

Social identity salience shapes group-based emotions through group-based appraisals

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Group-based emotions have been conceptualised as being rooted in perceivers' social identity. Consistent with this idea, previous research has shown that social identity salience affects group-based emotions, but no research to date has directly examined the role of group-based appraisals in comparison with individual appraisals. In the present studies, we measured group-based appraisals through a thought-listing procedure. In Experiment 1, we explicitly reminded people of their group identity, which led to the predicted change in group-based anger. This effect was mediated by group-based appraisals. In Experiment 2, participants either discussed a group-relevant scenario in small groups or a related topic irrelevant to the group. The group-relevant condition not only led to stronger indignation but the perceived presence of group-based appraisals was also related to participants' reports of indignation. These results provide further evidence for the importance of group-based appraisals as components of group-based emotions.

Keywords: Social identity; Group-based emotions; Group-based appraisals.

Although there are heated debates about the causal and necessary role of appraisals in emotions, appraisals have been regarded as one of the most important components of discrete emotions (Lazarus, 1991; Scherer, 2001). Appraisals have typically been studied at the individual level. However, recent theorising suggests that appraisal processes can also exist at the group level (E. R. Smith, 1993, 1999). To the extent that the self comprises both personal and social aspects, the

salience of one's social rather than one's personal identity implies that appraisal processes can occur on behalf of the group to which people belong. In other words, people evaluate or appraise the situation for possible opportunities and threats to their in-group. Such group-based appraisals then result in group-based emotions, that is, emotional reactions to group concerns (Yzerbyt & Kuppens, 2009).

Although the distinction between individual appraisals and group-based appraisals is clear at a

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conceptual level, little if any direct empirical support is available. Still, in light of the potential role of group-based appraisals and group-based emotions in intergroup relations, it is most important to investigate this issue. The aim of the present research was to examine the difference between individual and group-based appraisals. Specifically, we manipulated social identity salience in order to study group-based aspects of emotion and we measured the content of participants' thoughts using open-ended questions in order to distinguish between thoughts related to the individual and to the social self. Our main hypothesis was that group-based appraisals (in addition to individual appraisals) could be identified from people's spontaneously reported thoughts, that group-based appraisals (but not individual appraisals) would be more prevalent when people's social identity was made salient, and that they would mediate the relation between social identity salience and group-based emotions.

Group-based appraisals

The central idea behind group-based emotions is that such emotions are crucially related to how individuals perceive the situation in light of their in-group's concerns. This assumption can be found in various theories, even though none of them have made an explicit link with appraisal theories of emotion.

Although perhaps the earliest appearance of the idea of group-based appraisals might be in Blumer's (1958) group position model, a more influential proposal can be found in relative deprivation theory. In the context of this theory, Runciman (1966) distinguished between egoistic and fraternal relative deprivation. Egoistic relative deprivation means that one feels disadvantaged as an individual. Fraternal relative deprivation is a negative evaluation of the position of one's group in comparison to other groups. Quite a few empirical efforts have been devoted towards distinguishing these two types of deprivation. For instance, group relative deprivation comparisons were found to be much more related to collective behaviour and attitudes (H. J. Smith &

Ortiz, 2002), and also to prejudice (Pettigrew et al., 2008), than relative deprivation comparisons based on the individual.

A more recent version of these approaches can be found in social identity theory and self-categorisation theory (Tajfel & Turner, 1979; Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). According to Tajfel and colleagues, personal identity and social identity are aspects of the self-concept that can become more or less salient as a result of individual and contextual factors. When social identity is salient, people undergo a process of depersonalisation and see themselves as interchangeable group members. If one's social identity is salient, this would imply that group concerns are also salient, giving rise to group-based appraisals and emotions (Iyer & Leach, 2008; E. R. Smith, 1993, 1999; Yzerbyt, 2003).

A crucial aspect of group-based emotion theorising is that we are able to differentiate between individual and group-based appraisals. However, a problem with empirically distinguishing these levels is that a situation that affects the group might also affect the individual simply because the individual is a group member and might thus be concerned by the situation merely as an individual (see Mackie, Devos, & Smith, 2000; van Zomeren, Spears, Fischer, & Leach, 2004, for illustrations). How then can we disentangle the part played by individual appraisals and by group-based appraisals? Various solutions have been proposed.

One solution is to manipulate both the personal and the group situation independently in the same experiment. For example, Doosje, Branscombe, Spears, and Manstead (1998) provided information that either participants themselves or participants' group members had harmed another group. Results showed that when participants had done nothing wrong as individuals, the alleged discriminatory behaviour of their group members still induced feelings of guilt (suggesting this was a reaction to group-based and not individual appraisals).

Another solution is to focus on situations where the individual is not personally concerned by the events and manipulate the situation of the

group. Fans at sports competitions are a good example of this kind of situation and losing a game indeed leads to negative emotions among the fans that are present (Crisp, Heuston, Farr, & Turner, 2007; Kerr, Wilson, Nakamura, & Sudo, 2005; Wann, Dolan, McGeorge, & Allison, 1994). In a second example of a situation where there are no individual concerns at stake, Doosje et al. (1998, Study 2) presented their Dutch participants with information on the past behaviour of the Dutch in their former colony Indonesia. The only link of the participants to the past behaviour of the Dutch is their group membership as a consequence of their Dutch nationality. Still, when the Dutch were presented as having behaved badly, participants reported feeling more guilt than when the Dutch behaviour was presented as positive (see also Zeibel et al., 2007). There are similar examples for group-based *schadenfreude* (Leach, Spears, Branscombe, & Doosje, 2003) and shame (Iyer, Schmader, & Lickel, 2007).

A third solution to the problem of disentangling individual from group-based appraisal is to manipulate the salience of the relevant group membership and measure both appraisals and emotions. This strategy attempts to change the perceived intergroup context and thereby influence the way in which a situation is appraised in relation to one's group concerns. These group-based appraisals are then expected to lead to a change in group-based emotions. Using this strategy, Gordijn, Yzerbyt, Wigboldus, and Dumont (2006) led participants to categorise themselves in the same group as either the victims or the perpetrators of an unfair decision (while making sure that participants were not personally affected by this decision). Categorisation indeed affected anger, an effect that was mediated by appraisals of unfairness (see Kuppens & Yzerbyt, 2012, for similar results using a different social identity manipulation).

