# Imitation of Emotion:
## How meaning affects the link between imitation and liking

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# Chapter 1

# General introduction

Imagine a couple in love, totally engrossed in each other. They order the same ice cream, finish each other's sentences and copy each other's mannerisms. They are even emotionally in tune: When one smiles the other smiles, when one feels sad about a scene in a movie the other immediately starts to feel sad too. Then, the man says something which causes the woman to become angry with him. What will he do? Will he get angry with her as well? Or will he apologise and try to calm her down? What will happen if he does get angry? It will probably ruin the date and could possibly even be the end of their relationship….

As this example illustrates, people sometimes imitate each other. And indeed, especially people who are fond of each other, are in love with each other or like each other very much, have a tendency to copy each other's behaviour (Lakin, Jefferis, Chang, & Chartrand, 2003; Stel, Blascovich, McCall, & Vonk, 2005). Although research shows people also imitate each other even when they are not especially close, mutual liking typically does increase imitation (Lakin et al., 2003; Stel et al., 2005). Lakin and colleagues (2003) have even argued that imitation benefits our liking for each other. Thus through imitating each other the couple in the example would get even more attracted to each other. Research shows that people indeed generally like each other more after they imitate each other (Chartrand & Bargh, 1999), and after being imitated even have an increased liking for people other than the imitator (Van Baaren, Holland, Kawakami, & Van Knippenberg, 2003).

On the other hand, even in a situation where imitation is very likely to be beneficial, such as for a couple in love, imitation is likely to have its limits. If the man in the example chooses an imitative approach and gets angry in return to the woman's anger, it is far more likely that the date will end badly than that the date will end well. In this case a more non- or anti-imitative approach will probably have better results: If he reacts in an apologising, calming manner this is more likely to have a beneficial outcome (*although you never know …*). This will almost certainly also be true for behaviour that transcends this imaginary example. It seems not to be too daring to state that 'Imitation is unlikely to always have a positive effect on liking' and 'Liking will not always have a positive effect on imitation'.

It is interesting that in certain situations imitation is not likely to be beneficial for liking and vice versa. What determines whether imitation leads to more liking or liking to more imitation? In the example the negative effect on liking is expected when the imitated behaviour is an expression of anger. The expression of anger is of course not simply or only behaviour, but is clearly intended as a social signal: In this case it means 'I do not like what you just said'. Some of the other behaviour in the example such as the way the couple speaks or their mannerisms is more similar to the behaviour that has been studied in previous research on imitation and liking. Imitating such behaviour typically has positive effects on liking. However, speech patterns and mannerisms are generally not social signals.

The social signals emotional behaviour may be sending are especially relevant in the context of imitation, since imitation is said to have an affiliative function. Behaviour that is inherently social, such as an emotional expression, can be expected to influence the affiliative function of imitation in a way that behaviour that is not inherently social can not. When people imitate such behaviour they are not merely copying behaviour, they are also sending the social signal associated with that imitated behaviour. If the man in the example reacts with anger towards the woman this is not just imitation: this behaviour will inevitably also send her a non-affiliative social signal in return. Sending each other such (non) affiliative signals can obviously be expected to have an impact on how much they consequently like each other.

To date, what has been missing in most research on imitation is a focus on the specific meaning of the behaviour being imitated. Previous research has predominantly studied imitation by looking at behaviour and mannerisms that are relatively meaningless, not behaviour that is social and rich in meaning. An important aim of this thesis is to show that such a focus on the specific meaning of the behaviour is necessary: If imitation is studied without considering the communicative meaning of the behaviour that is imitated, this may lead to overgeneralisations, such as the belief that there is an intrinsic link between imitation and liking. In order to show that such a focus on the social signals of behaviour is indispensable, this thesis focuses on imitation of behaviour that is inherently social: The expression of emotions. The thesis will explore the following questions: 'Will I like you more if I imitate your emotion?' and 'Will I be more likely to imitate your emotion if I like you more?'.

## Will I like you more if I imitate your emotion?

An inspection of the literature reveals that in general imitation of behaviour has a positive effect on liking. People have been shown to imitate a variety of behaviours such as foot tapping (Chartrand & Bargh, 1999), increased forearm muscle tension when observing arm wrestlers (Berger & Hadley, 1975) and speech patterns and accents (Capella & Panalp, 1981; Giles & Powesland, 1975; Giles & Smith, 1979; Webb, 1969, 1973). When people imitate such behaviour this typically has a positive effect on liking (Chartrand & Bargh, 1999; Van Baaren et al., 2003). Mimicry has even been described as a 'social glue', binding people together and creating harmonious relationships (Lakin et al., 2003).

Is imitating emotions different from the behaviour examined in these previous studies? I contend that it is. If people imitate foot tapping this will lead to more liking. But can foot tapping be compared to expressing an emotion? Emotion expressions are obviously not just a part of the broad group 'human behaviour', but are part of the group of human behaviour with specific communicative meaning (Fridlund, 1994). Each specific emotion has a *different* meaning: each

expression exists for a reason, has a different communicative social signal value, and is therefore likely to have a different effect on the observer. This means that if people imitate someone's emotion expression, they will not just be imitating that behaviour, but will inevitably also be sending the other the signal generally associated with such an expression. Sending each other such signals can clearly have an impact on whether people like each other.

What social signals do emotions convey? When someone is expressing an emotion it is usually with the purpose to reveal to others what he or she is feeling (Frijda, 1986). However, the emotional state someone is in is not the only thing an emotion reveals. It can also be communicative in other ways: for example, it can be intended as an affiliative signal (Fridlund, 1994; Hess, Blairy, & Kleck, 2000; Knutson, 1996). Smiles in particular are often shown to reveal friendly intentions. Whereas if people want to reveal to someone they are displeased with them, they might send that person an expression of annoyance, disgust, or, when they want to make themselves extremely clear, anger. Research shows that observers indeed rate facial expressions differently on affiliation. Happiness is seen by observers as highly affiliative (Hess, et al., 2000; Knutson, 1996). Disgust and anger are seen as highly non-affiliative with anger being the most non-affiliative. Fear and sadness are seen as neutral on ratings of affiliation (Hess, et al., 2000; Knutson, 1996).

What effect does this affiliative aspect of emotion have on imitation? The social signal each emotion is sending is especially relevant in the context of imitation since imitation is said to have an affiliative function. Because emotions are seen as affiliative they can be expected to influence imitation, in a way that simpler types of behaviour can not. Imitation often serves a goal to try to improve liking (Lakin & Chartrand, 2003). However, if the behaviour itself is also sending an affiliative or non-affiliative signal, this can interact or even interfere with the affiliative goal. Imitating a highly affiliative emotion, such as happiness, imitation will only amplify the affiliative aspect of imitation and result in more liking, because both sender and observer are sending highly affiliative signals to each other. However, imitating a highly non-affiliative emotion, such as anger, means that both sender and observer are sending highly non-affiliative signals to each other. This will probably lead to less liking even though the behaviour is imitative.

In short, I expect imitation of non-affiliative behaviour, such as anger, to have a negative effect on liking. However, I also argue that there is one precondition for such negative liking effects to occur. Social signals generally have a target: In the example at the beginning of this introduction the woman is angry and the man is the target of that anger. If the woman in the story would have been angry at a third person, her boss for example, the man could have safely imitated her anger by becoming extremely angry at her boss. She might even have liked him more after this ('You and I are both angry at my boss'). Thus, if the highly non-affiliative signals

are not sent at each other, but at a third party, anger imitation may in fact serve an affiliative goal. This means that the expectation for anger imitation to lead to less liking only holds when the anger is, or can be perceived to be, directed at the observer. When the anger is clearly not directed at the observer, there will be no decrease in liking and there might even be more liking, because although the behaviour is non-affiliative, it is not non-affiliative towards the observer.

Another aspect that is likely to influence the effect of imitation of anger is the gender of the person sending the emotion. Gender has been shown to influence how anger is seen: Anger is seen as especially non-affiliative when shown by men (Hess, et al., 2000). Men are also in general seen as more likely to act aggressively (Swim, 1994), which might make an angry man more frightening than an angry woman. How will this influence how imitation of anger affects liking? It could signal to the observers how the emotion is to be perceived. Especially if it is unclear whether the behaviour is non-affiliative or affiliative towards someone, the simple fact that the person showing the anger is a man might signal that the emotion is non-affiliative. Thus imitating an angry man could result in a decrease in liking even when imitating the anger might otherwise have had a more mild effect on liking.

In sum: Will I like you more if I imitate your emotion? I expect that the answer will be 'not always'. More specifically, people will indeed like each other more if the emotion is, or is seen as, affiliative. In contrast, if the emotion is, or is seen as, non-affiliative and is not directed towards a third party (away from the observer), then the other person will be liked less.

