cogent **psychology**

SOCIAL PSYCHOLOGY | RESEARCH ARTICLE

Are you looking at me? The influence of facial orientation and cultural focus salience on the perception of emotion expressions

Konstantinos Kafetsios[1]* and Ursula Hess[2]

*Corresponding author: Konstantinos Kafetsios, Psychology Department, University of Crete, Gallos Campus, GR74100 Rethymnon, Greece
E-mail: k.kafetsios@psy.soc.uoc.gr

Reviewing editor:
Heather Lench, Texas A&M University, USA

Additional information is available at the end of the article

Abstract: We examined the influence of cultural orientation salience on the emotion perception process in a contextualized emotion recognition task. We primed individual and collective focus in participants who later rated the emotion expressions of a central character (target) showing a happy, sad, angry, or neutral facial expression in a group setting. Facial orientation of a group of four other persons towards the target person was manipulated so that they faced either "inwards," towards the central character, or "outwards," towards the observer. Priming a collectivistic mind-set resulted in the perception of more intense emotions in the "inwards" facial orientation condition when the target showed angry, happy, or neutral expressions. Individualist focus influenced emotion perception in the "outwards" facial orientation condition in few cases. The findings highlight the significance of perceivers' cultural orientation and social elements of the situation for emotion perception in line with the "culture as situated cognition" model.

Subjects: Cognition & Emotion; Emotion; Social Psychology; Cross Cultural Psychology

Keywords: emotion perception; face orientation; cultural orientation; group

ABOUT THE AUTHORS

Konstantinos Kafetsios is an Associate professor in Social and Organizational Psychology at the Psychology Department University of Crete, Greece. His research interests include the study of emotion in interpersonal settings and in face-to-face social interactions. The reported study is part of a research program with Professor Ursula Hess at Humboldt University Berlin that examines cultural differences in the perception and experience of emotion; also how emotion perception shapes the quality of face-to-face social interactions.

PUBLIC INTEREST STATEMENT

The study tested how the perception of emotion in a group situation is influenced by situational characteristics and persons' collectivistic or individualistic self-focus. In order to establish a causal connection between the variables, we made participants cognitively aware of information with a collectivistic and an individualistic focus, or no cultural focus (control) and then asked participants to evaluate the facial expressions of a central character in a group where the group faced either in-wards towards the target or outwards towards the perceiver. Main finding was that when participants were primed with collectivistic focus, evaluations of targets' emotions were more intense in situations where the group faced inwards than outwards. These results suggest that the perception of emotion in social situations is influenced by decoders' cultural schemas and contextual elements of the situation. The results also support a view of culture as a dynamic, malleable element of everyday life.

✱ cogent • • psychology

1. Introduction

One important aspect of social interaction in everyday life is the emotional reactions of those around us. The factors that influence the response to and recognition of the emotions of others, especially from facial expressions, have been of continued interest to researchers over the years (see e.g. Hess & Thibault, 2009). Yet, with few exceptions (e.g. Barrett & Kensinger, 2010), most of the research and theory on the perception of emotional facial expressions has stressed stable, evolutionary determined, universal, and largely a-contextual characteristics of encoded emotion expressions (e.g. Ekman & Friesen, 1971; Tomkins, 1962). Rare is research on socially malleable components of the emotion perception process and, in particular, social interaction signals and contexts that may influence decoders' evaluation of emotional expressions. In line with theoretical analyses of emotion perception as the result of both contextual characteristics of the encoding stimulus and the decoder's social schemas (e.g. Hess, Adams, & Kleck, 2008), the present study examined the influence of culturally informed characteristics of the decoder (individual or collective cultural orientation or mindset) and the characteristics of the social context (face orientation in a group setting) on the perception of emotional facial expressions.

Individualism and collectivism constitute two fundamental dimensions according to which differences between, but also within, societies can be understood. The study targeted decoders' individualistic or collectivistic cultural orientation because cultural orientation is not only associated with fundamental differences in values, social relations norms or self-concept, but also affects the social-cognitive processes that lead to the construction of psychological events as contextualized versus de-contextualized (Markus & Kitayama, 1991; Oyserman, Sorensen, Reber, & Chen, 2009). Specifically, a chronically or situationally activated mindset that perceives the individual either as independent of others (individualism) or connected with others (collectivism) influences non-social and certain social perceptual processes. Thus, individuals with a more collectivistic orientation who understand themselves as connected to others are more susceptible and attentive to the context in which an event takes place, whereas an individualistic orientation is associated with an analytic perceptual style and a focus on own goals (Kitayama, Duffy, Kawamura, & Larsen, 2003; Kühnen & Oyserman, 2002; Nisbett, 2003; Nisbett & Miyamoto, 2005).

Importantly, in collectivistic cultures, emotions are to a lager extent construed in relation to others' expectations and group norms (Matsumoto et al., 2008), whereas in individualistic cultures emotions are construed more in relation to personal concerns (Kitayama, Markus, & Kurokawa, 2000). In two studies Masuda et al. (2008) demonstrated a culture by social context interaction effect for the perception of emotion. Decoders from a collectivistic culture (Japan) perceived targets' facial emotion expressions as more intense when the group of persons surrounding the target had the same emotion as the target rather than a different one and were also more likely than Western participants to attend to the group's emotions and be influenced by them in their emotion perception. These findings were interpreted as the result of perceptual processes where context (the group's emotional congruence to the target person) was more salient for people with collectivistic cultural orientation and thereby influenced emotion perception.

Yet, cultural orientation varies not only between cultures but also within a single culture, and even within a given individual depending on the specific situation they are in (Miyamoto & Wilken, 2010). Thus, an emerging consensus sees individualist and collectivist orientations as not stable across cultures, but dependent on the specific structuring situations that give rise to individualistic or collectivistic mindsets (e.g. Hong, Morris, Chiu, & Benet-Martínez, 2000; Miyamoto, Nisbett, & Masuda, 2006; Oyserman & Lee, 2008; Oyserman & Sorensen, 2009). From this perspective, cross-national differences reflect the chronically activated content of individualistic or collectivistic orientation (self-concept, values, and goals). By contrast, individualistic or collectivistic orientations can be situationally activated, for example, by priming (e.g. Gardner, Gabriel, & Lee, 1999; Trafimow, Triandis, & Goto, 1991).

