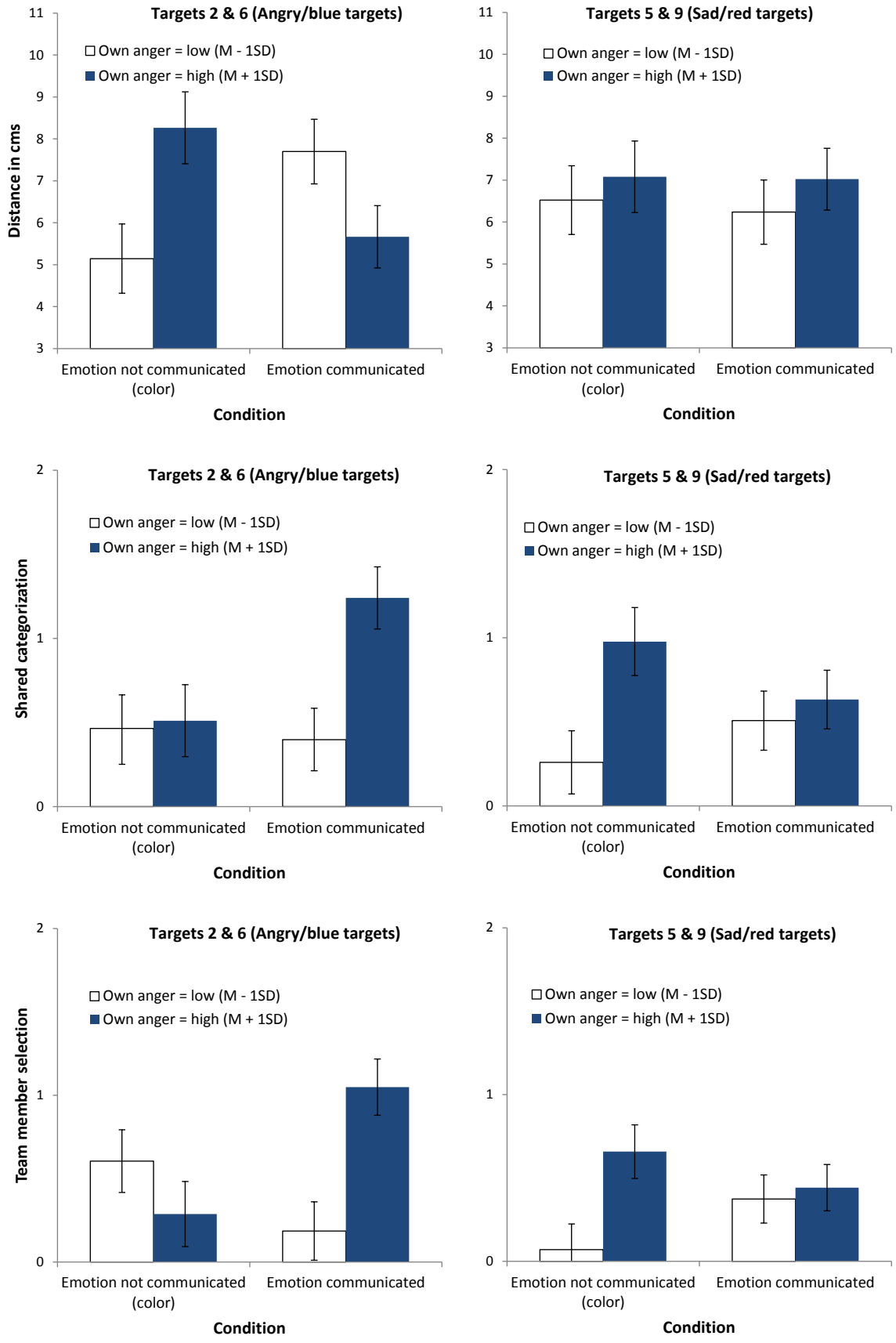
Figure Captions

*Figure 1.* Interactions between targets (targets 2 and 6 vs. targets 5 and 9), condition (targets' emotions communicated, vs. not communicated [color]), and own anger on social distance, shared categorization, and team member selection. Bars represent predicted values estimated at low ($M - 1SD$) and high ($M + 1SD$) levels of anger. Error bars represent standard errors.

Figure 1


Targets 2 & 6 (Angry/blue targets)
Own anger = low (M - 1SD)
Own anger = high (M + 1SD)
Distance in cms
Emotion not communicated (color)
Emotion communicated
Condition
Targets 5 & 9 (Sad/red targets)
Own anger = low (M - 1SD)
Own anger = high (M + 1SD)
Emotion not communicated (color)
Emotion communicated
Condition
Targets 2 & 6 (Angry/blue targets)
Own anger = low (M - 1SD)
Own anger = high (M + 1SD)
Shared categorization
Emotion not communicated (color)
Emotion communicated
Condition
Targets 5 & 9 (Sad/red targets)
Own anger = low (M - 1SD)
Own anger = high (M + 1SD)
Emotion not communicated (color)
Emotion communicated
Condition
Targets 2 & 6 (Angry/blue targets)
Own anger = low (M - 1SD)
Own anger = high (M + 1SD)
Team member selection
Emotion not communicated (color)
Emotion communicated
Condition
Targets 5 & 9 (Sad/red targets)
Own anger = low (M - 1SD)
Own anger = high (M + 1SD)
Emotion not communicated (color)
Emotion communicated
Condition