CHAPTER 10

Conclusion: toward a better understanding of emotional mimicry

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The various contributors to this volume have provided evidence that mimicry can be seen as an empathic reaction, forming an important element in shared minds. This idea has been described in our "Emotional Mimicry in Social Context" view (Hess & Fischer, 2013, 2014), which states that the functions of emotional mimicry are basically social and hence vary with the characteristics of the relationship, the interaction partner, and the social goals in the specific situation. This view implies that emotional mimicry only occurs under specific circumstances, namely (a) when the mimicked expression is understood as an emotional signal directed at oneself, (b) when the expresser is perceived to have affiliative intent, and (c) when the mimicking person also has affiliative intent. It should thus be noted that in lab contexts, where a participant observes photos or videos containing facial expressions, mimicry occurs because the affiliative intent in such an experimental setting is a default stance and the expressions are implicitly considered to be directed at oneself.

This definition of emotional mimicry also points to a common misunderstanding about what is and what is not mimicry, because the various forms of mimicry cannot be defined on the basis of their form, but only on the basis of their functions. It may therefore be useful to distinguish at least two different phenomena (see also Hess & Fischer, 2013, 2014). One is a mimicry reaction in the traditional sense – a congruent expression that "mirrors" an observed reaction. The second is an emotional reaction to the other's expression, which is also congruent but not mirrored. Specifically, when one person shows a congruent nonverbal reaction in reaction to another person, this can, but need not necessarily, be considered mimicry. Take the example of anger. When a person shows anger in response to another's anger expression because of the implied insult, the two expressions are congruent, but do not represent mimicry. In such cases, the matching expression serves to assert dominance (as opposed to submission signaled by fear or an abasing smile) and thus cannot be seen

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as an indication of emotional mimicry. Similarly, showing congruent disgust to disgust can be seen as a sign of social rejection (Rozin, Haidt, & McCauley, 2008), not of affiliation. These congruent emotional displays are therefore not an imitation of, but rather *a reaction to*, the emotion of the other person. Thus, emotional mimicry should be defined on the basis of its function: it is the imitation of another's emotional display in order to understand and share the other's emotional perspective. The fact that there is evidence that emotional mimicry occurs independently of the specific nonverbal channel in which it is displayed (Hawk & Fischer, Chapter 6) further suggests that we may think of emotional mimicry as a form of re-enactment or simulation of the other's emotional perspective and hence as a process that is embedded in a larger social context. Importantly, once noted by the interaction partner, mimicry also plays a communicative role as a social regulator (Hess & Fischer, 2013, 2014; Hess, Houde, & Fischer, 2014).

Traditionally, mimicry has been considered to be a low-level process that is based on a direct perception-behavior link (Chartrand & Bargh, 1999), representing an automatic "low road" to empathy (Walter, 2012). Following the idea that mimicry is an automatic process based on changing appearances of facial muscles, Chartrand and Bargh (1999) speculated that "the effect [of mimicry] should occur among strangers when no affiliation goal is present" (p. 900). In this sense, mimicry was largely assumed to be a spontaneous unitary process – the implicit assumption being that mimicry occurs automatically and that all behaviors are mimicked to an equal degree under all circumstances, as long as they are perceived.

The Emotional Mimicry in Social Context view takes the meaning of the facial display as the key factor determining whether or not it is mimicked. It considers the central function of mimicry to be to shape social interactions in ways that interaction partners feel understood and liked. In other words, emotional mimicry reflects a sharing of minds (Oatley, Chapter 1) and empathic understanding (Schuler et al., Chapter 9). Neurological evidence supports the importance of this social interactional context (Schuler et al., Chapter 9).

Supporting the social functions of mimicry, more recently a number of factors have been found to moderate mimicry behavior. First, mimicry depends on the characteristics of the mimickee (Chapters 2, 3, 7, and 8). Individuals mimic liked interaction partners more than disliked ones, and they mimic positive and affiliative emotions more than aversive or hostile emotions. More generally, emotional mimicry is restricted to situations in which relationships are either affiliative or at least neutral.

Second, mimicry also depends on the personality characteristics of the mimicker (Sonnby-Börgstrom, Chapter 7). The tendency to mimic may be

a stable part of the behavioral repertoire that can be used to regulate social interactions (Hess et al., Chapter 5). In this vein, it may be argued that emotional mimicry is related to the strength of a person's implicit affiliation motive. Hence, individuals who tend to mimic should report more satisfying social interactions, because they are likely to engage in positive social behaviors such as trying to please others, maintaining harmony with others, or showing affection to others. As mentioned earlier, Hess and Fischer (2014) argue for the need to distinguish between mimicry, that is, the imitation of another's behavior, and congruent emotional displays that are in fact not an imitation of, but rather *a reaction to*, the emotions of others. Thus, mimicry as a trait should be restricted to situations in which the mimicker has affiliative intent and the mimicked behavior is also affiliative. When congruent facial reactions to non-affiliative facial expressions are shown, these should be seen as reactive.