### Will I be more likely to imitate your emotion if I like you more?

Researchers in the imitation and liking field do not only argue that imitation should lead to more liking but also argue that liking should lead to more imitation (for an overview, see Lakin et al., 2003). Studies on non-emotional behaviour show that an unlikable person is imitated less than a likable person (Stel et al., 2005), and more personal, intimate conversations lead to more imitation (Jefferis, van Baaren & Chartrand, 2008).

*Disliking and Imitation*

Although liking is often associated with imitation (Jefferis et al., 2008; Lakin et al., 2003; Stel et al., 2005), disliking is typically only argued to lead to *less* or at most *no* imitation, but *not* to the *opposite* of imitation or other dissimilar reactions. Theoretically, however, dissimilar reactions are not impossible. Lakin and Chartrand (2003) showed that an active affiliation goal leads to more imitation, and they argued that liking probably leads to more imitation because people generally are more likely to have an active affiliation goal towards liked others.

Although they did not mention the possibility of dissimilar reactions towards disliked others, such reactions would still be in line with their reasoning. One merely has to take Lakin and Chartrand's (2003) reasoning one step further: Thus, I argue that it is possible that people do not merely have less or no desire to affiliate with disliked others, but might also have an active desire to *not* affiliate or even *distance* themselves from disliked others. Since imitation can fulfil an affiliation goal, such a desire to not affiliate could be fulfilled by dissimilar reactions. I therefore argue that dissimilar reactions towards disliked others are far more likely than similar (imitative) reactions. If a disliked person is showing happiness, for example, I expect people to react with distancing behaviour rather than with imitation.

Only one study has previously been done on the effect of liking on the imitation of emotions (Likowski, Mühlberger, Seibt, Pauli, & Weyers, 2008). This study showed that both happiness and sadness were imitated more when participants had a more positive attitude towards the other person. Importantly, they also found some subtle indications of dissimilar facial muscular reactions (smiling) towards disliked sad others. They did not show such effects for happiness. However, because their main interest was in imitation of happiness and sadness, they only focused on muscle activity consistent with sadness and happiness. I argue that the reactions to disliked happy others are likely to include distancing behaviour and unlikely to include sadness it is unsurprising that this study did not show any such effects. The dissimilar reactions towards the disliked sad others does however support the idea that people do not just imitate disliked others less, but can indeed show dissimilar reactions.

*Liking and imitation*

Even when the other *is* liked, however, it does not seem logical to always expect more imitation. The man in the example about the couple probably would not have reacted to the woman's anger with imitation. He would probably be more inclined to calm the woman down than to get angry at her in return. Even though the relevant literature typically argues that liked others should be imitated more (Jefferis, et al., 2008; Lakin, et al., 2003; Likowski, et al, 2008; Stel, et al., 2005), a non-imitative reaction towards a liked other nonetheless makes perfect sense if the meaning of the behaviour is again taken into account. Anger is non-affiliative and thus showing anger in response to the other's anger (imitation) is ambiguous: It could be construed as empathic behaviour (e.g., 'together we are angry at someone else'), but could also be construed as a non-affiliative message (e.g., 'I am angry at you'). I consequently expect, contrary to the research on non-emotional behaviour, that anger will *not* be imitated if the other is liked: People will be especially unlikely to risk sending a non-affiliative message towards someone they like. They will be more likely to want to be unmistakably affiliative, for example by trying

to help the other in some way. If the other person is not liked people are more likely to show non-affiliative expressions. However, as before, showing anger if the other is already showing anger (imitation) is ambiguous: as well as possibly being construed as a non-affiliative message it could also be construed as empathic behaviour. Therefore I do not expect people to imitate anger towards disliked people either. People will be more likely to want to be indisputably non-affiliative, for example by turning their back on the other person (disengaging).

In sum: Will I be more likely to imitate your emotion if I like you more? As with the previous question the answer is likely to be more complicated than a simple yes or no. If the emotion is *affiliative* or neutral on affiliation, liking will lead to more imitation compared to disliking. If the emotion is *non-affiliative*, there will be no imitation, regardless of whether the other is liked or disliked. However, when I say no imtation I do not mean inaction. Rather than inaction I expect non-imitative (dissimilar) reactions.

## Overview of the empirical chapters

Above I have argued that the affiliative aspects of behaviour are extremely important when studying the effect of imitation on liking and the effect of liking on imitation. Especially for emotions, which are important social signals in and of themselves, these affiliative aspects are likely to play an important role when studying imitation. For both questions 'Will I like you more if I imitate your emotion?' and 'Will I be more likely to imitate your emotion if I like you more?', the expected differences are in large part due to whether the emotion is either affiliative or non-affiliative. In the following three empirical chapters I will test these expectations.

*Will I like you more if I imitate your emotion?*

In Chapter 2 the idea that the affiliative nature of the emotion will affect liking after imitation is tested. An affiliative emotion (happiness) and a non-affiliative emotion (anger) are pitted against each other.

In Chapter 3 the effect of target and gender of the sender of the emotion are explored. The intention being to show how the same behaviour, imitation of anger, can cause different effects on liking depending on how that anger is perceived.

*Will I be more likely to imitate your emotion if I like you more?*

In Chapter 4 the reverse side to the link between imitation and liking is investigated: Does liking affect whether people are more likely to imitate other people's emotions? In order to investigate the influence of the affiliative aspects of emotions, three different emotions are used varying on how affiliative they come across: happiness, sadness and anger. These emotions are expressed by either an intensely disliked or an intensely liked person.

# Chapter 2

# Imitation of emotion: When meaning leads to aversion

It is easy to imagine a situation where you find yourself imitating someone else. You probably have, at times, spontaneously returned a friend's big smile with the same facial expression. Of course, people do not always respond to others by matching them, otherwise they would all quickly behave in exactly the same manner. However when people do imitate each other, it often makes interactions smoother: Several studies have shown that people like others that imitate them more than others that do not imitate them. And, *vice versa*, imitators like the people they imitate more than the people they do not imitate (Chartrand & Bargh, 1999; Stel & Vonk, 2008; Van Baaren, Holland, Kawakami, & Van Knippenberg, 2004). In other words, previous research suggests that imitating tends to have a positive effect on liking. Furthermore, it has even been described as a 'social glue': "…the consistent link between behavioral mimicry and liking suggests that this behavior may have ultimately evolved to serve a 'social glue' function, binding people together and creating harmonious relationships" (Lakin, Jefferis, Cheng, & Chartrand, 2003, p. 147).

However, it is important to note that these previous studies often focused on relatively neutral behaviour like face touching or foot tapping. Some behaviour clearly includes a message to the other person: Research shows for example that emotions differ widely on whether they are seen by others as affiliative or non-affiliative (Hess, Blairy, & Kleck, 2000; Knutson, 1996). Happiness is usually shown to encourage contact and show friendly intentions and is seen by others as highly affiliative, and anger is often expressed to show discontent or hostility towards someone and is seen as highly non-affiliative by others (Hess et al., 2000; Knutson, 1996). It seems logical to argue that even though imitation generally leads to more liking, imitation of behaviours that are of their inherent meaning already clearly *affiliative* or *non-affiliative* may have a different effect on liking. In the present studies, we aim to test this logical assumption and show that imitating an affiliative emotional expression (happiness) may indeed lead to more liking, whereas imitating a non-affiliative emotional expression (anger) can lead to less liking.

*Imitation of emotional expressions*

What effect does the affiliative or non-affiliative aspect of emotion have on imitation? Imitation of more neutral behaviour generally leads to more liking and is often said to have an affiliative function (see Lakin et al., 2003). In that context the affiliative signals emotional behaviour may be sending are especially relevant. Behaviour that is inherently affiliative, such as emotional expressions (Fridlund, 1994), can be expected to influence the affiliative function of imitation unlike behaviour that is not inherently social. When people imitate such behaviour

they are not merely copying behaviour. They are also sending the affiliative signal associated with that imitated behaviour. Sending each other such (non-) affiliative signals can obviously be expected to have an impact on how much people consequently like each other.

Imitating an affiliative emotional expression such as happiness is likely to lead to more liking, since the affiliative aspect of the behaviour is likely to facilitate the affiliative function of imitation. However, because imitating means sending the non-affiliative signal associated with that behaviour, imitating a non-affiliative emotional expression such as anger will probably result in *less* liking. Both sender and observer are sending highly non-affiliative signals to each other, cancelling out any positive effect that the mere act of imitation might have.