The "culture as situated cognition" model (Oyserman, 2011; Oyserman et al., 2009) emphasizes the role of situational features for the accessibility of collective or individual ways of thinking. Everyday social interactions provide opportunities that may trigger either collective of independent ways of thinking (e.g. being in a group or alone). Hence, it is important to examine the contextual

cues, social situations and signals that may activate a given cultural self-schema and the perceptual consequences of this activation. The present study, therefore, aimed to extend the culture as situated cognition argument to emotion perception. Even though the general influence of cultural orientation activation for cognition (e.g. Kühnen & Oyserman, 2002) and emotion (e.g. Neumann, Steinhäuser, & Roeder, 2009) has been documented, research that specifically targets emotion perception processes in this context is scant.

The "culture as situated cognition" perspective raises the question regarding the situational cues of the expressive context that may interact with perceivers' cultural orientation to influence emotion perception. The present study tested the impact of one such characteristic: the facial orientation of group members towards the target of the emotion perception. Face orientation (including gaze and postural orientation) is a significant social signal that influences the perception of facial expressions (e.g. Adams, Gordon, Baird, Ambady, & Kleck, 2003; Hess, Adams, & Kleck, 2007; Niedenthal, Mermillod, Maringer, & Hess, 2010). Face orientation communicates intimacy (Argyle & Cook, 1976) is relevant for the regulation of social interaction (Kendon, 1967; Patterson, 1991) and has an affiliative function in interpersonal contexts (Mason, Tatkow, & Macrae, 2005). These are all elements that can render facial orientation as "situationally relevant" especially for individuals with collectivism primed cultural orientation (Oyserman, 2011). This is in line with situated social cognitive central premise of the malleability of social judgments and the relevance of situational cues to the available cognitive schemas (Smith & Semin, 2007), cultural orientation in this case.

We hypothesized that members of a group whose gaze and posture are oriented towards a target person would provide socially meaningful information especially to those encoders with activated "contextual" mindsets (collective orientation) and this should influence their perception of the targeted emotion expression. Specifically, when members of the group face the target person a strong impression that the depicted people relate to each other is likely to be created. By contrast, when the group faces the observer, the members of the group can also be perceived as unrelated individuals rather than as a coherent group. In line with findings from cross-cultural studies, we expected that the situational/contextual characteristic of group facial orientation (giving an impression of increased group intimacy or "in-groupness") will lead individuals with a salient collectivistic mindset (collectivism primed) to evaluate the expresser's emotions as more intense. Conversely, for individuals with a salient individualism mindset, we would expect that the situational cue of individual members facing the observer would capture their attention, raising the salience of the perceived emotion. We also assumed that for individuals with activated collectivistic mindset, the difference between a group facing a central character and a group facing the observer should be more salient as they are more attuned to group-related information. By contrast, this difference should be less salient for the individualism-primed participants for whom group information is less relevant. Hence, we overall expected the effect of the manipulation to be larger for the collectivism primed individuals.

To test these predictions, participants were presented with cartoons depicting a person surrounded by other individuals who showed either the same or a different emotion and who either faced the central individual or the observer. Cartoons were used because they allowed us to carefully vary both the emotion expressions and the face orientation of the group members, and the above-cited study by Masuda et al. (2008) has demonstrated that cultural orientation effects extend to this type of stimulus material. The participants' task was to rate the emotions expressed by the target person.

To summarize, we expected that the facial orientation of a group towards a target's emotion expressions will influence the participants' perception of that target's emotion expressions and that this effect would be qualified by cultural orientation. Specifically, we expected (1) that collectivism-primed participants will be more influenced by social contextual characteristics that relate to group intimacy and they will perceive the target's expressions as more emotional in the "inward" condition. Conversely, (2) individualism-primed participants will perceive emotion expressions in the "outward" face orientation condition as more emotional. Further (3) the effect of group orientation should be larger for collectivism-primed individuals.

cogent •• psychology

2. Methods

2.1. Participants and design

Two hundred and fourteen men and women from a large state university in southern Greece (mean age = 23.93, SD = 6, 73.4% women) participated individually for extra course credit. The reported experiment was the first part of a larger study on emotion perception in social interaction.

2.2. Materials and procedure

On arrival at the laboratory, participants were informed about the aims of the study and that anonymity was guaranteed. After providing informed consent, they were allocated to the priming task (individualism and collectivism) or a control group so that every third person was allocated to the same priming condition. The priming procedure was modeled after the Sumerian warrior story procedure (Trafimow et al., 1991, study 2). Participants were asked to read a paragraph about a central character who was engaged either in a competitive one-man sport or a team sport both resulting in success and then rated the central character in the story on a number of characteristics using seven-point scales (1 = not at all, 7 = very much, see Appendix 1). The adjectives within the paragraph and those in the following evaluation were selected from related tasks such as the scrambled sentence task (see Oyserman & Lee, 2008). In the control group, participants read and rated a paragraph on tennis available from Wikipedia.

2.2.1. Stimuli for the emotion perception judgment

In order to be able to manipulate the face orientation of the surrounding figures with respect to the central figure, and to better control the facial expressions, we used cartoons (see Figure 1). Following the priming and the control tasks, all participants took part in a computerized emotion perception task. The cartoons were created by an experienced computer artist based on the facial stimuli models from the Montreal Set of Facial Displays of Emotion (Beaupre & Hess, 2005). An effort was made to make the faces used in the cartoons culturally appropriate with regard to hair color and facial features. The task has been used in another study that investigated the effects of cultural orientation on social emotion perception (Kafetsios & Hess, 2013).