The above studies show that the in-group's situation can affect the emotions that people experience. However, the crucial role of group-based appraisal is much less clear. Most studies do not measure appraisals, and when they do, they

use Likert-type rating scales. Unfortunately, using such scales means that we have to rely on individuals' ability to accurately distinguish between individual and group-based appraisal (which might be an unreasonable expectation given that even the scientific literature is still debating this point). Furthermore, when emotions are also assessed using rating scales, this might artificially inflate the relation between appraisal and emotion. We therefore decided to use an open-ended measure of appraisals in our studies, that is, to let participants spontaneously report their thoughts instead of forcing them to answer on pre-formulated items. We are using this new method to test our hypotheses about the distinctiveness and role of group-based appraisals. Importantly, this new method will allow us much better than previous research did, to investigate: (1) whether people engage in group-based appraisals (in addition to individual appraisals); (2) whether the degree of salience of the relevant group membership increases the extent to which people make group-based appraisals (but not individual appraisals); and (3) whether these group-based appraisals are related to emotions on behalf of the group.

In the present research, we investigated what people think when their social identity is made salient. We present two studies in which we manipulated social identity salience in two different ways. The first was to explicitly remind people of one particular group membership; the second was to have in-group members discuss an out-group target. In addition, and this is a method that has not yet been used in the context of research on group-based emotions, we used an open-ended question to assess participants' thoughts when confronted with the emotion-eliciting event. The reason we used this measure was that we wanted to know what people spontaneously thought about instead of forcing their response on pre-formulated items. Clearly, an open-ended measure is a less obtrusive and more natural measure. Most importantly however, this measure of participants' thoughts should allow us to distinguish between individual and group-based appraisals without relying on people's

own understanding of this crucial difference. We hoped that such evidence would shed new light on the consequences of social identity salience and its relation with group-based emotions.

EXPERIMENT 1

We presented university students with a fake newspaper article discussing an unfair decision by the rector of another university. The decision was selected so as not to affect our participants, but only other students. Before participants received the study materials, we made salient either their student identity or their individual identity. In accordance with previous studies (Gordijn, Wigboldus, & Yzerbyt, 2001; Gordijn et al., 2006; van Zomeren, Spears, & Leach, 2008; Yzerbyt, Dumont, Wigboldus, & Gordijn, 2003), we expected that this would lead participants to feel emotions (primarily anger) on behalf of the other students who were the victims of the unfair decision. We used a thought-listing procedure to assess participants' thoughts and measure group-based appraisals, immediately after they had read the article. We predicted that participants in the student identity condition would list more thoughts related to their student identity. Finally, we expected the group-based character of the thoughts to mediate the effect of social identity salience on group-based emotions.

Method

Participants. Seventy-one French-speaking students in a Belgian university (40 women, 29 men, 2 not reported; $M_{\text{age}} = 20.2$ years) were paid to participate in this experiment.

Scenario. Participants received a (fake) newspaper article about a conflict between the rector and the students at another Belgian university. The rector allegedly had decided to impose

English as the only teaching language in all master programs. The students were described as opposing this decision and complaining about the total lack of consultation. They were presented as planning to act against the decision.

Social identity manipulation. Before reading the newspaper article, participants in the "student" condition (14 female, 9 male, 1 unknown) were told that the researchers were interested in the opinion of both students and professors regarding this matter. In order to make their student social identity salient, they also responded to 17 items measuring identification with the group of students on a scale ranging from 1 = *Not at all* to 7 = *Very much*. Participants in the control condition (26 female, 20 male, 1 unknown)¹ were told the researchers were interested in their opinion as unique individuals, and they answered 10 items measuring how strongly they saw themselves as unique individuals on a scale ranging from 1 = *Not at all* to 7 = *Very much*. Similar manipulations have been used successfully in previous studies on group-based emotions (van Zomeren et al., 2008; Yzerbyt et al., 2003).

Group-based appraisals. We used an open-ended measure and, more specifically, a thought-listing procedure (Cacioppo & Petty, 1981), in order to assess group-based appraisals because we wanted to know what participants spontaneously thought in reaction to the newspaper article and our social identity manipulation. In contrast to pre-formulated items, such an open-ended measure is not suggestive, which increases the likelihood that the data indeed reflect how people respond in real-world situations. Also, and as will become clear below, an open-ended measure of group-based appraisals allows comparisons between Experiment 1 and Experiment 2 (which includes group discussions).

Immediately after reading the newspaper article, participants were asked to list all the thoughts that had come to their mind while they

¹The individual and the student condition do not have an equal number of participants because the individual condition consisted of two separate conditions that only differ in a manipulation that came after all the variables discussed in this article. Therefore, we here put those participants together in the "individual" condition.

were reading the article. Participants were given four minutes to complete this task. All thoughts relevant to the newspaper article were then coded according to (1) whether they expressed a favourable opinion toward the rector's decision, and (2) whether they expressed an unfavourable opinion toward the rector's decision. Thoughts that were either favourable or unfavourable were further coded for (3) whether they referred to the students' concerns as a group² and (4) whether they mentioned the word "student". It should be noted that mentioning "student" and referring to group concerns often coincided (e.g., 94% of thoughts that mentioned the word "student" also referred to group concerns). The inter-coder agreement between two independent coders who were blind to the condition was good ($\kappa = .73, .67$ and $.87$ for favourable, unfavourable and group concerns, respectively). Differences between the coders were solved through discussion. When it was difficult to reach an agreement, a third coder was consulted and his opinion prevailed.

Group-based emotions. Participants were asked to indicate the extent to which they experienced a series of emotions in response to the newspaper article. We included four emotions that could be relevant to the scenario: anger (angry, irritated, annoyed, and cross, $\alpha = .92$), sadness (sad, gloomy, upset, and unhappy, $\alpha = .86$), happiness (cheerful, amused, and enthusiastic, $\alpha = .86$) and fear/anxiety (scared, afraid, and uneasy, $\alpha = .89$).

Procedure. Participants entered the lab alone or in small groups, but they all worked individually. They first underwent the social identity manipulation and filled in the identification scale (either as a student or as a unique individual). They then read the newspaper article. Once they had finished reading, they received the rest of the questionnaire, containing first the thought-listing procedure and then the emotion scales. Finally, participants had to write a short summary of the

newspaper article and rated their emotions again (results for these last two tasks are not discussed here).

Results

Eight participants indicated (either during the debriefing or in the thought-listing) that they doubted the fact that the newspaper article was real and were excluded from the analyses, leaving a total of 63 participants (34 women, 28 men, 1 unknown).