The literature on imitation and mimicry often implies that these processes are the cement of society and function as a sort of social glue (e.g., Lakin et al., 2003). From this perspective it follows that in situations where mimicry has negative effects on liking there should be less mimicry. Thus, precisely because we expect imitating anger will have negative effects we should also expect anger will generally not be imitated spontaneously. Therefore, to be able to study the effects imitating such non-affiliative behaviour has on liking, it is necessary to study intentional imitation (instruct people to imitate). Much of the previous research on imitation and liking, however, studied spontaneous imitation: That is, participants in these studies were generally unaware they were imitating. This difference in methods could potentially pose a problem; however, recent research shows that intentional imitation is likely to have similar effects on liking compared to spontaneous imitation (Stel & Vonk, 2008). Moreover, other studies comparing the two kinds of imitation suggest that the choice for intentional imitation might actually be a conservative one: Intentional imitation is slower and more effortful (Dimberg, Thunberg, & Grunedal, 2002) and intentional imitation is more sensitive to situational demands and cultural influences (Ekman, 1992).

To summarise: we expect imitation will only cause increased liking when a facial expression is seen as affiliative (when the expression is happy). When it is seen as non-affiliative (when the expression is angry), we expect that intentionally sending such a non-affiliative signal back (imitating) will lead to less liking. We investigate these hypotheses in two studies. In both studies we looked at the impact of emotion (happy / angry) and imitation on liking. In Study 2.1, we used computer generated faces (avatars) as targets to have maximum control over facial features and strength of the emotional expression. In Study 2.2, we used videos of real people as targets.

Study 2.1

*Method*

   *Participants and design.* University students (*n* = 225) took part in Study 2.1. The study had an emotion (happy / angry) versus imitation instruction (imitation yes / no) design and with liking as the dependent variable. Participants were randomly assigned to the four conditions and were distributed equally across conditions.

   *Material.* The participants were shown a short video in which a facial expression changed from neutral to a specific emotion: angry or happy. In this study we used computer generated faces (avatars) as targets[1].

   *Procedure.* Participants were told that they would look at and evaluate videos in order to test material for future research. They were also told that in order to prevent them thinking too much about the video they would get a specific instruction. In the imitation condition, the participants were asked to imitate the target. In the control condition the participants were asked to just look at the video. All participants were recorded with a webcam in order to be able to check whether they were following our instructions. After the video the participants completed several questions including the main dependent measure. After that participants were asked what they thought the study was about and they were debriefed.

   *Dependent measure.* To measure liking we used the question 'what was your first impression of the person in the video'. Participants answered by dragging a marker on a line from negative to positive. The position on the line corresponded with a number between 1 and 100. We asked people about their 'first impressions' because we felt that directly asking about to what extent they "liked" the target would be likely to bias their responses in a positive direction (see Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Sudman, Bradburn, & Schwarz, 1996).

   To give credibility to the cover story and to be able rule out or control for other explanations we asked several other questions, including questions about the video ("what was your first impression of the video itself"), and experienced emotions ("Do you feel…?"). For these measures the same scales were used as for the main dependent measure.

*Results*

   In order to determine whether the participants followed our instructions we scored our webcam recordings on the presence and intensity of facial expressions. Because some participants disappeared out of view we were able to score 192 of the total number of recordings

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[1] For more information about the stimuli contact the first author.

of which 95 saw the happy emotion and 97 saw the angry emotion. Two experienced judges, who were blind to conditions, independently scored the 192 recordings on intensity of expressions (happy and angry among others) on scales from 0 to 5 (a score of 0 was used when the expression was absent). To determine inter-rater reliability we computed intraclass correlations, using a two way random model and consistency definition (McGraw & Wong, 1996; Shrout & Fleiss, 1979). The scores were .77 for the happiness ratings and .78 for the anger ratings, which is excellent according to the criteria specified by Cichetti and Sparrow (1981). We then took the averages of the two judges as the dependent variables in our manipulation check. We found a significant effect of imitation for both the angry emotion, $F(1,95) = 8.91$, $p = .004$, $\eta_p^2 = .09$, and the happy emotion, $F(1,93) = 15.06$, $p < .001$, $\eta_p^2 = .14$. Participants showed stronger anger expressions when they were asked to imitate the angry emotion compared to when they were asked just to look ($M = 2.49$, $SD = 1.44$ vs $M = 1.55$, $SD = 1.68$). Participants also showed stronger happy expressions if they were asked to imitate the happy emotion compared to when they were asked just to look ($M = 2.64$, $SD = 1.49$ vs $M = 1.42$, $SD = 1.58$). So our participants did follow our instructions.

Next, we analysed the results of emotion and instruction on liking of the target. In line with our expectations there was a significant interaction between instruction and emotion on liking, $F(1,221) = 4.87$, $p = .028$, $\eta_p^2 = .02$. Although the means were in the expected directions (see Table 2.1), simple effects analysis for happiness and anger unfortunately showed that the effect of instruction was not significant within each emotion –when using two-tailed tests ($F(1,221) = 2.29$, $p = .13$, $\eta_p^2 = .01$ and $F(1,221) = 2.58$, $p = .11$, $\eta_p^2 = .01$ respectively). Nevertheless, simple effects analysis did show a strong effect of emotion within imitation instruction: When the participants imitated an angry person they liked this person less than when they imitated a happy person, $F(1,221) = 19.46$, $p < .001$, $\eta_p^2 = .08$ (see Table 2.1). As predicted, no significant differences were found for emotion within the 'just look' instruction, $F(1,221) = 1.84$, $p = .18$, $\eta_p^2 = 01$ (see Table 2.1).

Table 2.1

The means of first impression of the target as a function of emotion and instruction for Study 2.1.

| | Instruction | |
| --- | --- | --- |
| | Imitation | No assignment |
| Happy | 58.7$_a$ (24.6) | 50.8$_{ab}$ (25.1) |
| Angry | 35.5$_b$ (29.4) | 43.8$_{ab}$ (30.6) |

Note: Scores are given on a scale from 1 (negative) to 100 (positive). The standard deviations are in parentheses. Means that do not share the same subscript are significantly different ($p < .05$).

No other effects were found on any of the other measures (all $F's < 1$). This is important to note because it suggests that the interaction effect on the liking measure can not be interpreted as a response bias that could have been found on any evaluative measure. Thus, imitating an angry target did not cause participants to become more negative *in general*, it merely caused participants to become more negative about the *target*.

To test the robustness of our findings, we conducted Study 2.2. In this study, emotion was a within-subjects variable so that we could see whether the effects of imitating an angry video interfered with the effects of imitating a subsequent happy video. Aside from this we used videos of real faces (Van der Velde, Stapel & Gordijn, 2004) rather than avatars to ensure that the study would more closely resemble a situation in daily life.

<div align="center">Study 2.2</div>

*Method*

University students ($n = 47$) participated in Study 2.2. Each participant looked at and judged the angry video first and then looked at and judged the happy video. For each participant, instruction (imitate or not) was constant throughout the study and participants were randomly assigned to either the imitation or 'just look' instruction. Thus the design was a mixed design with emotion as the within-subjects variable and instruction as the between-subjects variable. The rest of the study was identical to the first study.

*Results*

In order to determine whether the participants followed our instructions we first scored our webcam recordings on the presence and intensity of facial expressions. In this study we were able to score the recordings of only 21 participants due to faulty camera positioning and participants disappearing out of view, 21 of these recordings were scoreable for the time they saw the happy emotion and 20 were scoreable for the time they saw the angry emotion. Two experienced judges, who were blind to conditions, independently scored the recordings of the participants, for the duration that they were watching the videos, on intensity of expressions on a scale from 0 to 5 (a score of 0 was used when the expression was absent). To determine inter-rater reliability we computed intraclass correlations, similar to Study 2.1. The scores were .87 for the happiness ratings and .89 for the anger ratings, which is excellent according to the criteria. We then took the averages of the two judges' ratings for happiness and anger as the dependent variables in our manipulation check. We found a significant effect of imitation for both the

angry emotion, $F(1,19) = 31.43$, $p < .001$, $\eta_p^2 = .63$ and the happy emotion, $F(1,18) = 30.40$, $p < .001$, $\eta_p^2 = .63$. Participants showed stronger anger expressions when they were asked to imitate the angry emotion compared to when they were asked just to look ($M = 2.56$, $SD = 1.47$ vs $M = 0.08$, $SD = 0.29$). There were also stronger happy expressions for the participants who were asked to imitate the happy emotion ($M = 2.72$, $SD = 1.52$ vs $M = 0.14$, $SD = 0.32$). So our participants followed the instructions and also did not imitate if they were not asked to.