The task consisted of two blocks of 16 trials (total of 32 trials): in one block, the surrounding figures faced the central figure (face-in, see Figure 1) and in a second block, the surrounding figures faced the observer (face-out, see Figure 2).[1] Within each set of trials, the central figure expressed one of four emotions (happy, angry, sad, and neutral) with the surrounding four figures expressing either a congruent or incongruent emotion (again either happy, angry, sad, and neutral), resulting in a total of 2 (face orientation) × 4 (central figure emotion) × 4 (group emotion) = 32 stimuli. Within each block, the cartoons were presented in random order using the DMDX presentation software (Forster & Forster, 2003). For each of the cartoons, participants rated the degree to which the central character expressed each one of the following emotions: calm, fear, anger, surprise, disgust, sad, and happy on a seven-point scale anchored with *not at all* and *very much* with ratings appearing always in the same sequence.

Figure 1. Example of pictorial (cartoon) stimuli in the "face in" condition.

Figure 2. Example of pictorial (cartoon) stimuli in the "face-out" condition.

2.3. Results

2.3.1. Emotion perception manipulation check

To assess whether the central individual's emotion expression was correctly identified, we conducted a series of 2 (face orientation) × 4 (target emotion) analyses of variance on the emotion ratings for targets surrounded by individuals with neutral faces. Significant main effects of emotion emerged for all target emotions: happiness, $F(3, 211) = 2245.78$, $p < .001$[2] (target expression happy $M = 6.31$, SD = .06, compared to ratings of happiness in expressions of: anger $M = 1.10$, SD = .03, sadness $M = 1.09$, SD = .04, neutral $M = 1.30$, SD = .04), sadness, $F(3, 211) = 1138.45$, $p < .001$ (target expression sad $M = 6.23$, SD = .07, compared to ratings of sadness in expressions of: happiness $M = 1.29$, SD = .05, anger $M = 3.04$, SD = .11, neutral $M = 4.00$, SD = .11), and anger, $F(3, 211) = 1469.70$, $p < .001$ (target expression angry $M = 6.28$, SD = .07, compared to ratings of anger in expressions of happiness $M = 1.26$, SD = .04, sadness $M = 2.12$, SD = .09, neutral $M = 3.61$, SD = .10). *Post-hoc* tests confirmed that the individual showing a happy, sad, or angry expression, respectively, was rated as showing this expression significantly more intensely than anyone else.

As can be observed above, the individual showing a neutral expression was rated lowest on happiness and higher on anger and sadness. However, these ratings were significantly lower than the ratings for the sad and angry individual. Further, for anger ratings of neutral facial expressions, a significant face orientation x emotion target interaction emerged, $F(3, 211) = 4.33$, $p < .01$, such that only the neutral target was rated as more angry when the group was oriented towards the observer ($M = 3. 44$, SD = .13) rather than towards the target ($M = 3.79$, SD = .12). Overall, these findings confirm that the target person showed the intended emotion and that emotions were similar in strength across target emotions and face orientations.

2.3.2. Face orientation and mindset priming

In order to test the two main hypotheses (to assess the influence of Face Orientation of the group and the Priming manipulation on the target's emotion expression) repeated measures analyses of variance with two within subjects factors (Group Emotion and Face Orientation) and one between subjects factor (Priming condition) were conducted on the target emotions. Thus, for each target, a series of 2 (Face Orientation: in versus out) × 4 (Group Emotion: angry, happy, sad, neutral) × 3 (Priming: none, individualistic, collectivistic orientation) analyses of variance were conducted on ratings of anger, happiness, or sadness for each of the target's emotion expressions: neutral, sad, angry, and happy. The analyses focused on these three emotions as they were the ones shown by the cartoon characters (targets or group).

Overall, main effects of face orientation were qualified by face orientation by prime interactions such that, as predicted, collectivism-primed participants tended to rate the target higher on a given emotion when the group faced the target. We describe these below arranged as per target emotion. Results are summarized in Table 1 and in Figure 3(a–e).

cogent • psychology

Facial expression	Evaluation of emotion	Face orientation (inwards)	Prime (collectivism)	Prime (collectivism) × Face orientation (inwards)	Prime (individualism) × Face orientation (outwards)	Prime (collectivism) × Face orientation (inwards) × Group Emotion (congruent)
Neutral	Happiness	+	+	+		
	Sadness		−	+	+	
	Anger					+
Angry	Happiness	+		+		
	Sadness	+	−	+		
	Anger					
Happy	Happiness				+	
	Sadness			+		
	Anger				+	

Table 1. Presentation of main results

Note: A "+" sign denotes higher scores in the respective evaluation of emotion in the categories identified in the respective columns, a "−" sign, lower scores of emotion evaluations.