Unexpectedly, a sizeable minority of participants expressed a positive opinion toward the rector's decision. These participants thought that changing the teaching language to English was a good idea that would benefit students. For example, 25% of all participants mentioned in the thought-listing task that studying in English had advantages for students. This created a problem of mixed reactions (i.e., positive because changing the language to English is a good idea, but at the same time negative because of the way the change was decided). To take into account this possible problem, we tested whether the effect of the social identity condition on appraisals and emotions depended on whether or not participants mentioned one or more thoughts favourable to the rector's decision. The proportion of participants who mentioned at least one favourable thought did not differ between conditions (42% in the individual condition and 35% in the student condition, Cramer's $V = 0.07, p = .60$). We expected the predicted group-based appraisals (and the anger associated with it) to be present most clearly for those participants who did not mention any favourable thoughts.

Thought-listing. For each participant, we calculated the proportion of relevant thoughts that were favourable to the rector's decision, the proportion that were unfavourable to the rector's decision, and the proportion that were unfavourable,

² Examples of such thoughts are "This is not cool for students" and "They should have asked for the students' opinion".

Table 1. Means (standard deviations in parentheses) for the dependent variables in Experiment 1, by condition

	<i>All participant's thoughts are neutral or unfavourable</i>		<i>Participant has at least one favourable thought</i>	
	<i>Individual identity</i>	<i>Student identity</i>	<i>Individual identity</i>	<i>Student identity</i>
Prop. unfavourable	0.39 (0.37)	0.51 (0.37)	0.50 (0.25)	0.38 (0.26)
Prop. unfavourable and group	0.05 (0.11)	0.24 (0.31)	0.20 (0.19)	0.06 (0.11)
Happiness	2.43 (1.55)	2.56 (1.34)	2.39 (1.36)	3.57 (1.27)
Anger	2.80 (1.71)	3.56 (1.59)	2.56 (1.61)	2.00 (1.16)
Sadness	2.78 (1.49)	1.98 (0.89)	2.31 (1.31)	1.79 (0.94)
Anxiety	3.63 (1.89)	3.49 (1.37)	3.44 (1.65)	2.62 (1.77)

Notes. "Prop. unfavourable" = proportion of unfavourable thoughts. "Prop. unfavourable and group" = proportion of thoughts that are unfavourable, mention the word "student", and refer to group concerns.

mentioned the word "student", and referred to group (student) concerns.³ We will from now on use the term "group-based thoughts" for those thoughts that at the same time were unfavourable, mentioned the word "student", and referred to group concerns. We analysed these proportions using regression analysis with the identity condition contrast as a predictor (mean-centred).⁴ We found that the identity condition had no impact on the proportion of favourable thoughts ($B = 0.03$, $p = .61$).

For the analysis of the proportion of thoughts that were unfavourable or were group-based, we added a "positive opinion" contrast (again, mean-centred)⁵ and its interaction with the identity condition to the regression model. There was no significant effect for the analysis of the proportion of unfavourable thoughts (all $ps > .19$, see Table 1 for all means). However, for the proportion of group-based thoughts, we found an interaction between identity condition and "positive opinion" ($B = -0.33$, $p < .01$). For those participants who had a purely negative or neutral opinion, making salient their student identity led to the predicted increase in the proportion of group-based

thoughts ($B = 0.19$, $p < .01$), but this was not the case for participants who had a mixed or positive opinion ($B = -0.13$, $p = .09$).⁶ This analysis thus supports the idea that social identity salience leads to an increase in group-based appraisals relevant to that particular social identity.

Emotions. We conducted a series of multiple regressions with one emotion as the criterion variable and the other emotions as covariates (which makes the analyses more focused; see Harth, Kessler, & Leach, 2008; Mackie et al., 2000). The predictor variables were identity condition, whether or not participants mentioned a favourable thought ("positive opinion"), and their interaction. As predicted, anger was more intense when the student identity had been made salient ($B = 0.95$, $p < .01$) than when participants responded as individuals (see Table 1 for all means). However, participants in the student condition also reported marginally more happiness ($B = 0.71$, $p < .09$) and less sadness ($B = -0.75$, $p < .01$) than in the control condition. There was no effect on fear ($B = -0.22$, $p = .58$). Given that anger correlates negatively

³There were only three thoughts that were both favourable and referred to group concerns, so we did not analyse this proportion.

⁴Specifically, the control condition was coded -0.3175 and the student condition was coded 0.6825 . This allowed the difference between the two conditions to be exactly 1 and the sample mean of the contrast to be 0.

⁵The "positive opinion" contrast was coded -0.3968 for participants who did not mention any favourable thought and 0.6032 for participants who mentioned at least one favourable thought.

⁶The distribution of the proportion of thoughts that referred to group concerns was skewed, but the results also hold if we dichotomise the proportion and use logistic regression instead.

with happiness but both were higher in the student condition, there was thus indeed a mixed reaction (meaning that some participants also saw positive elements in the rector's decision). Importantly, there was a marginally significant interaction between identity condition and "positive opinion" for both anger ($B = -1.09, p < .09$) and sadness ($B = 0.95, p < .08$). As we expected, the effect of identity condition was significant for participants who had a purely negative or neutral opinion (anger: $B = 1.29, p < .01$; sadness: $B = -1.07, p < .01$), but not so for participants who had a mixed or positive opinion (anger: $B = 0.25, p = .63$; sadness: $B = -0.25, p = .55$). For happiness, making salient the student identity had no effect for participants who had a purely negative or neutral opinion ($B = 0.34, p = .57$) but it did have a marginally significant effect for participants with a mixed or positive opinion ($B = 1.10, p < .10$). This confirms that the identity manipulation had different emotional consequences for participants who did or did not mention favourable thoughts.

Mediation analysis. A key prediction is that the content of the thought-listing and, more specifically, the proportion of group-based thoughts should mediate the impact of the identity manipulation on the emotional experience. Given that the effect of the identity condition on group-based thoughts and emotions was moderated by "positive opinion" contrast (i.e., whether or not participants had a favourable thought), we were actually testing a model of mediated moderation (Muller, Judd, & Yzerbyt, 2005). As shown above, the proportion of unfavourable group-based thoughts differed significantly between the two conditions (at least for those participants who had a negative or neutral opinion). Next, we tested whether this specific type of thoughts was also significantly related to anger and sadness, and whether this effect was again moderated by the "positive opinion" contrast. This was done by adding the thought-listing variables to the regression models that we used in the previous section to assess the impact of the identity condition on emotions. We ran regression analyses with anger and sadness (the only emotions that were

significantly affected by the identity condition) as the criterion variable and the other emotions as control variables. Our predictor variables were identity condition, and two variables representing the content of people's thoughts. The first and most important variable was the proportion of group-based thoughts (i.e., thoughts that were at the same time unfavourable, mentioned the word "student", and referred to group concerns). The second variable was the proportion of thoughts that were unfavourable but did *not* mention the word "student" or refer to group concerns. We also included the "positive opinion" contrast and its interaction with the identity condition and with the two thought-listing variables. All predictors were centred.