Next, we analysed the results of emotion and instruction on liking of the target using a repeated measures analysis. During outlier analysis we found one score that had a distance of more than 2.0 the Inter Quartile Range (IQR) to the median. Since the outlier criterion for IQR is scores that are over 1.5 IQR this is a definite outlier. We therefore removed this score from further analysis.

The repeated measures analysis showed there was a clear interaction between emotion and instruction on liking, $F(1,44) = 11.26$, $p = .002$, $\eta_p^2 = .20$. After imitating an angry person participants liked this person less compared to the control group, $F(1,44) = 4.66$, $p = .036$, $\eta_p^2 = .10$, and after imitating a happy person they liked this person more, $F(1,44) = 4.13$, $p = .048$, $\eta_p^2 = .09$ (see Table 2.2 for the means). Analyses for each instruction separately also showed an effect of emotion within the imitation instruction: When the participants imitated an angry person they liked this person less than when they imitated a happy person, $F(1,24) = 13.13$, $p = .001$, $\eta_p^2 = .35$. Again no effect of emotion on liking was found within the 'just look' instruction, $F(1,20) = 1.23$, $p = .28$, $\eta_p^2 = .06$ (see Table 2.2).

Table 2.2
The means of first impression of the target as a function of emotion and instruction for Study 2.2.

|  | Instruction | |
| --- | --- | --- |
|  | Imitation | No assignment |
| Happy | 61.8$_a$ (19.1) | 50.5$_b$ (18.5) |
| Angry | 42.6$_c$ (23.8) | 56.0$_b$ (16.9) |

Note: Scores are given on a scale from 1 (negative) to 100 (positive). The standard deviations are in parentheses. Means that do not share the same subscript are significantly different ($p < .05$).

It is important to note that all participants first saw the angry person and then the happy person. If being angry at an angry person induced a negative response bias (see Study 2.1), this should have disrupted the results on the happy video. The opposite was true: The means for the happy condition were even higher than before. Again we did not find any other effects on the other measures (all $Fs < 1$). Thus, again, these findings support the hypothesis that even though

imitating a happy target causes participants to like that target more, imitating an angry target causes participants to like the target less.

## Discussion

Behaviour is meaningful and often has a communicative function. This is especially true for emotional behaviour. When people show emotions, they often do this to let other people know what they are feeling. Thus, a happy face is often intended to be (and recognised by others) as affiliative, whereas an angry face is often intended to be (and recognised by others) as non-affiliative. The present findings support the notion that when behaviour is meaningful, imitation does not necessarily breed liking. Specifically, imitating non-affiliative behaviour, such as an angry frown, may lead to less rather than more liking. Interestingly, this imitation-may-decrease-liking effect is in disagreement with a host of recent social cognition studies of imitation effects (see Lakin et al., 2003 for an overview). These previous studies, however, have never looked at the effect of imitating meaningful non-affiliative behaviour. Thus, the present studies show that to truly understand the consequences of imitation, it is important to look at the (social) meaning of what is imitated.

It is important to note that even though the two emotions we used to study the impact of "meaning" on the imitation-liking link differed in valence, our results can not be explained simply in terms of the positivity of happiness or negativity of anger. As a recent study by Stel and Vonk (2008) comparing imitation of sadness and happiness has shown, sometimes (in the case of sadness) imitating negative emotions may increase liking. Thus, not all negative emotions are created equal. We would like to argue that the difference is related to the affiliativeness of these emotions: Sadness is neutral on affiliation, whereas anger is a non-affiliative emotion (see Hess et al., 2000; Knutson, 1996). A fruitful avenue for future research may thus be to compare the effects of imitating sadness and anger and other negative emotions that differ on how affiliative they come across.

Another issue which may be studied in future research is the idea that for the present effects to occur it may not be necessary for people to imitate. Just staring angrily at someone might be enough to induce disliking. Since scowling at a person already implies you do not like them overmuch, this certainly may be possible. We would argue, however, that when two people look angry at each other this gives more information about the interaction then when one is angry and the other is not, and therefore will give stronger effects on liking. The important message in the present studies, however, is that imitation does not *always* and does not *necessarily* increase liking, as many imitation studies have argued or implied (e.g., Chartrand & Bargh, 1999; Lakin et al., 2003; Van Baaren et al., 2004).

In line with the literature on imitation we argued that if imitation is the cement of society and functions as a social glue, imitation should be absent entirely or at least decrease to a level invisible to other people when it has negative effects on liking. We thus expected anger to be imitated less than happiness. Participants in our studies indeed did not spontaneously mimic anger. Some previous studies show imitation of emotions smiles and frowns (Blairy, Herrera, & Hess, 1999; Dimberg & Thunberg, 1998; Dimberg, Thunberg, & Elmehed, 2000; Hess & Blairy, 2001). These studies often use non-vivid stimuli such as photos. Other studies using more vivid stimuli however have results that more closely fit our theory showing little imitation of frowns compared to smiles (Hinsz & Tomhave, 1991; Estow, Jamieson, & Yates, 2007). However, unexpectedly, the smiling person was also not spontaneously imitated in our studies (but see also Ruys & Stapel, 2008). It could be that our stimuli were already vivid enough to elicit feelings of liking or disliking after instructed imitation but needed to be even more vivid or personally relevant for participants to have visibly imitated the happy targets spontaneously. It would be interesting to further investigate to what extent spontaneous imitation occurs or does not occur when it is or is not functional.

Because we did not expect any spontaneous imitation of anger to occur it was necessary to use intentional imitation in our studies. However, because previous studies often used spontaneous imitation the possibility remains that the results were obtained merely because of the difference in imitation. For example, the simple fact that people were aware that they were meant to imitate the other person's behaviour could have resulted in more people guessing the real purpose of the research and thus influencing the results. We of course checked for this possibility and we did not find any such effects: people were generally completely unaware why they were asked to imitate. More importantly, research suggests intentional imitation is likely to be an equal or even a more conservative choice than spontaneous imitation (Dimberg et al, 2002; Ekman, 1992; Stel & Vonk, 2008), Thus, although it would be good to be able to compare the two forms of imitation in one design, we think that it is likely that spontaneous imitation of non-affiliative behaviour will also have a negative effect on liking, perhaps an even stronger effect.

In conclusion then, the link between imitation and liking is not as simple as the relevant literature suggests. Imitation and liking are not always positively related. Especially when the behaviour is meaningful, the link between imitation and liking may sometimes be negative. Whether the imitator thinks the behaviour is affiliative or non-affiliative has a great impact on the effect imitation has on liking. Imitating non-affiliative behaviour can have negative consequences.

# Chapter 3

# Are you angry at me? The importance of meaning and direction when imitating emotion

Imagine that your friend is angry. If she is not angry *at you,* her anger will probably not affect the warmth of your relationship. Similarly, if you return her anger with an angry expression that is clearly *not directed at her*, your friendship is also likely to be unaffected. However, if she is clearly angry at you *and* you return her anger with an angry expression that is directed at her, mutual affection is likely to decrease. That is the hypothesis we will be testing in the present set of studies: When someone expresses anger toward you and because of you, imitating may decrease liking.

In context of the relevant literature this straightforward hypothesis may seem counterintuitive. Most studies on mimicry and imitation suggest that imitation will increase liking (Chartrand & Bargh, 1999; Stel & Vonk, 2008; Van Baaren, Holland, Kawakami, & Van Knippenberg, 2004). Mimicry has even been described as a 'social glue': "…the consistent link between behavioural mimicry and liking suggests that this behaviour may have ultimately evolved to serve a 'social glue' function, binding people together and creating harmonious relationships." (Lakin, Jefferis, Cheng, & Chartrand, 2003, p. 147).

Although we are not contesting the idea that imitation may increase liking, we think it is important to note that the imitation-liking link is not ubiquitous. Previous research on mimicry and imitation has often focused on the imitation-liking link in the context of relatively simple, neutral behaviours. There are of course many forms of behaviour that can not be considered neutral. Research shows, for example, that emotions differ widely on whether they are seen by others as affiliative or non-affiliative (Hess, Blairy, & Kleck, 2000; Knutson, 1996). Happiness is usually intended as a way to encourage contact and is seen by others as highly affiliative, whereas anger is often expressed to discourage contact and show discontent and is typically seen as highly non-affiliative by others (Hess et al., 2000; Knutson, 1996). Even though imitation generally leads to more liking, it seems logical to argue that imitation of such inherently affiliative or non-affiliative behaviours may affect liking in a different manner.