Figure 3. Main results of prime by face orientation interaction effects on average emotion perception ratings for targets expressing neutral (a, b), angry (c, d), and happy (e) facial expressions.
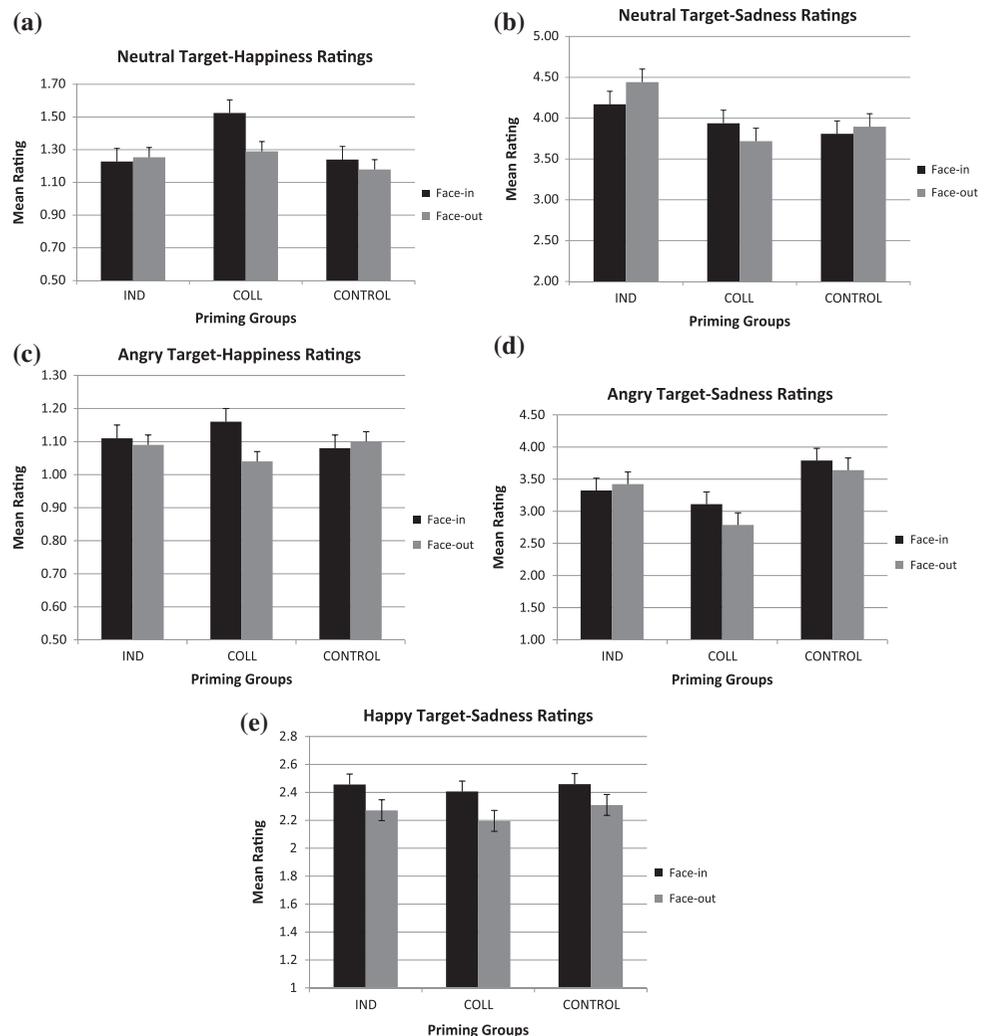
2.3.2.1. Neutral expressions. For happiness ratings of neutral expressions, a significant main effect of face orientation, $F(1, 211) = 4.56$, $p = .034$, $\eta^2 = .021$ (neutral expressions rated more happy in the group facing the target face-in condition), was fully qualified by the face orientation by prime interaction. Specifically, for neutral expressions, significant or marginally significant face orientation by prime interactions emerged for ratings of happiness, $F(2, 211) = 3.26$, $p = .04$, $\eta^2 = .03$ and sadness, $F(2, 211) = 2.99$, $p = .052$, $\eta^2 = .028$, such that collectivism-primed individuals rated the target as happier ($M = 1.52$, $SD = .07$) or sadder ($M = 3.93$, $SD = .16$), respectively, when the group faced the target rather than the observer ($M = 1.29$, $SD = .06$ and $M = 3.71$, $SD = .16$, respectively). In addition, those primed with individualism rated the neutral faces as sadder when the group was oriented towards the observer ($M = 4.17$, $SD = .17$ vs. $M = 5.44$, $SD = .16$). Moreover, for sadness ratings, there was also a near significant three-way interaction, $F(6, 416) = 2.05$, $p = .06$, $\eta^2 = .029$, such that the neutral target was rated as sadder when a neutral or happy group faced towards the target rather than the observer in the collectivism ($M = 4.04$, $SD = .22$) rather than the individualism ($M = 3.80$, $SD = .23$) priming condition; no such effects were observed in the control condition. For angry ratings of neutral target expressions, a face orientation by group emotion near significant interaction was observed $F(3, 209) = 2.36$, $p = .07$, $\eta^2 = .033$: the target expression was rated as angrier when the group faced the observer ($M = 3.44$, $SD = .13$) rather than the target ($M = 3.79$, $SD = .12$).

Tests of *main effects* found that overall happiness, $F(2, 211) = 3.71$, $p = .026$, $\eta^2 = .034$, and sadness ratings, $F(2, 211) = 3.42$, $p = .035$, $\eta^2 = .031$, differed across priming groups. Specifically, across conditions average happiness ratings were significantly higher in the collectivism priming condition ($M = 2.41$, $SD = .06$) than the control ($M = 2.21$, $SD = .06$) or the individualism priming condition ($M = 2.24$, $SD = .06$). That latter two did not differ. Conversely, overall sadness ratings were significantly higher in the individualism priming condition ($M = 4.31$, $SD = .15$) than the collectivism priming ($M = 3.83$, $SD = .14$) or the control, conditions ($M = 3.81$, $SD = .14$). The latter two did not differ. No further main effects or interactions emerged for neutral targets.

2.3.2.2. Angry expressions. For the angry looking target, significant or marginally significant face orientation main effects emerged, which were qualified by face orientation × prime interactions. For sadness ratings, a significant main effect of face orientation, $F(1, 211) = 3.78$, $p = .048$, $\eta^2 = .02$ emerged, such the target was rated as sadder in the face-in condition ($M = 3.07$, $SD = .11$) than in the face-out condition ($M = 2.93$, $SD = .11$). This was qualified by a face orientation × prime interaction, $F(2, 211) = 3.55$, $p = .03$, $\eta^2 = .033$, such that this effect was larger for the collectivism-primed participants than for the individualism-primed participants. For happiness ratings, a marginally significant main effect of face orientation, $F(1, 211) = 3.05$, $p = .08$, $\eta^2 = .014$ (higher happiness ratings in the face-in condition than the face-out condition), was qualified by a face orientation by priming interaction $F(2, 211) = 2.46$, $p = .08$, $\eta^2 = .023$, such that collectivism-primed participants rated the target more happy when the group faced the central character rather than the observer ($M = 1.16$, $SD = .04$ vs. $M = 1.04$, $SD = .03$). For anger ratings, a main effect of face orientation emerged ($F(1, 211) = 3.05$, $p = .08$, $\eta^2 = .014$), such that the angry target was rated as angrier when the group faced the observer ($M = 6.33$, $SD = .05$) than when the group faced the central figure ($M = 6.22$, $SD = .06$). Further, a main effect of priming was found for sadness ratings, $F(2, 211) = 3.48$, $p = .032$, $\eta^2 = .032$, such that the target was rated as sadder in the individualism priming condition ($M = 3.37$, $SD = .18$) than in the collectivism prime ($M = 2.93$, $SD = .17$) or the control condition ($M = 2.71$, $SD = .18$), which did not differ. No further main effects or interactions emerged for angry targets.