For anger, there was a main effect of the proportion of group-based thoughts ($B = 2.06, p < .01$). However, this was qualified by an interaction between the proportion of group-based thoughts and the "positive opinion" contrast ($B = -3.38, p < .05$), such that the effect of the proportion of group-based thoughts was significant ($B = 3.24, p < .01$) for participants who only mentioned neutral or unfavourable thoughts, but not for participants who also mentioned favourable thoughts ($B = -0.10, p = .94$). The proportion of thoughts that were unfavourable but did not mention students or refer to student concerns, only had a marginally significant main effect ($B = 1.09, p < .07$).

Similar results were found for sadness as the dependent variable. The proportion of thoughts that were both unfavourable and group-based had no significant main effect on sadness ($B = -0.91, p = .18$), but there was a significant interaction with the "positive opinion" contrast ($B = 3.13, p < .05$). The effect of the proportion of group-based thoughts was significant ($B = -2.18, p < .05$) for participants who only mentioned neutral or unfavourable thoughts, but not for participants who also mentioned favourable thoughts ($B = 0.86, p = .43$). In contrast, the proportion of thoughts that were unfavourable but did not mention students or refer to student concerns did not have a main effect on sadness or an interaction with the "positive opinion" contrast (both $ps > .20$).

Importantly, after adding the thought-listing variables and their interaction with “positive opinion”, the effect of the identity condition on anger and sadness was no longer significant (both p s $> .10$), which is consistent with full mediation.

In order to establish the significance of the indirect effect, we relied on the Empirical- M test. This test is similar to the Sobel test, but corrects for the fact that the distribution of the indirect effect is asymmetric (see MacKinnon, Fritz, Williams, & Lockwood, 2007; MacKinnon, Lockwood, & Williams, 2004). Given that we have a pattern of mediated moderation, the indirect effects are calculated separately for participants who did or did not mention favourable thoughts. In line with predictions, we found that for participants who did not express any favourable thought, the indirect effect from identity condition through thoughts on anger was significant (indirect effect = 0.62, 95% confidence interval [0.15; 1.26], $p < .01$). The indirect effect on sadness was also significant (indirect effect = -0.42 , 95% confidence interval [-0.94 ; -0.05], $p < .05$).⁷ For participants who mentioned at least one favourable thought, the indirect effects from identity condition through thoughts on anger and sadness were not significant (95% confidence intervals [-0.38 ; 0.42] and [-0.54 ; 0.19] for anger and sadness, respectively).

Discussion

In this experiment, we confronted students with an article reporting a decision taken by the rector of another university. They read that the students of this other university opposed the decision and planned to act against it. Although not personally concerned, some participants were linked to the victims of the decision, through a manipulation of their membership in the group of students. In order to measure group-based appraisals, we used an open-ended thought-listing procedure to assess people’s spontaneous thoughts about the event. Participants in the student identity condition had

more thoughts that expressed an unfavourable opinion *and* mentioned the word “student” while referring to group concerns. In other words, people made more group-based appraisals when their social identity had been made salient. The term group-based appraisal is appropriate because (1) an unfavourable opinion means that participants personally disagreed with the decision rather than just stating a fact and (2) the reference to student concerns while mentioning the word “student” is a clear indication of a group-based rather than an individual process.

Consistent with previous studies (Kuppens & Yzerbyt, 2012; see Yzerbyt, Dumont, Mathieu, Gordijn, & Wigboldus, 2006, for a review), making the student identity salient led to more anger and less sadness. These differences reflect group-based emotions as they are rooted in the student social identity. The effect on anger was expected because the victims were presented as opposing a decision that was seen as unfair, which is an important appraisal associated with anger. The negative effect on sadness can be understood in a similar way. The victims were presented as wanting to act against the decision, consistent with their being angry. Sadness is not associated with offensive action tendencies, but rather with passivity and avoidance. Less intense sadness thus means that participants in the student identity condition were not feeling passive and resigned about the event.

Crucially, and this is the main novel finding of Experiment 1, the effect of making salient the student identity on group-based anger and sadness was mediated by the proportion of thoughts that were unfavourable and at the same time mentioned the word “student” and referred to student concerns. The content of the group-based thoughts is in itself not so surprising (it is in part a reflection of the content of the newspaper article), but the fact that the proportion of such thoughts mediates the effect of social identity salience on relevant group-based emotions is what is really interesting and gives us an insight in what

⁷ Given that the distribution of the mediator was very skewed, we re-ran this mediation analysis with a dichotomised mediator and adjusted for the dichotomisation by following the guidelines of MacKinnon (2008). Both indirect effects proved significant.

group-based emotions are. In contrast, thoughts that were unfavourable, but did *not* mention students or refer to group concerns were not significantly related to anger or sadness.

This finding stresses the fact that not all unfavourable thoughts are related in the same way to the emotions. Judging that the rector's decision was wrong did in and of itself not elicit anger. The decision had to be interpreted within an intergroup context in which participants belong to the same group as the victims, in order to affect their (social) self. It is the increased self-relevance of the event through shared group membership that resulted in a change in emotions.

In Experiment 2 we again wanted to investigate how group-based appraisals result from social identity salience and whether they are related to group-based emotions, but we used a different manipulation of social identity salience. In Experiment 1, we manipulated social identity in a rather explicit way. In real-life situations, however, people are only seldom reminded of their group membership in an explicit way. In many cases, the salient social identity is a consequence of past and present communication and social interaction. One example of such an implicit emphasis on a particular intergroup context is when in-group members discuss an issue that involves out-group members or affects the in-group in some way. In such a situation, the intergroup context arises spontaneously due to the structure and content of the discussion (Blumer, 1958; Mead, 1934). In terms of self-categorisation theory, an in-group discussion about an out-group is likely to lead to an increase in fit (Turner et al., 1987). As a matter of fact, there is evidence that a group discussion can foster group-based cognition and responses (Haslam et al., 1998; L. G. E. Smith & Postmes, 2007, 2010; Stott & Drury, 2004). In Experiment 2, we thus hoped to find an effect of group interaction on group-based emotion. In addition, we measured each participant's account of what had been said during the group discussions and wanted to know whether the group-based character of the reported thoughts would again be related to the emotions.