In sum, the Emotional Mimicry in Social Context model assumes that not everyone will mimic all expressions under all circumstances. In an affiliative context, individuals who have affiliative intentions should mimic those nonverbal signals that in turn signal affiliation, such as the emotions of happiness and sadness, but also affiliative body movements as recently shown by Kurzius and Borkenau (2015). In an antagonistic context or when individuals are not striving for affiliation, and when behaviors do not signal affiliation, congruent facial expressions may still occur, but they are more likely to be emotional reactions to the antagonistic behavior of the other person. In these contexts, opposite behaviors, such as smiling in response to pain or a frown in response to a smile – often referred to as counter-mimicry (Lanzetta & Englis, 1989; Weyers, Mühlberger, Kund, Hess, & Pauli, 2009) – also occur.

Two recent studies found evidence for this notion. Kurzius and Borkenau (2015) studied behavioral mimicry including smiles and frowns during cooperative and competitive tasks in a laboratory setting, whereas Mauersberger et al. (2015) studied emotional mimicry. Both studies postulated that affiliation-related personality characteristics would positively predict mimicry of positive behaviors or affiliative emotions, respectively, whereas non-affiliative traits such as neuroticism would be related to showing congruent negative behavior or non-affiliative emotions, respectively. They then predicted positive interaction outcomes as a function of the mimicry of positive/affiliative behaviors and negative outcomes for the negative/non-affiliative behaviors. Mauersberger et al. asked participants to keep a diary about their daily interactions, whereas Kurzius and Borkenau studied laboratory interactions. Figure 10.1 shows the general model underlying these predictions.

Despite these vast differences in approach, considerable congruence in findings emerged. Thus, neuroticism was linked to the imitation of
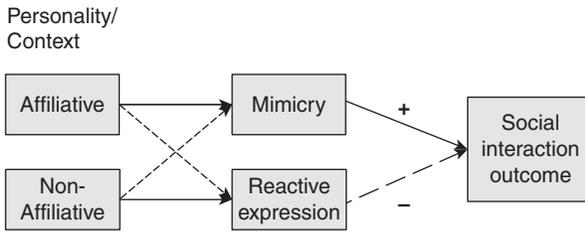
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Figure 10.1 Antecedents and consequences of mimicry and reactive expressions.

negative behaviors, as well as to disgust mimicry, whereas agreeableness was linked to the imitation of positive behaviors and the affiliative emotion of sadness. In turn, the imitation of positive behaviors and sadness mimicry both increased liking and interaction satisfaction, respectively, whereas the imitation of negative behaviors and disgust mimicry decreased liking and interaction satisfaction. In sum, these findings show congruence between behavioral mimicry and emotional mimicry when interactionally meaningful measures of behavioral mimicry are taken.

These studies hint at the importance of distinguishing between the imitation of affiliative and non-affiliative behaviors. In particular, more research is needed to understand the role and function of showing congruent non-affiliative behaviors, which have so far only rarely been studied separately from affiliative behaviors. For example, the finding reported by Mauersberger et al. (2015) for congruent reactions to anger points to this need. It turns out that the outcome of anger imitation depends on the emotion regulation ability of the mimicker. When individuals high in emotion regulation ability show congruent anger, the social interaction outcome is positive, yet when individuals low in emotion regulation ability show congruent anger, the outcome is negative. Anger is an especially interesting emotion in this context, because it is linked, on the one hand, to aggression (Berkowitz, 1999) but also (in the form of "righteous" anger) to goal-conducive acts that redress injustice (Hess, 2014). As such, anger that is perceived as appropriate can have positive consequences, whereas anger that seems simply aggressive has negative consequences.

In sum, over and above the general notion that mimicry serves as "social glue," we need to understand better the specific types of glue and their proper application. Just as wood glue is useless for metal, and vice versa, we need to understand the specific consequences of the mimicry of specific behaviors. The line of research described

earlier seems a fruitful way to better understand the function of mimicry for the mimicker: when does mimicry result in feeling better – or worse – about the other? The observation that the mimicry of sad expressions seems to be linked to more positive feelings on the part of the mimickee (Mauersberger et al., 2015) also suggests the importance of studying the "other side." In this context, it should be noted that laboratory research on mimicry has so far considered only single mimicry events (in the case of emotional mimicry) or aggregate observations (in the case of behavioral mimicry), yet clearly mimicry is a time series event, occurring in sequential steps. What happens if I mimic another person, but the person does not mimic me? Conversely, can we actually get into a runaway positive feedback loop, which ends in a catastrophic breakdown? Can phenomena such as hysterical laughter or panic be partly described in these terms? That hysterical laughter occurs mainly among friends and depends on eye contact may be one hint in that direction (Hess, Banse, & Kappas, 1993). In sum, the Emotional Mimicry in Social Context view promises to be a fruitful avenue for research on the understanding of important aspects of human interaction.