2.3.2.3. Happy expressions. As for angry and neutral targets, a face orientation × prime interaction, $F(2, 211) = 2.99$, $p = .051$, $\eta^2 = .029$, emerged for sadness ratings of *happy* looking targets. *Post-hoc* tests revealed that participants who were primed with a collectivistic orientation rated the happy faces as sadder when the group faced the target ($M = 1.44$, $SD = .07$) rather than the observer ($M = 1.26$, $SD = .08$). An opposite trend emerged for the unprimed participants ($M = 1.24$, $SD = .07$ vs. $M = 1.34$, $SD = .08$) whereas for the individualism primed participants the difference between the two conditions was smaller ($M = 1.43$, $SD = .07$ vs. $M = 1.38$, $SD = .07$). For anger ratings of happy targets, a main effect of face orientation emerged, $F(2, 211) = 6.94$, $p < .01$, $\eta^2 = .032$, such that the happy target was rated

as angrier when the group faced the observer (M = 1.35, SD = .04) rather than the target (M = 1.24, SD = .03). For happy ratings of happy looking targets, a main effect of face orientation, $F(1, 211)$ = 6.81, p = .01, η^2 = .031, was qualified by a face orientation x prime interaction, $F(2, 211)$ = 4.56, p = .011, η^2 = .041. Contrary to the effects observed for the neutral and the angry faces, participants who were primed with either orientation rated the target as happier when the group faced the observer rather than the central figure, this difference was larger for the collectivism-primed individuals (M = 6.31, SD = .10 vs. M = 5.96, SD = .12) than the individualism primed participants (M = 6.27, SD = .11 vs. M = 6.11, SD = .12). No difference was found for unprimed participants.

2.3.2.4. Sad expressions. Examination of ratings of targets' sad emotion expressions yielded a main effect of priming such that sad targets were rated as less sad, $F(2, 211)$ = 3.09, p = .048, η^2 = .028, in the collectivism priming condition (M = 6.08, SD = .09) than in the other two conditions (individualism M = 6.29, neutral M = 6.39, SD = .09), which did not differ.

2.3.3. Effects of emotion congruency

A significant main group emotion effect emerged for the happiness ratings of the happy target, $F(3, 208)$ = 16.76, p < .001, η^2 = .19, such that the happy target was rated as happier when the group showed the same emotion (M = 6.36, SD = .06) or a neutral expression (M = 6.30, SD = .06) than when the group showed contrasting negative emotions (anger M = 5.95, SD = .09 or sadness M = 6.01, SD = .08). There was also a near significant group emotion effect for anger ratings of sad targets, $F(2, 211)$ = 2.25, p = .08, η^2 = .031, such that when group was angry, anger ratings were highest.

2.4. Discussion

The present study examined how a pertinent characteristic of the situation (face orientation in a group) may influence emotion perception as a function of the perceivers' situationally activated collectivistic or individualistic mindset. As expected, when participants were primed with a collectivistic mindset, contextual characteristics (i.e. group face orientation) influenced perceivers' judgments of facial emotion expressions. Overall, participants who were primed with a collectivistic mindset rated the facial expressions of angry or neutral target persons as expressing more intense emotion when the group was oriented towards the central target figure and hence gave the impression of an in-group. Sadness ratings of happy targets also followed this same pattern despite collectivism priming being associated with a reduction of sadness ratings. Only in two cases did individualism primed participants rate the facial expressions more intense when the group faced towards the participant. To our knowledge, this is the first study to suggest a causal link between increases in the accessibility of collectivistic mindsets and the perception of facial emotion expression as a function of face orientation social cues.

The findings extend the "culture as situated cognition" model (Oyserman, 2011; Oyserman et al., 2009) to the emotion perception process by showing the influence of salient situational elements (e.g. "inwards" facial orientation) for the emotion perception process in relation to the decoders' salient cultural schemas. Face orientation communicates intimacy (Argyle & Cook, 1976) and affiliation (Mason et al., 2005), especially in group situations (a situation which is relevant to perceivers with collectivistic orientations, Miyamoto et al., 2006). For participants with accessible collectivistic mindsets, face orientation seems to be a salient and relevant cue and hence can influence how they perceive emotions.

Importantly, the results suggest that such contextual cues alone are not sufficient to impact on observers' perceptions. Rather, we found, as hypothesized, that the contextual cue only becomes relevant when it is matched with a relevant cognitive schema, such that participants with a collectivistic focus perceived the target's emotions as more intense, when the target was surrounded by a group. This pattern of findings is in keeping with key premises of the situated social cognition approach applied to cultural cognition (Oyserman, 2011); namely, that different elements of situations influence cognitive processes (judgment, perception) as a function of social actors' available schemas (Smith & Semin, 2007).

However, we also found an exception to the expected pattern of effects. In the case of happy ratings of happy facial expressions, both collectivistic and individualistic mindsets resulted in participants rating the target as happier in the "face-out" condition. This may be due to the specific affective properties of positive emotion expressions: seeing facial expressions of positive emotion elicits positive affect. Positive affect in turn tends to broaden cognition by eliminating group-related schemas (Johnson, Waugh, & Fredrickson, 2010). Fredrickson (2004) suggests that one important function of positive emotion is indeed to broaden cognition. As this effect was quite strong, it is plausible that the broadening properties of perceiving happy emotions may have interacted with the relatively more subtle priming effects of collectivism priming thereby eliminating the group-related cognition effects associated with perceivers' collectivistic schema. Nevertheless, findings that the same (happy) facial expressions were rated as sadder when participants were primed with a collectivistic mindset suggest that it is not the encoded facial expressions alone that may influence emotion perception but also attributions regarding the perceived emotional state held by the perceiver.