EXPERIMENT 2

As in Experiment 1, we used a thought-listing procedure as an open-ended and unobtrusive measure of group-based appraisals. We again confronted participants with an event that did not affect them as individuals but was potentially relevant in cases where a specific group membership was made salient. We expected the group discussion to render this social identity salient and thus to generate stronger group-based appraisals and emotions compared to when social identity was not made salient. We expected a replication of the results of Experiment 1. Specifically, we predicted that the proportion of thoughts that were unfavourable and at the same time mentioned the group and referred to group concerns would be related to the emergence of negative group-based emotions. In Experiment 2, we also measured behavioural intentions and actual behaviour as additional dependent variables. We expected these to be similarly affected by social identity salience as the emotions. Finally, we also included a measure of identification to test our assumption that a group discussion on a group-relevant issue leads to social identity salience.

Method

Participants. Sixty-six (36 females) Belgian high school students took part in the study ($M_{age} = 15.6$ years, $SD = 0.93$).

Scenario. We presented participants with a fake newspaper article that announced that the works and personal belongings of the late Belgian singer and poet Jacques Brel would be given to a museum in France and that a square in Paris would be named after this Belgian cultural icon. Participants also learned that this had been decided by Brel's daughter, but the article emphasised the fact that the Belgian artistic scene strongly opposed this move and was planning to try to stop it.

Pre-discussion questionnaire. On the back of the page containing the article, there were questions

about the intensity of participants' *emotional reactions* to the article. We asked for sadness (sadness, disappointment, and grief, $\alpha = .72$), anger (anger, frustration, $r(66) = .55$), anxiety (worry, anxiety, and concern, $\alpha = .77$), happiness (joy, enthusiasm, and cheerfulness, $\alpha = .82$), and indignation (1 item). All emotion items were rated on a scale ranging from 1 = *Not at all* to 7 = *Totally*. After these emotion items, we asked how much contact (on a scale from 1 = *Rarely* to 7 = *Very often*) participants had with and how close (on a scale from 1 = *Not at all* to 7 = *Totally*) they felt to each of the other group members. We calculated the mean contact and closeness per participant and averaged them into one measure of *intimacy*, $r(65) = .89$.

Relevant versus irrelevant discussion. After reading the article and filling out the pre-discussion questionnaire, participants were asked to have a discussion in small groups of four or five. Depending on condition, there were two possible discussion topics. In the relevant discussion condition ($n = 33$), participants discussed Jacques Brel's daughter's decision to give all his belongings to France. In the irrelevant discussion condition ($n = 33$), participants were asked to discuss the similarities and differences between contemporary and traditional French "chanson" (Brel being a singer of traditional "chanson"). The experimenter limited the discussion time to five minutes.

Content of the group discussion. Immediately after the discussion, participants were asked to list all the thoughts that had been communicated during the discussion. The procedure was adapted from the thought-listing procedure of Experiment 1 to include not only the participants' own thoughts, but all the thoughts that had been expressed during the discussion. Participants were given four minutes to complete this task. All thoughts relevant to the topic were coded on (1) whether they expressed a favourable opinion toward the decision and (2) whether they expressed an unfavourable opinion toward the decision. Favourable and unfavourable were then

further coded for (3) whether they mentioned the word "Belgium", "Belgian", "France", or "French", (4) whether they mentioned the word "Brel" or referred to the singer using words like "he" or "his", and (5) whether they referred to group concerns (the relevant in-group being Belgium or Belgians). The thoughts were coded by two independent coders. The inter-coder agreement was good ($\kappa = 1.0, 0.83, 0.88, \text{ and } 0.70$, for favourable, unfavourable, Brel, and group concerns respectively). Differences between the coders were solved through discussion. When it was difficult to reach an agreement, a third coder was consulted and his opinion prevailed.

Post-discussion questionnaire. This questionnaire contained some questions about the discussion and all the dependent variables. To get some information on the process of the group discussion, we asked participants to what extent they agreed with two items measuring how much they had *enjoyed the discussion*, e.g., "It was nice to discuss this subject", $r(66) = .48$. Two other items assessed how *close* participants felt to their discussion partners, "I feel close to the other group members" and "In the future, I would like to work with the other group members again", $r(65) = .52$. One last item asked how much they *enjoyed sharing their emotions*. All these questions were answered on a scale ranging from 1 = *Completely disagree* to 7 = *Completely agree*.

Next, participants reported how intensely they felt the *emotions* of anger, $r(66) = .58$, anxiety ($\alpha = .86$), indignation, sadness ($\alpha = .75$), and happiness ($\alpha = .85$), about the decision of Jacques Brel's daughter, using the same scales as in the pre-discussion questionnaire. In addition, participants also reported the extent to which they thought the other group members felt these emotions ($\alpha = .77, .84, .77, \text{ and } .88$ respectively). To measure *behavioural intentions*, participants reported how likely it was that they would sign a petition and write a letter to Brel's daughter to protest against her decision, on a scale ranging from 1 = *Not likely* to 7 = *Very likely*, $r(66) = .51$. To measure *identification* with Belgians, we included two items of solidarity, $r(66) = .60$,

three items of satisfaction ($\alpha = .77$), and two items of individual self-stereotyping, $r(65) = .80$, from Leach et al.'s (2008) identification scale. These identification items were measured on a scale ranging from 1 = *Completely disagree* to 7 = *Completely agree*.

Behavioural measure. The last page of the questionnaire contained an invitation for the participants to write down their e-mail address (see Yzerbyt et al., 2003, for a similar measure). It was explained that we would give their e-mail address to a Belgian Brel fan club and that they would be informed of various actions organised by the fan club to prevent the move of Brel's works and belongings to France.

Procedure. Participants listened to the song "Bruxelles" by Jacques Brel, and were provided with the lyrics. After the song, we presented participants with a fake newspaper article containing the scenario as described above. Participants were told to divide themselves in groups of four or five persons, filled in the pre-discussion questionnaire and then engaged in the group discussion. After the group discussion, they filled in the questionnaire comprising the thought-listing question, the questions about the discussion, the emotion scales, various additional measures, and the behavioural measure.