*Imitation of emotional expressions*

What effect does the affiliative or non-affiliative aspect of emotion have on imitation? Imitation of more neutral behaviour generally leads to more liking and is often said to have an affiliative function (see Lakin et al., 2003). In that context the affiliative signals emotional behaviour may be sending are especially relevant. Behaviour that is inherently social, such as emotional expressions (Fridlund, 1994), can be expected to *influence* the affiliative function of imitation unlike behaviour that is not inherently social. When people imitate such meaningful behaviour they are not merely copying the behaviour. They are also sending the (non-) affiliative signal associated with that behaviour. Sending each other such (non-) affiliative signals can

obviously be expected to have an impact on how much people consequently like each other. Imitating a non-affiliative emotional expression such as anger will thus probably result in *less* liking. Both sender and observer are sending highly non-affiliative signals to each other cancelling out any positive effect that the mere act of imitation might have.

Such signals are often *directed at* a particular target or object, often a person or situation (Frijda, 1986). When studying the effects of emotions, it is thus relevant to consider the target of the emotion. The meaning and interpretation of the emotion may depend on whether it is directed toward the observer or at someone or something else. This is true especially for anger. Studies have shown that anger directed toward the perceiver is a clear threat for the perceiver and is more easily recognized, whereas anger directed away from the perceiver is more ambiguous and less easily recognized (Adams, Gordon, Baird, Ambady, & Kleck, 2003; Adams & Kleck, 2003). Furthermore, it has been shown that in negotiations anger is interpreted differently when it is directed toward people personally than when it is directed at their behaviour (Steinel, Van Kleef, & Harinck, 2007). We therefore argue that imitating a non-affiliative emotion will only result in less liking of the emotion was directed at the perceiver personally. If the anger is not directed at the perceiver personally the perceiver is imitating the same behaviour but because the signal is not directed at the perceiver personally the social message of discontent that is associated with the emotion will also not be directed at the sender. Imitating this behaviour can even have positive consequences because the imitation can be seen as empathic: 'I feel the same way, I share your anger'.

If there is no imitation, we do not expect direction of the emotion to have an effect on liking. Some people might dislike someone that is angry at them, however, other people might have more of an inclination to feel guilty when someone is angry at them and will not take offence. Furthermore, someone who is angry at someone else is not necessarily more likeable than someone who is angry at the observer personally: it is just as likely that such a person will be equally disliked.

The direction of the anger does, nonetheless, give the observer information about how the anger should be interpreted. Other factors can do the same: situational factors such as specific facial features can also give people information about how a person's expression should be interpreted. Facial features indicative of, for instance, gender, age, health, or dominance may be used to infer the meaning behind the expression. Gender has, for example, been shown to have an influence on how anger is seen: Anger is seen as especially non-affiliative when shown by men (Hess, et al., 2000). Men are also in general seen as more likely to act aggressively (Swim, 1994), and men are often seen as more aggressive than women, even when they show exactly the same angry behaviour (Harris & Knight-Bohnhoff, 1996). All of these known effects might make

people feel that when a man expresses anger, it is also a non-affiliative signal towards them, even though the direction of the anger might indicate otherwise.

Thus, when people think anger is directed at them we expect facial features indicating aggression will add to our expected effects of imitation: people will like the person even less. And even when anger is not directed at people personally we expect that people will nevertheless interpret the anger as a non-affiliative signal towards them when the anger is shown by a man and thus lead to less liking. In this case the stimulus itself gives information about how the emotion is to be interpreted.

The literature on imitation and mimicry often described these as the cement of society and as social glue (e.g., Lakin et al., 2003). Situations that enable imitation to have an adverse effect on liking should, therefore, lead to less mimicry. Thus, precisely because we expect imitating anger will have negative effects, we should also expect anger will generally not be imitated spontaneously. This makes it necessary to instruct people to imitate, in order to be able to study the effects of imitating such non-affiliative behaviour. In much of the previous research on imitation and liking, however, participants were unaware they were imitating (spontaneous imitation). This difference in methods could create a problem for comparing this research with past findings. However, recent research shows that intentional imitation does have similar effects on liking compared to spontaneous imitation (Stel & Vonk, 2008). Moreover, other studies comparing the two kinds of imitation suggest intentional imitation might actually be less likely to have an effect, making it a more conservative test of our hypotheses: Intentional imitation is slower and more effortful (Dimberg, Thunberg, & Grunedal, 2002), and intentional imitation is more sensitive to situational demands and cultural influences (Ekman, 1992).

In sum, we expect that people will like others less after imitation when the behaviour of the other is non-affiliative toward the imitator or when other factors, such as aggressive facial features, suggest the behaviour should be interpreted as non-affiliative. When the behaviour is not seen as non-affiliative or when the non-affiliativeness is not directed at the imitator, we expect imitation might even lead to more liking. When the emotion is not imitated, we do not expect any such target effects. We investigate these hypotheses in two studies. In both studies we looked at the impact of target of the emotion (is that person angry at me or not?) and imitation on liking. In Study 3.2 we also looked at how using an aggressive stimulus can influence the effect of target and imitation on liking.

Study 3.1

*Method*

*Participants and design.* One hundred and eight women and eighty three men participated in Study 3.1. The study had an imitation instruction (imitation, yes / no) versus target instruction (perceiver is target, yes / no) design with 'first impression of the stimulus person' as the dependent variable. Men and women were randomly assigned to the four conditions.

*Material.* The participants were shown a short video in which a woman's facial expression changed from neutral to angry. For both studies we used computer generated faces (avatars) as stimulus material[1].

*Procedure.* Participants were told that they would look at and evaluate videos in order to test material for future research. They were also told that in order to prevent them thinking to much during the video, they would get specific assignments to carry out. In the imitation condition participants were asked to imitate the stimulus person. In the control condition participants were asked to just look at the video[2]. All participants knew they were being recorded with a webcam in order to be able to check whether they were following our instructions. All participants knew they would see an angry person in the video. Participants in the target condition were asked to imagine that this person was angry at them and participants in the non target condition were asked to imagine that this person was not angry at them. After the video the participants completed several questions including the main dependent measure. After that participants were asked what they thought the study was about and they were debriefed.

*Dependent measure.* To measure liking we used the question 'what was your first impression of the person in the video'. Participants answered by dragging a marker on a line from negative to positive. The position on the line corresponded with a number between 1 and 100. We asked people about their 'first impressions' because we felt that directly asking about to what extent they "liked" the target would be likely to bias their responses in a positive direction (see Podsakoff, MacKenzie, Lee, & Podsakoff, 2003; Sudman, Bradburn, & Schwarz, 1996).

To give credibility to the cover story and to be able rule out or control for other explanations we asked several other questions, including questions about the video ("what was your first impression of the video itself"), perceived emotion ("How angry do you think the

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[1] For more information about the stimuli contact the first author.

[2] We used a control condition that simply asked participants to look at the video. It could be argued that this is not a suitable control condition because people tend to spontaneously mimic (certain types of) behaviour (see Lakin et al., 2003 for an overview). A more widely used control condition is to ask participants not to imitate. However as we noted before, we did not expect spontaneous mimicry when mimicry might have adverse effects. We wanted to make sure that participants could do what they would 'normally' do when encountering such a person. Our earlier studies show that indeed people do not (visibly) imitate anger (Van der Velde, Stapel, & Gordijn, in press).

person in the video is?") experienced emotions ("Do you feel…?") and experienced effort ("How easy did you think it was to (instruction)?"). For these measures the same scales were used as for the main dependent measure.

*Results*

   *Manipulation check.* In order to determine whether the participants followed our imitation instruction we scored our webcam recordings on the presence and intensity of facial expressions. Because some participants disappeared out of view of the camera, we were able to score 171 of the total number of recordings. Two experienced judges, who were blind to conditions, independently scored the recordings on intensity of expressions, anger among others, on scales from 0 to 5 (a score of 0 was used when the expression was absent). To determine inter-rater reliability we computed intraclass correlations, using a two way random model and consistency definition (McGraw & Wong, 1996; Shrout & Fleiss, 1979). The score was .60 for anger, which is good according to the criteria specified by Cichetti and Sparrow (1981). We conducted an ANOVA with target instruction and imitation instruction as independent variables and the average of the judges' score as the dependent variable. We found a significant effect of imitation on anger expressions, $F(1,167) = 239.15$, $p < .001$, $\eta_p^2 = .59$. Participants showed stronger anger expressions when they were asked to imitate, compared to when they were asked just to look ($M = 2.12$, $SD = 1.17$ vs $M = 0.05$, $SD = 0.34$). This shows that participants did follow our instructions. There was no effect of target instruction on occurrence of imitation and no interaction, $F$'s < 1. Other expressions than anger hardly occurred and did not occur in such quantities that analysis on these was possible.
   *Outlier Analysis.* Next, we analyzed the results of target instruction and imitation instruction on liking of the stimulus. Analysis showed one outlier. This point deviated more than 1.5 Interquartile Range (IQR) from the mean. We excluded this point from further analyses. Results were comparable without removal of the outlier.
   *Effects on liking.* We did an ANOVA with target instruction and imitation instruction as independent variables and liking as the dependent variable. In our analyses we also looked at the effect of participant gender. Because there were no participant gender effects ($Fs < 1$), we collapsed across this variable. In line with our expectations there was a significant interaction between target instruction and imitation instruction on the dependent variable liking, $F(1,186) = 4.16$, $p = .043$, $\eta_p^2 = .02$. See Table 3.1 for the means. Further analysis showed that when participants imitated the angry stimulus person they liked her less compared to the control condition when they imagined they were the target of the anger, $F(1,186) = 4.44$, $p = .036$, $\eta_p^2 = .023$. When they imagined they were not the target of the anger there was no effect, $F < 1$.