Notably, there was only limited evidence for an effect of individualism priming in the "outwards" condition as expected by the second hypothesis. Individualism priming resulted in more emotion perception of happiness in the happy expression, and more sadness in the neutral expression. The individualism mindset priming may not have been as effective as the collectivism priming. This may be due to central cultural orientation tendencies in Greece towards interdependence. Namely, given that day-to-day life in cultures like (southern) Greece is full with situational opportunities that activate collectivistic mindset, this may have influenced the strength of activating an individualist mindset.

Interestingly, we found little evidence that the level of congruence (or incongruence) of the group emotion acted as a social cue for emotion expression (especially in the "face-in" condition) as suggested by previous research (Masuda et al., 2008). Except for the one case where collectivism primed participants rated the happy target as sadder when the surrounding persons showed sad or angry expressions, face orientation seemed to be the more potent social cue in the present context. Possibly, when the group faces the central person, the expressions of the group members were not clearly perceived (however, congruency effects also did not emerge for the face-out condition either, where there was no difference between the clarity of the expressions of the central figure and the expressions of the group members). Therefore, a more plausible explanation may be that the emotion congruence effects observed in previous research may have arisen because emotion congruence was the only social-contextual cue available to influence decoders' cultural orientations. In the current study, however, facial orientation was also present as a contextual cue and this may have had more relevance and significance especially for the collectivism primed perceivers. If this were the case, further research could distinguish the impact of relational or symbolic aspects of the interaction from the impact of emotion information in the perception of emotional expression. In fact, recent research and theorizing is suggestive of culture-related cognitive mechanisms at individual and social levels that could also be included in future research (see Engelmann & Pogosyan, 2013; Pogosyan & Engelmann, 2011).

In sum, the present study extends research on the cultural mindset activation to show that primed collectivism focus, in particular, impacts on the perception of emotion expressions in a group context. Interestingly, the difference between individualism and collectivism-primed individuals is the importance they accord to context information about the relationship between group members (as expressed by gaze and body orientation). Specifically, only when the other individuals in a group seem to have a relationship with the central character in the picture, are judgments of collectivism primed individuals of that central character's emotion influenced by the presence of others. When all group members face the observer equally, participants consider the target as independent of the group and the group's presence exerts relatively little influence. That is, for collectivistic mindsets, only individuals who behave as a group can impact on the central character's feeling. This finding is congruent with the importance of groups and group influences on interdependent individuals. The study allowed to distinguish between the separate effects of collectivistic and individualistic mindsets by including a control condition, and the sample included younger (student) and elder non-student participants from the community.

cogent ••psychology

Limitations of the study relate, mainly, to the stimulus materials and presentation format. Although the use of cartoons introduces an amount of controllability, the task involves a certain artificiality including a more unambiguous representation of facial emotion expressions. In addition, not all participants may be familiar with cartoon depictions of facial expressions. Moreover, in the present study, we opted for a blocked (order controlled) format presentation of the face orientation. Although this was chosen as a preferable solution based on initial piloting, blocking may not have fully minimized demand characteristics of the task. In future research, use of more spontaneous expressions of real-life emotions and more naturalistic interpersonal settings may be able to overcome the above limitations.

Limitations notwithstanding, the results have some interesting theoretical implications for a more comprehensive understanding of social emotion perception processes, including emotion perception accuracy. Emotion perception is a dynamic process that incorporates effects both from the perceiver, the encoding stimulus and social-contextual characteristics of both (Hess & Philippot, 2007). Therefore, the accurate perception of facial emotion expressions also hinges on social-contextual facets of the situation within which emotion perception takes place (Kafetsios, Andriopoulos, & Papachiou, 2014; Kafetsios & Hess, 2013; Zaki & Ochsner, 2011). Therefore, future research could explore those situational determinants of emotion perception.

More broadly, the results from the present study support emerging theoretical (Barrett, Mesquita, Ochsner, & Gross, 2007; Hareli & Hess, 2012) and empirical (Barrett & Kensinger, 2010; Masuda et al., 2008) arguments that in order to fully comprehend emotion perception it is necessary to include situational factors and the social meaning of emotions, which inform the process by which we understand the emotions of others. The findings are also in support of accounts that consider cultural differences in emotion perception (the in-group effect) as the result of the interplay between both encoder's characteristics and decoder's cultural allegiance (Elfenbein, 2007). Finally, the study contributes evidence for the importance of situation in social psychology (Fischer & van Kleef, 2010; Reis, 2008) especially with regard to emotion processes.

Competing interests
The authors declare no competing interest.

Author details
Konstantinos Kafetsios[1]
E-mail: k.kafetsios@psy.soc.uoc.gr
ORCID ID: http://orcid.org/0000-0001-5933-4409
Ursula Hess[2]
E-mail: Ursula.Hess@hu-berlin.de
[1] Psychology Department, University of Crete, Gallos Campus, GR74100 Rethymnon, Greece.
[2] Psychology Department, Humboldt-Universität zu Berlin, Berlin, Germany.

Citation information
Cite this article as: Are you looking at me? The influence of facial orientation and cultural focus salience on the perception of emotion expressions, Konstantinos Kafetsios & Ursula Hess, *Cogent Psychology* (2015), 2: 1005493.

Notes
1. In a pilot study with eight participants, face orientation was varied either randomly or with every other image. In both cases, participants reported that the shift of focus (face-in and face-out) was experienced as distracting. We therefore decided to block face orientation in two different sets with the order of sets counterbalanced across participants.
2. In cases of violation of multivariate normality assumption, the Huyhn–Feldt correction was applied.

References
Adams, Jr., R. B., Gordon, H. L., Baird, A. A., Ambady, N., & Kleck, R. E. (2003). Effects of gaze on amygdala sensitivity to anger and fear faces. *Science, 300*, 1536–1536. http://dx.doi.org/10.1126/science.1082244

Argyle, M., & Cook, M. (1976). *Gaze and mutual gaze*. Oxford, NY: Cambridge University Press.