Results

Analytic strategy and overview. In Experiment 2, participants interacted and likely influenced each other during the discussion. An analytic tool that takes this within-discussion dependence into account is multilevel modelling. As a rule, we decided to add a random intercept to all the models, meaning that each discussion group was allowed to have its own residual deviation from the mean of the dependent variable. We also tested whether regression coefficients were random (whether the effect of a variable showed

significant variation across discussion groups) and whether there was heterogeneity of variance (see Snijders & Bosker, 1999) but those were only left in the model when they were significant.

Multilevel models were run in MLwiN (see Rasbash, Steele, Browne, & Prosser, 2004). Significance for fixed effects was tested using likelihood ratio tests. Two students were excluded because they had a markedly stronger influence on the model than the other participants (see Langford & Lewis, 1998; Rasbash et al., 2004). A total of 64 participants remained for analysis. Condition⁸ and all continuous predictors were mean-centred.

We first looked at the effect of the discussion manipulation on emotions, behaviour, identification, and other closed-ended measures. This served to establish that discussing a group-relevant issue indeed led to social identity salience and group-based emotions. We then analysed the thought-listing data to test our main hypothesis on the relation between group-based appraisals and group-based emotions, as in Experiment 1.

Manipulation check. We calculated the proportion of the participants' thoughts that mentioned Jacques Brel. In the relevant discussion condition (where participants were asked to talk about the newspaper article), Jacques Brel was mentioned in 42% of all thoughts on average, whereas in the irrelevant discussion condition (where participants were asked to discuss French chanson) Brel was mentioned in only 4% of the thoughts. This difference was significant ($B = 0.39$, $p < .001$) and confirmed the success of our manipulation.

Discussion. We wanted to know whether participants in the relevant discussion condition experienced the discussion in a different way than participants in the irrelevant discussion condition. These analyses controlled for the intimacy they

⁸This was a contrast variable coded " - 0.4844" for the irrelevant and "0.5156" for the relevant discussion condition, so that the difference between conditions was exactly 1.

felt with the other group members, because we may expect that a discussion with good friends is different from a discussion with people you hardly know. There were no differences between conditions in how much participants enjoyed the discussion, $B = -0.45$, $p = .32$, how close they felt to the other group members, $B = -0.12$, $p = .78$, or how much they enjoyed sharing their emotions, $B = 0.37$, $p = .46$.

Emotions. To examine the differences in emotional intensity between conditions, we tested the effect of condition in a model that controlled for the emotion intensity before the discussion and the interaction between condition and pre-discussion emotion (see Table 3). Participants in the relevant discussion condition reported more intense indignation than participants in the irrelevant discussion condition, $B = 0.62$, $p < .05$ (see Table 2 for all means). Moreover, the interaction between condition and pre-discussion indignation, $B = 0.55$, $p < .01$, revealed that the difference between conditions in post-discussion indignation was stronger for participants who reported relatively strong indignation before the discussion. Simple slopes revealed that for participants who scored one standard deviation above the mean for pre-discussion indignation, the discussion led to an increase in indignation ($B = 1.53$, $p < .001$) whereas this was not the case for participants who scored one standard deviation below the mean ($B = -0.25$, $p = .57$).

Regarding anger, we found no significant difference between conditions and no interaction between condition and pre-discussion anger (see Table 3). For happiness, however, the results were in line with expectations. Participants in the relevant discussion condition reported feeling marginally less happy than those in the irrelevant discussion condition, $B = -0.14$, $p < .06$. There was an interaction between condition and pre-discussion happiness, reflecting the fact that our manipulation had a stronger effect when pre-discussion happiness was relatively high. Simple slopes revealed that for participants who scored one standard deviation above the mean for

Table 2. Means (standard deviation in parentheses) for the emotions in Experiment 2, by condition

	Relevant discussion	Irrelevant discussion
Happiness	1.31 (0.59)	2.07 (1.25)
Anger	3.67 (1.61)	3.11 (1.49)
Indignation	4.35 (1.64)	3.30 (1.70)
Anxiety	2.59 (1.55)	2.73 (1.22)
Sadness	3.26 (1.34)	3.20 (1.28)

pre-discussion happiness, the discussion led to a decrease in happiness ($B = -0.77$, $p < .05$) whereas it led to a marginally significant increase in happiness for participants who scored one standard deviation below the mean ($B = 0.21$, $p < .06$). The cause of this interaction seems to be that happiness shows a floor effect. Given that our manipulation cannot make reported happiness go below its minimum value, there can be no negative effect of condition when pre-discussion happiness is already low. Given the floor effect, not too much attention should be given to the results for happiness. For anxiety and sadness, we found no difference between conditions and no interaction between condition and pre-discussion emotion (see Table 3). Finally, there were no effects of condition on perceived emotions of the other group members.

Behavioural intentions. The relevant discussion did not lead to stronger intentions to act against Jacques Brel's daughter than the irrelevant discussion, $B = 0.51$, $p = .27$.

Identification. In order to assess the effect of condition on identification with Belgians, we controlled for the intimacy each participant felt with her/his discussion group. Participants in the relevant discussion condition reported stronger solidarity with Belgians, $B = 0.66$, $p < .05$, but not significantly more satisfaction, $B = 0.47$, $p = .20$, or self-stereotyping, $B = 0.02$, $p = .97$. Interestingly, stronger intimacy was linked with stronger identification with Belgians (solidarity: $B = 0.42$, $p < .001$; satisfaction: $B = 0.28$, $p < .01$;

Table 3. *Effect of condition (relevant vs. irrelevant discussion) on emotions (Experiment 2)*

	<i>Indignation</i>	<i>Anger</i>	<i>Happiness</i>	<i>Anxiety</i>	<i>Sadness</i>
<i>Fixed part</i>					
Intercept	3.71	3.19	1.64	2.66	3.24
Pre-discussion emotion	0.69***	0.92***	0.81***	0.75***	0.75***
Condition	0.62*	0.30	-0.28 [†]	-0.05	0.24
Interaction condition × emotion	0.55**	0.07	-0.48*	0.41 [†]	0.15
<i>Random part</i>					
Level 2 intercept/intercept (σ_{u0}^2)	0.00	0.06	0.00	0.10	0.00
Level 1 intercept/intercept (σ_{e0}^2)	1.65	1.23	0.27	0.87	0.85
Level 1 intercept/pre-discussion emotion (σ_{e01})				0.16***	
Level 1 intercept/condition (σ_{e02})	-0.78*				

Notes. “Condition” is mean-centred and has a difference of exactly 1 between conditions (coded -0.4844 for the irrelevant discussion and 0.5156 for the relevant discussion condition). The intercept is (close to) the overall mean. Parameters of the fixed part can be interpreted as unstandardised regression coefficients. The random part parameters form the variance-covariance matrix. The σ^2 parameters are the residual variances at the individual and discussion group levels. The σ parameters are covariances and represent heterogeneity of variance at level 1. *** $p < .001$; ** $p < .01$; * $p < .05$; [†] $p < .10$.