An important related phenomenon, which is considered in this book, is empathy (Chapters 7 and 9) and its relation to mimicry. The Emotional Mimicry in Social Context view considers an empathic stance a prerequisite for mimicry. But there are larger questions to consider. Classically, empathy described a process of "inner imitation," which was based on a presumed innate disposition for motor mimicry (Lipps, 1907). From this perspective, mimicry is a process that underlies empathy. However, in the intervening century the concept of empathy evolved and, as Schuler et al. (Chapter 9, this volume) note, "trying to explicitly define empathy or distinguish between various conceptions of empathy is a difficult undertaking." At the very least we need to distinguish between cognitive and affective empathy (e.g., Baron-Cohen & Wheelwright, 2004; Walter, 2012). In cognitive empathy the emphasis is on the ability to infer or label another person's feelings accurately. This can be done via perceptual processes such as pattern matching (Buck, 1984) or via perspective-taking (Kirouac & Hess, 1999). Ickes (1997) refers to empathic accuracy in this context. By contrast, affective empathy is defined as a process in which the perception of another's emotional state generates a matching state in the perceiver (de Waal, 2008). This process overlaps conceptually with emotional contagion (Hatfield, Cacioppo, & Rapson, 1994). However, unlike emotional contagion the affective state in empathy, while congruent with the affective state of the other, is still oriented toward the other and, importantly, the empathic person is aware of the source of the emotion (Lamm, Batson, & Decety, 2007) even though

some theories describe affective empathy simply as a form of affective resonance (e.g., Baron-Cohen & Wheelwright, 2004). This second process – affective empathy – is more closely related to mimicry in that both involve affect. This also raises the possibility that the emotional contagion in empathy entrains the congruent expression of emotion in mimicry, and not vice versa as suggested by Lipps (1907) and later by Hatfield et al. (1994).

There is also evidence that empathic processes and (intentional) mimicry share neural substrates such as the anterior insula, inferior frontal gyrus, and ventral premotor area (see Schuler et al., Chapter 9). But this raises the issue of how intentional and unintentional mimicry relate to each other. As intentional and spontaneous facial expressions are innervated via separate neural pathways (Rinn, 1991), the two cannot simply be equated. However, research that relies on intentional mimicry tends not to discuss this issue. Walter (2012) concludes that, compared to empathy, mimicry is a more basic form of affective reaction. It seems reasonable to consider mimicry to be an index of (affective) empathy, but the actual relation between these processes is not well understood.

Even less well understood is the relation between mimicry and cognitive empathy. To the degree that mimicry relies on simulation, these two processes have something in common, because perspective-taking also involves simulation (see Decety & Lamm, 2006). When participants were asked to think about how another *person* may act next, activation of the Medial Prefrontal Cortex (MPFC) – an area associated with theory of mind – was found, suggesting that participants were attempting a mental simulation of the other's perspective. However, when they were asked to think about these same actions when performed by a computer the MPFC was not activated, suggesting that they did not attempt to understand the computer's "perspective" or state of mind through simulation (Gallagher, Jack, Roepstorff, & Frith, 2002; Rilling, Sanfey, Aronson, Nystrom, & Cohen, 2004). Also, some studies have reported evidence for more mimicry and personal distress, but less empathic concern, when people are instructed to engage in the more cognitive task of imagining themselves in the place of the other rather than imagining the feelings of the other (Lamm et al., 2007; Lamm, Porges, Cacioppo, & Decety, 2008).

Evidence that mimicry can facilitate emotion decoding (see Stel, Chapter 2; Niedenthal et al., Chapter 3) also relates the two processes. However, care must be taken here, as well. First, the evidence suggests that the facilitating effect of mimicry may well be restricted to happiness and/or difficult decoding tasks. In addition, there is evidence that the two might diverge. Thus, Hühnel, Fölster, Werheid, and Hess (2014) found

that older participants showed some of the expected age-related deficits in emotion decoding (cognitive empathy) but none with regard to mimicry in a difficult decoding task. In fact, if anything, they were more likely than young participants to mimic emotion expressions. Taking the notion of affective and cognitive empathy further, the question that arises is to what degree mimicry is linked to the knowledge of other people's minds, as discussed by Oatley (Chapter 1) and Schilbach (Chapter 4).

In sum, future research is faced with the ambitious task of disentangling the related but different processes of empathy, perspective-taking, Theory of Mind, and mimicry. One important task in this process might, as alluded to by Schuler et al. (Chapter 9), be to develop clear and nonoverlapping definitions of these processes.

In conclusion, we believe that the Emotional Mimicry in Social Context model opens the door to a new and more differentiated view of mimicry as a social regulator. As outlined earlier, exciting research can be generated based on this model with the aim of better understanding the complex interplay that underlies social interactions.

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