Barrett, L. F., & Kensinger, E. A. (2010). Context is routinely encoded during emotion perception. *Psychological Science, 21*, 595–599. http://dx.doi.org/10.1177/0956797610363547

Barrett, L. F., Mesquita, B., Ochsner, K. N., & Gross, J. J. (2007). The experience of emotion. *Annual Review of Psychology, 58*, 373–403. http://dx.doi.org/10.1146/annurev.psych.58.110405.085709

Beaupre, M. G., & Hess, U. (2005). Cross-cultural emotion recognition among Canadian ethnic groups. *Journal of Cross-Cultural Psychology, 36*, 355–370. http://dx.doi.org/10.1177/0022022104273656

Ekman, P., & Friesen, W. V. (1971). Constants across cultures in the face and emotion. *Journal of Personality and Social*

cogent ··psychology

Psychology, 17, 124–129. http://dx.doi.org/10.1037/h0030377

Elfenbein, H. A. (2007). It takes one to know one better. In U. Hess & P. Philippot (Eds.), *Group dynamics and emotional expression* (pp. 51–68). Cambridge: Cambridge University Press. http://dx.doi.org/10.1017/CBO9780511499838

Engelmann, J. B., & Pogosyan, M. (2013). Emotion perception across cultures: The role of cognitive mechanisms. *Frontiers in Psychology, 4*, 118. doi:10.3389/fpsyg.2013.00118

Fischer, A. H., & van Kleef, G. A. (2010). Where have all the people gone? A plea for including social interaction in emotion research. *Emotion Review, 2*, 208–211. http://dx.doi.org/10.1177/1754073910361980

Forster, K., & Forster, J. (2003). DMDX: A windows display program with millisecond accuracy. *Behavior Research Methods, Instruments & Computers, 35*, 116–124.

Fredrickson, B. (2004). The broaden-and-build theory of positive emotions. *Philosophical Transactions of the Royal Society B: Biological Sciences, 359*, 1367–1377. http://dx.doi.org/10.1098/rstb.2004.1512

Gardner, W. L., Gabriel, S., & Lee, A. Y. (1999). "I" value freedom, but "we" value relationships: Self-construal priming mirrors cultural differences in judgment. *Psychological Science, 10*, 321–326. http://dx.doi.org/10.1111/1467-9280.00162

Hareli, S., & Hess, U. (2012). The social signal value of emotions. *Cognition and Emotion, 26*, 385–389. http://dx.doi.org/10.1080/02699931.2012.665029

Hess, U., Adams, R. B., Jr, & Kleck, R. E. (2007). Looking at you or looking elsewhere: The influence of head orientation on the signal value of emotional facial expressions. *Motivation and Emotion, 31*, 137–144. http://dx.doi.org/10.1007/s11031-007-9057-x

Hess, U., Adams, R. B., Jr, & Kleck, R. E. (2008). The role of facial expression in person perception. In N. Ambady & J. J. Skowronski (Eds.), *First impressions* (pp. 234–254). New York, NY: Guilford.

Hess, U., & Philippot, P. (2007). Others faces' tales: An integration. In U. Hess & P. Philippot (Eds.), *Group dynamics and emotional expression* (pp. 182–190). New York, NY: Cambridge University Press. http://dx.doi.org/10.1017/CBO9780511499838

Hess, U., & Thibault, P. (2009). Darwin and emotion expression. *American Psychologist, 64*, 120–128. http://dx.doi.org/10.1037/a0013386

Hong, Y. Y., Morris, M. W., Chiu, C.-Y., & Benet-Martínez, V. (2000). Multicultural minds: A dynamic constructivist approach to culture and cognition. *American Psychologist, 55*, 709–720. http://dx.doi.org/10.1037/0003-066X.55.7.709

Johnson, K. J., Waugh, C. E., & Fredrickson, B. L. (2010). Smile to see the forest: Facially expressed positive emotions broaden cognition. *Cognition and Emotion, 24*, 299–321. http://dx.doi.org/10.1080/02699930903384667

Kafetsios, K., Andriopoulos, P., & Papachiou, A. (2014). Relationship status moderates avoidant attachment differences in positive emotion decoding accuracy. *Personal Relationships, 21*, 191–205. http://dx.doi.org/10.1111/pere.2014.21.issue-2

Kafetsios, K., & Hess, U. (2013). Effects of activated and dispositional self-construal on emotion decoding accuracy. *Journal of Nonverbal Behavior, 37*, 191–205. http://dx.doi.org/10.1007/s10919-013-0149-x

Kendon, A. (1967). Some functions of gaze-direction in social interaction. *Acta Psychologica, 26*, 22–63. http://dx.doi.org/10.1016/0001-6918(67)90005-4

Kitayama, S., Duffy, S., Kawamura, T., & Larsen, J. T. (2003). Perceiving an object and its context in different cultures: A cultural look at new look. *Psychological Science, 14*, 201–206. http://dx.doi.org/10.1111/1467-9280.02432

Kitayama, S., Markus, H. R., & Kurokawa, M. (2000). Culture, emotion, and well-being: Good feelings in Japan and the United States. *Cognition and Emotion, 14*, 93–124. http://dx.doi.org/10.1080/026999300379003

Kühnen, U., & Oyserman, D. (2002). Thinking about the self influences thinking in general: Cognitive consequences of salient self-concept. *Journal of Experimental Social Psychology, 38*, 492–499. http://dx.doi.org/10.1016/S0022-1031(02)00011-2

Markus, H. R., & Kitayama, S. (1991). Culture and the self: Implications for cognition, emotion, and motivation. *Psychological Review, 98*, 224. Retrieved from http://dx.doi.org/10.1037/0033-295X.98.2.224

Mason, M. F., Tatkow, E. P., & Macrae, C. N. (2005). The look of love. *Psychological Science, 16*, 236–239. http://dx.doi.org/10.1111/psci.2005.16.issue-3

Masuda, T., Ellsworth, P. C., Mesquita, B., Leu, J., Tanida, S., & Van de Veerdonk, E. (2008). Placing the face in context: Cultural differences in the perception of facial emotion. *Journal of Personality and Social Psychology, 94*, 365–381. http://dx.doi.org/10.1037/0022-3514.94.3.365