self-stereotyping: $B = 0.28$, $p = .07$), and this relation did not depend on condition.⁹

Behaviour. The decision of whether or not participants wrote down their e-mail address in order to receive more information on Jacques Brel was first analysed in a multilevel logistic regression. However, the level 2 variance (variance between discussion groups) was not significant ($p = .32$). This means that there was no significant similarity between group members and that membership in the discussion group did not influence the decision of providing an e-mail address or not. We decided to leave the random (level 2) part of the intercept out of the model, and use a “normal” logistic regression model in which all individuals are treated as independent, which simplifies the analysis. Condition was represented by a categorical variable. As predicted, writing down the e-mail address was significantly more common in the relevant discussion condition (39%) than in the irrelevant discussion condition (15%), log odds = 1.26, odds ratio = 3.54, $p < .05$.

Given that participants in the relevant discussion condition reported more intense indignation than the other participants, we wanted to know

whether indignation mediated the effect of condition on behaviour (giving one’s e-mail or not). To test this, we used the same procedure as in Experiment 1, that is, we performed an Empirical- M test but rescaled coefficients as in MacKinnon (2008, Chapter 11) to take into account the binary nature of our dependent variable. Confirming our conjecture, the indirect effect from condition to indignation to providing an e-mail address was significant (indirect effect = 0.26, $p < .05$).

Because our discussion manipulation affected emotional and behavioural responses as we expected, we could turn to the crucial analysis of the relation between group-based appraisals (as measured with the thought-listing procedure) and group-based emotions.

Content of the group discussion. As a consequence of the different topics in the relevant and irrelevant discussion conditions, the content of the thought lists was very different between conditions. In the relevant discussion condition (where participants discussed Brel’s daughter’s decision of giving all his belongings to France) an average of 55% of participants’ thoughts mentioned either Belgium or France, whereas

⁹Consistent with much previous research, solidarity correlated positively with indignation ($r = .40$), anger ($r = .39$), and sadness ($r = .47$). These correlations were mostly absent for satisfaction and self-stereotyping.

Table 4. Relation between content of thoughts and emotion intensity (Experiment 2, relevant discussion condition)

	<i>Indignation</i>	<i>Anger</i>	<i>Happiness</i>	<i>Anxiety</i>	<i>Sadness</i>
<i>Fixed part</i>					
Intercept	4.29	3.40	1.33	2.56	3.24
Emotion before discussion	0.89***	0.89***	0.57***	0.93***	0.81***
Prop. unfavourable and group	2.55*	2.22 [†]	-0.08	-0.94	0.40
Prop. unfavourable and not group	0.51	0.71	-0.39	-1.38 [†]	-0.18
<i>Random part</i>					
Level 2 intercept/intercept (σ_{u0}^2)	0.00	0.11	0.04	0.00	0.00
Level 1 intercept/intercept (σ_{e0}^2)	0.75	0.91	0.19	0.65	0.63

Notes: "Prop. unfavourable and group" = proportion of thoughts that are unfavourable, mention Belgium or France, and refer to group concerns. "Prop. unfavourable and not group" = proportion of thoughts that are unfavourable, but don't mention Belgium or France, and don't refer to group concerns. The intercept is (close to) the overall mean. Parameters of the fixed part can be interpreted as unstandardised regression coefficients. The σ^2 parameters are the residual variances at the individual and discussion group levels. *** $p < .001$; ** $p < .01$; * $p < .05$; [†] $p < .10$.

only 1% did so in the irrelevant discussion condition, $B = 0.27$, $p < .001$. In other words, the intergroup context was very clear in the relevant discussion, but almost absent in the irrelevant discussion. Participants in the relevant discussion condition also wrote down more thoughts relevant to the discussion topic ($M = 5.45$, $SD = 1.63$) than participants in the irrelevant discussion condition ($M = 3.73$, $SD = 2.48$), which confirms that the relevant discussion was more engaging than the irrelevant discussion, $B = 0.85$, $p < .01$.

In order to assess the relations between the discussion content and the other variables, we selected only the relevant discussion condition because the coded categories of the thought lists cannot be applied to the irrelevant discussion topic and so it makes no sense to analyse the two conditions together. We first tested whether the content of the discussion was related to the emotions. The predictor variables in these models were the emotion intensity before the discussion, the proportion of thoughts that were unfavourable and group-based (i.e., they mentioned Belgium or France and referred to group concerns), and the proportion of thoughts that were unfavourable but *did not* mention Belgium or France and did not refer to group concerns. In line with the results of Experiment 1, we expected an effect of the proportion of thoughts that were unfavourable and group-based. Supporting this hypothesis, the pro-

portion of thoughts that were unfavourable and group-based was positively related to indignation and anger (see Table 4). There were no significant relations between the thought listing content and behavioural intentions, behaviour, or any of the three identification subscales (all $ps > .20$). The proportion of thoughts that were unfavourable but that did not mention Belgium or France and did not refer to group concerns was not related to any of the dependent variables (all $ps > .07$).

Discussion

In Experiment 2, we aimed to replicate the results of Experiment 1 using a different method to influence the salience of social identity. Instead of explicitly reminding participants of a specific group membership, we asked small groups of participants to discuss an issue that affected the in-group. In the group discussion, they were asked to either discuss this relevant, "emotional" topic, or a related, more neutral topic that did not involve an intergroup context. As expected, the group discussion on the relevant topic led to stronger indignation about the issue. Participants were also more likely to provide their e-mail address (allegedly in order to keep informed about the issue) when they had discussed the relevant topic than when they discussed the irrelevant topic. Moreover, indignation mediated this effect of discussion topic on participants' behaviour.

The most important goal of Experiment 2 was to investigate whether the content of the group discussion was linked to the emotions. We used a thought-listing procedure to assess each individual's account of the content of the discussion. The results were totally consistent with those of Experiment 1. The proportion of thoughts that expressed an unfavourable opinion and at the same time mentioned the relevant in-group or out-group and referred to group concerns, was related to more intense indignation and to marginally more anger. Unfavourable thoughts that did not mention the in-group or out-group and did not refer to group concerns were not related to any emotion. This pattern of results provides another striking demonstration of the difference between individual and group-based appraisals of an event. It seems that the negative evaluation of a group-relevant event leads to stronger emotions only if the salience of the relevant group membership makes it an issue that affects the (social self of the) individual.