Table 3.1

First impression of the stimulus person as a function of imitation instruction and target instruction for Study 3.1.

|  |  | Imitation Instruction | |
| --- | --- | --- | --- |
|  |  | Imitation | Just Look |
| Target Instruction | Target | 36.9$_a$ (22.1) | 47.6$_b$ (27.6) |
|  | Non-target | 48.8$_b$ (24.9) | 45.0$_b$ (23.1) |

Note: Scores are given on a scale from 1 (negative) to 100 (positive). The standard deviations are in parentheses. Means that do not share the same subscript are significantly different ($p < .05$).

*Other variables.* If there were differences in perceived anger of the stimulus these could have had an effect on liking independently of the interpretation of that anger. An ANOVA with 'how angry do you think the person in the video was?' as the dependent variable showed only a main effect for imitation instruction, $F(1,186) = 7.57$, $p = .007$, $\eta_p^2 = .04$. When participants imitated the stimulus they thought she was less angry ($M = 64.2$, $SD = 20.4$) than when they had not imitated her ($M = 72.3$, $SD = 19.2$). This can not explain our interaction on liking however. Furthermore we analyzed the results controlling for this perceived anger and found the exact same interaction and pattern of means as before, $F(1,185) = 4.57$, $p = .034$, $\eta_p^2 = .02$.

Participants own anger could also affect liking. If participants are angrier they might react more negatively to the stimulus. However there was only a main effect of target instruction on this variable, $F(1,186) = 5.92$, $p = .016$, $\eta_p^2 = .03$. When participants imagined the person to be angry at them they were angrier ($M = 21.6$, $SD = 18.0$) then when they imagined the person not to be angry at them ($M = 15.6$, $SD = 15.4$). This cannot explain the interaction results we found. Also controlling for this variable still resulted in the same interaction and pattern of means, $F(1,185) = 4.15$, $p = .043$, $\eta_p^2 = .02$.

Instruction difficulty might also have influenced liking. Perceived ease of performing the instruction did show an interaction, $F(1,186) = 5.28$, $p = .023$, $\eta_p^2 = .028$. Participants thought imagining that the stimulus was angry at them was easier to do when they were not also asked to imitate ($M = 54.6$, $SD = 27.4$) compared to when they were asked to imitate ($M = 37.1$, $SD = 20.9$), $F(1,186) = 14.00$, $p < .001$, $\eta_p^2 = .07$. The instruction to imagine that she was not angry at them was thought by participants to be equally easy whether they were asked to imitate ($M = 64.7$, $SD = 19.5$) or not ($M = 67.2$, $SD = 22.9$), $F < 1$. So the condition that was the most difficult, the combination of imitating and imagining the stimulus was angry at them, also showed the least liking for the stimulus. However controlling for perceived difficulty in the original ANOVA resulted in the same interaction and pattern of means as before, $F(1,185) = 4.15$, $p = .043$, $\eta_p^2 = .02$.

*Discussion*

The results of this study show that when studying the effects of imitation it is indeed important to keep in mind how this behaviour is interpreted. Imitating an angry expression has an effect when people imagine themselves to be the *target* but not when people imagine they are *not* the target.

As we noted earlier, non-emotional facial features may also be informative for the imitator and help to give meaning and evaluate a facial expression. That is why, for example, men are often seen as more aggressive than women, even when their (anger-related) behaviour is similar (Harris & Knight-Bohnhoff, 1996). Since such features might influence how the behaviour is seen and affect our results we wanted to take a closer look at our stimulus. We used a female stimulus in Study 3.1. Since a man is probably seen as more aggressive this could influence the results of target and imitation on liking.

To get a better idea of how women and men are seen when they are angry we did a pilot study with 67 participants. We examined how participants rate angry women and men on how aggressive and frightening they come across on scales from 1 (not at all) to 9 (very). We used the angry woman from Study 3.1 and a newly created angry man. Even though they were perceived as equally angry, $F(1,65) = 1.58$, $p = .21$, $\eta_p^2 = .02$, the angry man was seen by participants as more aggressive ($M = 7.41$, $SD = 1.16$) than the woman ($M = 6.48$, $SD = 1.30$), $F(1,65) = 9.50$, $p = .003$, $\eta_p^2 = .13$. The man was also seen as more frightening ($M = 7.09$, $SD = 1.16$) than the woman ($M = 5.64$, $SD = 1.83$), $F(1,65) = 15.06$, $p < .001$, $\eta_p^2 = .19$. So an angry man is indeed seen as more aggressive and more frightening than an angry woman. Thus compared to angry women, angry men possess facial features that are more likely to indicate aggressiveness. In Study 3.2 we will use a male stimulus to examine whether direction of anger is irrelevant when the stimulus is seen as very aggressive.

## Study 3.2

In Study 3.2 we repeated Study 3.1 with the male stimulus we used in the pilot study. As angry men are perceived to be very aggressive,  we expect this facial feature to influence our expected effects of imitation: people will like the person even less, independent of whether people think the anger is directed at them or not. Thus unlike Study 3.1, in which we used an angry woman, we expect only a main effect of imitation in Study 3.2, because an angry man is used as the stimulus.

*Method*

Study 3.2 had 69 female and 65 male participants. This time the stimulus person was a man. The rest of the study was identical to Study 3.1.

*Results and discussion*

*Manipulation check.* In order to determine whether the participants followed our imitation instruction we scored our webcam recordings on the presence and intensity of facial expressions. Because some participants disappeared out of view we were able to score 101 of the total number of recordings. Two experienced judges, who were blind to conditions, independently scored the recordings on intensity of expressions (anger among others) on scales from 0 to 5 (a score of 0 was used when the expression was absent). We computed the inter-rater reliability the same way as in Study 3.1. The score was .61 for anger, which is seen as good (Cichetti & Sparrow, 1981). We did an ANOVA with target instruction and imitation instruction as independent variables and the average of the judges score as the dependent variable. We found a significant effect of imitation on anger expressions, $F(1,97) = 59.74$, $p < .001$, $\eta_p^2 = .38$. Participants showed stronger anger expressions when they were asked to imitate ($M = 1.38$, $SD = 1.31$) compared to when they were asked just to look ($M = 0.09$, $SD = 0.37$). So these participants did follow our instructions. Other expressions than anger hardly occurred and did not occur in such quantities that analysis on these was possible. There was no effect of target instruction on occurrence of imitation, $F(1,97) = 1.20$, $p = .28$, $\eta_p^2 = .01$, and no interaction, $F < 1$.

*Outlier analysis.* Next, we analyzed the results of target instruction and imitation instruction on liking of the stimulus. Analysis showed three outliers. These points deviated more than 1.5 Interquartile Range (IQR) from the mean. We excluded these points from further analyses. Results were comparable without removal of the outliers.

*Effects on liking.* We did an ANOVA with target instruction and imitation instruction as independent variables and liking as the dependent variable. There was an effect of participant

gender in these analyses[3], but this effect was not relevant for our hypotheses. There was no interaction between target instruction and imitation instruction on the dependent variable liking, $F < 1$. As expected, there was a main effect of imitation instruction, $F(1,127) = 5.90$, $p = .017$, $\eta_p^2 = .04$. After imitation ($M = 29.4$, $SD = 21.8$) participants always liked the man less compared to no imitation ($M = 39.3$, $SD = 22.4$). In this case it did not matter if participants imagine*d themselves to be the target of the anger or not.*

*Other variables.* Similar to Study 3.1 we wanted to rule out some alternative explanations. Difference in perceived anger was again not a suitable explanation. An ANOVA with 'how angry do you think the person in the video was?' as the dependent variable showed no effects for imitation instruction or target instruction, $F < 1$. As in Study 3.1 we analyzed the results controlling for this perceived anger and found the same main effect for imitation instruction, $F(1,126) = 7.24$, $p = .008$, $\eta_p^2 = .05$. Participants own anger also turned out not to explain the results. Participants own anger only showed a main effect for target instruction, $F(1,127) = 4.93$, $p = .028$, $\eta_p^2 = .04$. When participants imagined the person to be angry at them they were angrier ($M = 26.1$, $SD = 20.7$) then when they imagined the person not to be angry at them ($M = 17.6$, $SD = 17.5$). Controlling for this variable still resulted in the same main effect for imitation instruction, $F(1,126) = 5.74$, $p = .018$, $\eta_p^2 = .04$.