Matsumoto, D., Yoo, S. H., Nakagawa, S., & 37 Members. (2008). Culture, emotion regulation and adjustment. *Journal of Personality and Social Psychology, 94*, 925–937. http://dx.doi.org/10.1037/0022-3514.94.6.925

Miyamoto, Y., Nisbett, R. E., & Masuda, T. (2006). Culture and the physical environment: Holistic versus analytic perceptual affordances. *Psychological Science, 17*, 113–119. http://dx.doi.org/10.1111/j.1467-9280.2006.01673.x

Miyamoto, Y., & Wilken, B. (2010). Culturally contingent situated cognition: Influencing other people fosters analytic perception in the United States but not in Japan. *Psychological Science, 21*, 1616–1622. http://dx.doi.org/10.1177/0956797610385954

Neumann, R., Steinhäuser, N., & Roeder, U. R. (2009). How self-construal shapes emotion: Cultural differences in the feeling of pride. *Social Cognition, 27*, 327–337. http://dx.doi.org/10.1521/soco.2009.27.2.327

Niedenthal, P. M., Mermillod, M., Maringer, M., & Hess, U. (2010). The simulation of smiles (SIMS) model: Embodied simulation and the meaning of facial expression. *Behavioral and Brain Sciences, 33*, 417–433. Retrieved from http://dx.doi.org/10.1017/S0140525X10000865

Nisbett, R. E. (2003). *The geography of thought: How Asians and Westerners think differently and why*. New York, NY: Free Press.

Nisbett, R. E., & Miyamoto, Y. (2005). The influence of culture: Holistic versus analytic perception. *Trends in Cognitive Sciences, 9*, 467–473. Retrieved from http://dx.doi.org/10.1016/j.tics.2005.08.004

Oyserman, D. (2011). Culture as situated cognition: Cultural mindsets, cultural fluency, and meaning making. *European Review of Social Psychology, 22*, 164–214. http://dx.doi.org/10.1080/10463283.2011.627187

Oyserman, D., & Lee, S. W. S. (2008). Does culture influence what and how we think? Effects of priming individualism and collectivism. *Psychological Bulletin, 134*, 311–342. http://dx.doi.org/10.1037/0033-2909.134.2.311

Oyserman, D., & Sorensen, N. (2009). Understanding cultural syndrome effects on what and how we think: A situated cognition model. In R. Wyer, Y. Y. Hong, & C. Y. Chiu (Eds.), *Understanding culture: Theory, research and application* (pp. 25–52). New York, NY: Psychology Press.

Oyserman, D., Sorensen, N., Reber, R., & Chen, S. (2009). Connecting and separating mind-sets: Culture as situated cognition. *Journal of Personality and Social Psychology, 97*, 217–235. http://dx.doi.org/10.1037/a0015850

Patterson, M. L. (1991). A functional approach to nonverbal exchange. In R. S. Feldman & B. Rimé (Eds.), *Fundamentals of nonverbal behavior* (pp. 458–496). Cambridge: Cambridge University Press.

Pogosyan, M., & Engelmann, J. B. (2011). Cultural differences in affect intensity perception in the context of advertising.

Frontiers in Psychology, 2, 313. Retrieved from http://dx.doi.org/10.3389/fpsyg.2011.00313

Reis, H. T. (2008). Reinvigorating the concept of situation in social psychology. *Personality and Social Psychology Review, 12*, 311–329. http://dx.doi.org/10.1177/1088868308321721

Smith, E. R., & Semin, G. R. (2007). Situated social cognition. *Current Directions in Psychological Science, 16*, 132–135. http://dx.doi.org/10.1111/cdir.2007.16.issue-3

Tomkins, S. S. (1962). *Affect, imagery, consciousness: Vol. 1. The positive affects*. New York, NY: Springer.

Trafimow, D., Triandis, H., & Goto, S. (1991). Some tests of the distinction between the private self and the collective self. *Journal of Personality and Social Psychology, 60*, 649–655. http://dx.doi.org/10.1037/0022-3514.60.5.649

Zaki, J., & Ochsner, K. (2011). Reintegrating the study of accuracy into social cognition research. *Psychological Inquiry, 22*, 159–182. http://dx.doi.org/10.1080/1047840X.2011.551743

Appendix 1

We would like you to read the following paragraph. After reading the paragraph, we would like you to evaluate the extent to which the following sentences reflect the main character's characteristics.

Independence priming (1)

Nikos is a unique person. He is training in Tae Kwon Do persistently for a long time. He has participated in many competitions and won a few of them. He trains hard and believes in himself. He is a dynamic person and competes with decisiveness in order to reach his goals. He prefers to be independent and devotes his free time to training than entertainments. In his last game, he felt all these years' efforts were justified. Generally Nikos believes that if one really wants he can achieve whatever he wants in his life. Nikos is: optimistic, enthusiastic, energetic, happy, disciplined, independent, dynamic, hard, decisive, alone, competitive, and calm.

Interdependence priming (2)

Nikos is a member of the local football team. He trains daily with his fellow players for many hours. After all this time with them, their relationship is strong and has understanding. Due to the spirit of camaraderie, the cohesion and the support the team has managed to reach the first division. Nikos believes in his team because he believes in the abilities of his fellow players and the cooperation with them. Reaching this year's cup final feels with happiness and pride that they all tried hard for the team's success. Nikos: shows trust in others, shows respect for others, shows understanding for others, is devoted to others, is proud of others, shows gratitude to others, despises others, is cooperative with others, is jealous of others, shows support to others, is hard with others, and has "filotimo" (honor).

Control group (from Wikipedia)

Tennis is a modern sport game. Players use rackets to hit a round rubber ball covered with cotton over a net towards the fellow player. Originating in Europe, towards the end of the 19th century, tennis spread around the English speaking world. Tennis is an Olympic sport and is adopted by all parts of the society, from all ages and in many countries around the world. With the exception of the adoption of extra time rule in the 1970, the rules have remained the same since the 1890s. Along with the millions of players, millions of people watch the four main grand slams.

Tennis is: an interesting game, a sport that requires exercise, a tiring game, requires many years of devotion, an entertaining game, requires technique, and has devoted followers.