It is important to note that social interaction in small groups is a more ecologically valid way to manipulate social identity salience than explicitly reminding participants of their group membership as was done in Experiment 1. First, in real-life situations social identity is seldom made salient in the explicit way of Experiment 1. Second, because emotional thoughts and experiences are very likely to be shared with close others (Rimé, 2009), the *content* of existing group-based appraisals and emotions has also often been influenced by within-group interaction. This naturally occurring process is better approached in a dynamic situation such as a group discussion than when participants answer to a questionnaire on their own.

GENERAL DISCUSSION

In two experiments, we investigated the relation between group-based appraisals (based on people's spontaneous thoughts) and the group-based emotions people report. We elicited group-based emotions by confronting participants with an event that did not affect them personally, but to

which they were linked through group membership. Changing the salience of this group membership either by explicitly mentioning the group in Experiment 1 or by asking participants to discuss the target event with other group members in Experiment 2 led to an increase in the emotions that were relevant to the event. To measure the considerations people take into account when forming an opinion, we used a thought-listing procedure. In both studies, the proportion of thoughts that expressed an unfavourable opinion about the event and at the same time referred to group concerns and mentioned the name of the group was higher when social identity was salient. Moreover, and in line with our hypothesis, this proportion was related to the relevant emotions. Importantly, the proportion of thoughts that were unfavourable but did not refer to the group was not related to group-based emotions.

We interpreted these unfavourable thoughts that refer to the group and to group concerns as group-based appraisals. Coding the general content of the spontaneous thoughts people reported is an ecologically valid way to measure the way in which our participants appraised the event. Previous studies on group-based appraisals and group-based emotions used closed response formats for both the appraisal and the emotion questions (Gordijn et al., 2006; Kuppens & Yzerbyt, 2012; Yzerbyt, Kuppens, & Mathieu, 2011). Because the thought-listing has an open response format, people spontaneously report whatever they are thinking or saying, instead of being primed by the content of questionnaire items. Therefore, the studies reported here offer a very strong test of the hypothesis that group-based appraisals are an important component of group-based emotions.

Although unfavourable thoughts could be interpreted as appraisals of goal incongruence, we did not measure other classic appraisals such as coping potential or unfairness because these could not be reliably coded from thoughts that often contain only a few words or a short sentence (e.g., there were very few explicit or implicit references to "unfairness", and coders did not even agree on those). A possible solution to this problem would

be to ask people to write down their ideas in a longer text and as explicitly as possible rather than in a series of (short) thoughts, as this would allow more complex thoughts to be expressed. However, our main concern in these studies was to use an unobtrusive measure of people's thoughts and the thought-listing procedure we used has been shown to reflect actual thought processes with little if any disturbance from demand or social desirability effects (Cacioppo & Petty, 1981).

We argued that social identity salience is the reason why the manipulations led to similar effects on emotions in both experiments. The manipulation used in Experiment 1 (explicitly mentioning group membership) has been used in other research to affect social identity salience (Gordijn et al., 2001; Ray, Mackie, Rydell, & Smith, 2008; van Zomeren et al., 2008; Yzerbyt et al., 2003). In Experiment 2, discussing a group-relevant issue led to stronger identification with the group, an indication that social identity was indeed made salient. Several other studies have shown that social interaction in an intergroup context enhances group-based reactions (Haslam et al., 1998; L. G. E. Smith & Postmes, 2007, 2010; Stott & Drury, 2004; Thompson, Judd, & Park, 2000). However, we do not want to claim that both manipulations will always lead to similar results. One obvious difference between both is that group discussions offer opportunities for social appraisals (the influence of others' reactions on own appraisal; see Manstead & Fischer, 2001) and emotion contagion, and these are likely to have effects of their own. For example, Thomas and McGarty (2009) found that a group discussion that focused on the emotional reaction to a group-relevant issue led to a stronger commitment to action.

Group-based appraisals and conceptual issues

An emphasis on group-based appraisals has consequences for concepts and terminology regarding group-level emotions. First, the idea of group-based appraisal is similar to that of *emotions for which the subject is a group member*. Parkinson,

Fischer, and Manstead (2005) and Iyer and Leach (2008) base their typology of group-level emotions on the distinction between the *subject* and the *object* of emotions. Iyer and Leach (2008) defined group-based emotions as those emotions that have a group as subject. We would like to specify this further and propose that emotion results from group-based appraisals whenever the subject of an emotion is a group member.

A second and related issue is that thinking in terms of group-based appraisals makes the difference between group-based emotions and collective or shared emotions clearer. As a matter of fact, this is a distinction associated with some confusion in the literature. Although conceptually distinct, the collective and group-based nature of emotions will often be intertwined in real life. Group-based emotions can be shared in the group (as can individual emotions), but this is not a necessary condition to speak of group-based emotions. For instance, two representatives of different groups who are negotiating an important issue in a private conversation can feel emotions in response to proposals or reactions from the other party. These emotions are group-based if they are rooted in the representatives' self-categorisation as group members, although they need not (yet) be shared by their in-group members.

Emotions can also be shared and/or influenced by group membership without being group-based. Good examples of this possibility are when individuals' appraisals of their personal situation are influenced by cultural or group norms (Mesquita & Markus, 2004; Parkinson et al., 2005) or by others' appraisals (Manstead & Fischer, 2001). Although influenced by others or the group, these are all still individual appraisals of an individual concern. The emotions that result are individual emotions, not group-based emotions.

Do appraisals cause emotions?

Most appraisal theorists agree that appraisals are a necessary precursor to emotions. We have followed this theoretical model and, accordingly, have measured appraisals (thought-listing) before emotions. However, in our experiments, emotions

were *experienced* before the appraisal measure, so before participants wrote down their thoughts. It should be clear however that the significance of our studies does not rest on this assumption of appraisals preceding emotions. The important conclusion here is that there is a close link between group-based emotions and an open-ended measure of group-based appraisals. This shows that group-based nature of emotions is related to group concerns instead of individual concerns. The issue of the direction of the causal relation between the two aspects is an item for future research.

Finally, our emphasis on the role of group-based appraisals does not mean that it is the only or even the most important process leading to group-based emotions. In fact, we have little information on the dynamic process of how group-based emotions arise during group interaction. It is highly likely that emotional contagion, social appraisal and outright persuasion within discussion groups influenced participants' post-discussion emotions. Finding empirical evidence regarding these processes will be an important task for future research.

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