Differences in difficulty of the task also did not explain our results. Perceived ease of performing the instructions showed a main effect of target instruction, $F(1,127) = 20.38$, $p < .001$, $\eta_p^2 = .14$, and a main effect of imitation instruction, $F(1,127) = 6.06$, $p = .015$, $\eta_p^2 = .05$. Participants thought imagining that the stimulus was not angry at them was easier to do ($M = 67.1$, $SD = 22.9$) than imagining the stimulus was not angry at them ($M = 48.7$, $SD = 22.9$). Participants also thought not imitating was easier to do ($M = 61.3$, $SD = 23.6$) than imagining the stimulus was not angry at them ($M = 51.5$, $SD = 25.4$). Controlling for this variable in the original ANOVA resulted in the same main effect of imitation instruction, $F(1,126) = 5.76$, $p = .018$, $\eta_p^2 = .04$. This shows that our results once again cannot be easily explained by other factors.

These results show that indeed the facial feature indicating gender is important for the effects of imitation of anger. As expected we found that imitation led to less liking compared

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[3] There was a main effect of participant gender on liking, $F(1,123) = 5.46$, $p = .021$, $\eta_p^2 = .043$ and an interaction effect of participant gender and target instruction, $F(1,123) = 12.48$, $p = .001$, $\eta_p^2 = .03$. Men liked the angry man more when they imagined he was not angry at them ($M = 46.0$, $SD = 23.8$), compared to when they imagined he was ($M = 34.8$, $SD = 23.8$), $F(1,125) = 4.40$, $p = .038$, $\eta_p^2 = .02$. Women however liked the angry man less when they imagined he was not angry at them ($M = 24.2$, $SD = 17.3$), compared to when they imagined he was ($M = 38.1$, $SD = 20.5$), $F(1,125) = 6.91$, $p = .010$, $\eta_p^2 = .05$. With participant gender as an independent variable in the ANOVA there was however still an effect of imitation on liking and no two-way or three-way interactions with imitation $Fs < 1$. Controlling for participant gender in the original ANOVA still resulted in the same main effect for imitation, $F(1,126) = 5.94$, $p = .016$, $\eta_p^2 = .05$. The result for participant gender therefore did not affect our hypotheses.

to no imitation regardless of the target of the emotion. Presumably this was because the facial feature gave information about how the emotion was to be interpreted. In this case the anger was perceived to be unfriendly (aggressive) regardless of the target.

## General discussion

Behaviour is meaningful and often has a communicative function. Emotional behaviour in particular is inherently social and communicative in nature. When people show emotions they often do this to let others know what they are feeling. Expressing anger, for example, is often a way to intimidate or show discontent. The present studies support the notion that when behaviour is meaningful, imitation will not always lead to increased liking of the one who is imitated. Specifically, imitating unfriendly behaviour, such as an angry frown, may lead to less rather than more liking.

Interestingly, this imitation-may-decrease-liking effect is contradictory to a host of recent social cognition studies of imitation effects (see Lakin et al., 2003 for an overview). The behaviour that was mimicked or imitated in previous studies, however, was often neutral or friendly. Contrary to these well-known imitation-increase liking studies, our studies show that imitating an unfriendly angry expression may increase disliking of the stimulus.

Furthermore, our studies suggest that subtle but meaningful target cues may change the impact of imitation on liking when such cues suggest how an angry expression may be interpreted. That is, we showed that exactly the same angry facial expression had an effect when people imagined themselves to be the target of this anger, but no effect when people imagined they were *not* the target, as we expected.

Finally, we showed that non-emotional facial cues may also determine the effect of imitation on liking. That is, the effects of target cues were only present when people imagined a *woman* to be angry or not angry at them. Study 3.2 showed that when the angry person was a *man,* target cues did not matter anymore: participants always liked the man less after they had imitated him. Here it seems the information that the face was male provided information on how the emotion should be interpreted (as aggressive regardless of the direction of the anger).

In our studies, we manipulated the meaning of emotional facial expressions by providing participants with the reasons or sources of the expressed emotion ('she is angry at you'; 'she is angry but not at you'). Gaze direction might have been another effective manipulation of whether or not the facial expression is directed at the observers.  In the present research we did not choose to manipulate gaze direction, because we wanted to be able to control the meaning for the observers rather than leave the change in meaning up to the observers own

interpretations. This had the additional benefit of being able to keep the stimulus material identical across conditions.

We did not expect any spontaneous imitation of anger to occur, which made it necessary to study intentional imitation in our studies, to be able to study the limits of the imitation-liking link. However, because previous studies often used spontaneous imitation the possibility remains that the results were obtained merely because of the difference in imitation type. For instance, the fact that people were aware that they had to imitate the other person could have resulted in more people guessing the real purpose of the research and thus influencing the results. Our debriefing results, however, clearly did not show any such effects: people were completely unaware why they were asked to imitate. Furthermore, research suggests intentional imitation is likely to be an equal or more conservative choice than spontaneous imitation (Dimberg et al, 2002; Ekman, 1992; Stel & Vonk, 2008). Thus, although a comparison of the two forms of imitation in one design would be good, we nevertheless think based on the available literature that it is likely that spontaneous imitation of non-affiliative behaviour will also have a negative effect on liking, perhaps even stronger than the effect of intentional imitation.

An obvious distinction to investigate when looking at effects of imitation on liking is the distinction between non-affiliative and affiliative behaviour. And this distinction indeed proved to be very influential for the effects of imitation on liking. The present studies support the notion that since social behaviour is rarely meaningless, it is wise to take meaning of behaviour into consideration when studying the impact of imitation on social behaviour.

To conclude with some well-meant advice, when you want to be liked by others, imitating them is not always the best route to follow. Rather, you might be better of focusing on what the behaviour of the other conveys and how you can reply to this message in a meaningful and empathic way. Sometimes liking can be achieved by imitation, but sometimes life is more complex and it is better to choose a different approach.

# Chapter 4

## I hate it when you are happy
## How liking and disliking influence emotion imitation

Imagine that you have a colleague that you really can not stand. You encounter her in the cafeteria downstairs when you are going for some coffee. She is sitting there alone and is obviously very happy; she seems almost unable to stop herself from laughing. What would you do? Probably you would not join in with her laughter and perhaps even feel like leaving to go somewhere else for coffee. What if the colleague was not someone you despised but a colleague you really liked? In all likelihood your reaction would be completely different: you would be more likely to share the happiness by returning her happy expression and even join in with her laughter.

Although to a lay audience the above will probably sound true and unsurprising, in context of the relevant literature on imitation such different reactions towards the same behaviour are unexpected. The mere idea that distancing oneself as well as smiling could be a reaction towards a happy person goes against recent theories and findings in those fields (see Lakin, Jefferis, Chang, & Chartrand, 2003 for an overview). These imitation theories predominately argue that a wide variety of behaviour is imitated and imitation, although lessened by certain factors, almost always occurs and the findings seem to support this (see Lakin et al., 2003 for an overview). We think, however, that it makes sense to expect that people will not always react with the same behaviour. In the current research we examined this issue. We argue that liking plays an important role in the case of imitation. If the disliked colleague laughs exuberantly, for instance, we do not expect even a small amount of imitation of that behaviour. Rather we expect dissimilar reactions, such as distancing behaviour.

*Disliking and Imitation*

Although liking is often associated with imitation (Jefferis, van Baaren, & Chartrand, 2008; Lakin et al., 2003; Stel, Blascovich, McCall, & Vonk, 2005), disliking is typically only argued to lead to *less* or at most *no* imitation, but *not* to the *opposite* of imitation or other dissimilar reactions. Theoretically dissimilar reactions are, however, not impossible. Lakin and Chartrand (2003) showed that an active affiliation goal leads to more imitation, and they argued that liking probably leads to more imitation because people generally are more likely to have an active affiliation goal towards liked others. Although they do not mention the possibility of dissimilar reactions towards disliked others, such reactions would still be in line with their reasoning. One merely has to take Lakin and Chartrand's (2003) reasoning one step further: Thus, we argue that it is possible that people do not merely have less or no desire to affiliate with disliked others, but might also have an active desire to *not* affiliate or even *distance* themselves from disliked others. Since imitation can fulfil an affiliation goal, such a desire to not affiliate could be fulfilled by dissimilar reactions. We therefore argue that dissimilar reactions towards

disliked others are far more likely than similar (imitative) reactions. Thus, we predict that a happy disliked person will not be met with imitation but is more likely to be met with distancing behaviour.

