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Facial mimicry and emotional contagion to dynamic emotional facial expressions and their influence on decoding accuracy

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Abstract

The present study had the goal to assess whether individuals mimic and show emotional contagion in response to relatively weak and idiosyncratic dynamic facial expressions of emotions similar to those encountered in everyday life. Furthermore, the question of whether mimicry leads to emotional contagion and in turn facilitates emotion recognition was addressed. Forty-one female participants rated a series of short video clips of stimulus persons expressing anger, sadness, disgust, and happiness regarding the emotions expressed. An unobtrusive measure of emotional contagion was taken. Evidence for mimicry was found for all types of expressions. Furthermore, evidence for emotional contagion of happiness and sadness was found. Mediation analyses could not confirm any relation between mimicry and emotional contagion nor between mimicry and emotion recognition. © 2001 Elsevier Science B.V. All rights reserved.

Keywords: Facial mimicry; Emotional contagion; Emotion recognition

1. Introduction

It has been suggested that mimicry — the imitation of others' non-verbal displays by an observer — plays an important role in the com-

munication of affective states [e.g. Freud, 1921, based on a theory by Lipps, 1907; Bavelas et al., 1986]. For example, Rogers (1957) saw the imitation of a client's non-verbal behavior as a means to communicate empathy and some schools of therapy (see, e.g. Siegel, 1995) advocate imitation as a means of understanding the client's internal state.

Facial mimicry in this context is usually concep-

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tualized as an automatic, reflex-like process (see, e.g. Lipps, 1907; Hoffmann, 1984; Hatfield et al., 1993), with the observer's facial expression matching the observed facial expression. Emotional contagion is a closely related concept that is sometimes defined in overlapping terms (e.g. Hatfield et al., 1993). It is therefore useful to define the specific use of the two terms in the framework of the present study. Specifically, we consider as mimicry the congruent facial reactions to the emotional facial displays of others. That is, mimicry is defined exclusively as an expressive component. In contrast, we define emotional contagion as an affective state that matches the other's emotional display.

In a recent review, Hess et al. (1999) conclude that evidence from studies on both adults and infants strongly suggests that, in general, people adopt facial, postural, and vocal behaviors that are congruent with the displays they observe, and that these displays often represent mimicry (see also Dimberg, 1990). However, some examples of counter-mimicry effects (e.g. Lanzetta and Englis, 1989; Hess, 1998) have also been reported. Specifically, Lanzetta and Englis (1989) found mimicry in a collaborative task situation but counter-mimicry in a competitive task situation. This, and evidence that mimicry may depend on the type of task the participant is engaged in (Hess et al., 1998), suggests that mimicry may not be an automatic, reflex-like mechanism. Furthermore, a number of studies suggest that individuals tend to report emotional states that match the facial emotion displays to which they have been exposed (see, e.g. Hatfield et al., 1993; Strayer, 1993; Laird et al., 1994; Schneider et al., 1994; Lundqvist and Dimberg, 1995).

The two processes, mimicry and emotional contagion, have been suggested to be causally related. This idea goes back to Lipps (1907) who suggested that the imitated expression leads — via a feedback process — to emotional contagion. As regards the influence of emotional contagion on empathy (the capacity to recognize the emotional state of others), Lipps (1907) as well as Hoffmann (1984) imply that emotional contagion should in turn facilitate emotion recognition. Related ideas have more recently been expressed by Hatfield et

al. (1993). Similarly, Cappella (1993), based on evidence in favor of the facial feedback hypothesis (FFH) in particular, proposes that facial feedback from mimicry causes contagion.

However, evidence is accumulating that emotional contagion may not be causally related to mimicry (Gump and Kulik, 1996; Blairy et al., 1999). Also, in their review of the literature, Hess et al. (1999) could not find any consistent evidence that mimicry facilitates emotion recognition. Together, these findings throw doubt on the notion that emotion recognition is related to a reflex-like mimicry process via contagion.

So why do people mimic at all since this process seems to not be related to either emotional contagion or emotion recognition accuracy? Before answering this question a second look at the evidence reported above is necessary. First, despite the evidence for facial mimicry reported above, it is not clear whether individuals mimic the type of expressions they are likely to encounter in real life. This, because evidence for mimicry in adults is largely based on studies that employed very intense, prototypical facial expressions presented as still photographs. For example, the extensive studies on mimicry and contagion in adults by Dimberg and Lundqvist (e.g. Dimberg, 1990; Lundqvist, 1995; Lundqvist and Dimberg, 1995) employed stimuli selected from the 'Pictures of facial affect' (Ekman and Friesen, 1976), which are a set of highly recognizable and prototypic facial expressions. Such stimuli may in fact elicit a reflex-like response due to their extremity that is not found for less extreme expressions. This notion is supported by the observation that studies finding evidence for the situation dependence of mimicry employed somewhat weaker and more natural expressions (Lanzetta and Englis, 1989; Gump and Kulik, 1996; Hess et al., 1998). Also, McHugo et al. (1991) and Bourgeois and Hess (1999) using video exert of news programs featuring politicians found that mimicry was modulated by the political attitude of the observer. That is, observers were more likely to mimicry a politician if they shared his political beliefs than when not.

In sum, studies finding clear evidence for facial mimicry and emotional contagion tend to employ

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