Although the principle that people might react dissimilarly to disliked others' behaviour could apply to any behaviour, we think certain behaviours are more likely to show such an effect. Some behaviour clearly includes a message to the other person: Research shows for example that emotions differ widely on how affiliative or non-affiliative they are (Hess, Blairy, & Kleck, 2000; Knutson, 1996). Happiness is usually shown to encourage contact and show friendly intentions and is indeed seen by others as highly affiliative, sadness is often shown to elicit empathy and helping behaviour in others although it is seen as neutral on affiliation, and anger is often expressed to show discontent or hostility towards someone and is seen as highly non-affiliative by others (Hendriks & Vingerhoets, 2006; Hess et al., 2000; Knutson, 1996). We argue that affiliative behaviour in particular will lead to imitation of liked others and to dissimilar reactions towards disliked others, because affiliative behaviour can serve an affiliative goal better than any other type of behaviour. If people like someone and want that person to like them back, they are more likely to show behaviour that is affiliative, such as happiness. Since we already know imitation can serve an affiliative goal, the combination of the two, imitating happiness, is likely to serve an affiliative goal even better and lead to more liking because of this. However, following the same line of reasoning, affiliative behaviour is very unlikely to be able to serve a desire *not* to affiliate, making imitation of a disliked happy other very unlikely and dissimilar (non-affiliative) behaviour in response to this other more likely.

There have been few studies that have looked at the effect of liking on imitation and only one of those, to our knowledge, focused on the effect of liking on the imitation of emotions (Likowski, Mühlberger, Seibt, Pauli, & Weyers, 2008). This study showed that both happiness and sadness were imitated more when participants had a more positive attitude towards the other person. Importantly, they also found some subtle indications of dissimilar facial muscular reactions (smiling) towards disliked sad others. This supports our idea that people do not just imitate disliked others less, but can indeed show dissimilar reactions. We would expect even stronger dissimilar reactions towards disliked happy others than towards disliked sad others, however, such a dissimilar reaction was not found in the case of happiness by Likowski and colleagues (2008). However, because their main interest was in imitation of happiness and sadness, they only focused on muscle activity consistent with sadness and happiness. We argue that disliked happy others should also elicit dissimilar reactions, but those reactions are unlikely to involve sadness.

*Liking and imitation*

Even when the other *is* liked, however, it does not seem logical to always expect more imitation. Imagine for example what would happen if a colleague who you really like showed anger instead of happiness. Then, we argue, you would probably be more inclined to calm the other down than to get angry yourself. Even though the relevant literature typically argues that liked others should be imitated more ( Jefferis et al., 2008; Lakin et al., 2003; Stel, et al., 2005), a non-imitative reaction towards a liked other nonetheless makes perfect sense if we again take the meaning of the behaviour into account. Anger is non-affiliative and thus showing anger in response to the other's anger (imitation) is ambiguous: It could be construed as empathic behaviour (e.g., 'together we are angry at someone else'), but could also be construed as a non-affiliative message (e.g., 'I am angry at you'). We consequently expect, contrary to the research on non-emotional behaviour, that anger will *not* be imitated if the other is liked: People will be especially unlikely to risk sending a non-affiliative message towards someone they like. They will be more likely to want to be unmistakably affiliative, for example by trying to help the other in some way. If the other person is not liked people are more likely to show non-affiliative expressions. However, as before showing anger if the other is already showing anger (imitation) is ambiguous: as well as possibly being construed as a non-affiliative message it could also be construed as empathic behaviour. Therefore we do not expect people to imitate anger towards disliked people either. People will be more likely to want to be indisputably non-affiliative, for example by turning their back on the other person (disengaging).

To summarize, we expect that if a target expresses an emotion that is affiliative, or neutral on affiliation, liking of this target will lead to imitation whereas disliking will lead to dissimilar (non-affiliative) reactions. However, if the expressed emotion is non-affiliative, we expect there will be no imitation, regardless of whether the target is liked or disliked. In that case we expect liking to lead to clear affiliative behaviour and disliking to lead to clear non-affiliative behaviour. To test these hypotheses we examined emotion imitation in an interpersonal context and compared the effects of happiness, sadness and anger in a single design, where we pitted a strongly liked target and a strongly disliked target against each other.

## Study 4.1

Our goal was to study a variety of situations in which other people's emotions play a key role and the effect of liking could be studied. To keep the stimulus material constant across conditions and to have the possibility to study a wide spectrum of possible reactions we decided

to use a well used method in emotion research on social context: situation descriptions (e.g. Jakobs, Fischer & Manstead, 1997; Jakobs, Manstead, & Fischer, 1996, Timmers, Fischer, & Manstead, 1998). Using situation descriptions had the added advantage that the effects of a strongly liked target and a strongly disliked target could be compared relatively easily.

*Method*

*Participants and design.* Two hundred and seventy female[1] first year students participated in Study 4.1 as part of a multi week mass testing session to meet the requirements for a first year's psychology course. The study had an emotion (happy, angry, sad) and liking (liked target, disliked target) between subjects design. To be able to control for gender effects we also added gender of the stimulus person as a factor in the design (female target, male target).

*Procedure.* Participants were asked to read a vignette and were asked to imagine as vividly as possible that they were really in this situation. The emotion in the story was either happiness, anger, or sadness and the target was either portrayed as an intensely liked target or as an intensely disliked target. Adding gender as a factor meant that half the participants read a vignette with a female target and half the participants read a vignette with a male target. So in total there were 12 vignettes, of which each participant read only 1. The following text is an an example of the vignettes featuring a disliked happy man: 'Imagine you have been living in a certain student house for a while. There is a guy in the house that you really can not stand. You have formed an intense mutual dislike and are avoiding each other as much as possible. One room in the house is used as a sort of living room for everyone in the house. You go there to watch some TV and see that this person is sitting there. He is very happy and is almost unable to stop himself from laughing.' The following text is an an example of the vignette featuring a liked angry woman: 'Imagine you have been living in a certain student house for a while. There is a girl in the house that you really like. You have become good friends and often seek out each other's company. One room in the house is used as a sort of living room for everyone in the house. You go there to watch some TV and see that this person is sitting there. She is very angry and is ranting and raving.'

*Dependent measures.* After imagining the situation participants were asked to answer several statements on how they would act and feel in such a situation. All statements were

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[1] We have also conducted this study among male first year students during the same mass testing session, however, due to the fact that this group was much smaller than the group of female students we were only able to study the happy and angry emotions for the men. They show the same pattern of means for all the variables. The same problem arose in Study 4.2. That year the problem was even bigger and we only had men in the situations with the angry target. We therefore choose to leave the men out in both studies even though the results were identical when the men were included.

answered on a scale of 1 (absolutely not) to 9 (absolutely). Participants were also asked which of the previously stated actions they would be most likely to do first (*first choice variable*). One item measured participants' *imitation* behaviour ('I would join in or at least show the same expression'). Five items measured *disengaging* behaviour ('I would leave', 'I would take some distance', 'I would change the subject', 'I would not interfere' and 'I would sit down and stay quiet'), and two items measured *helping* behaviour ('I would try to help the other in some way', 'I would calm the other down'). The Cronbach's alpha for disengaging behaviour was .80 and for helping behaviour was .86. Two items measured *happiness* ('I would feel cheerful' and 'I would feel happy'), two items measured *sadness* (distressed and sad) and three items measured *anger* (irritated, angry and furious).[2] The Cronbach's alpha for happiness was .94, for sadness was .85 and for anger was .89.

*Results*

We analyzed the results using ANOVA's with emotion and liking and target's gender as the independent variables. There were no interaction effects with the target's gender ($F$'s < 1), so we collapsed across this variable. We had multiple dependent variables increasing the possibility of chance capitalization. We addressed this by using a stringent $p$ level of .005 to determine whether the results were significant.

*Actions.* With respect to *imitation* main effects of emotion, $F(2,264) = 31.72$, $p < .001$, $\eta_p^2 = .19$, and liking, $F(1,264) = 40.02$, $p < .001$, $\eta_p^2 = .13$, were found, as well as a significant interaction of emotion and liking, $F(2,264) = 17.40$, $p < .001$, $\eta_p^2 = .12$ (see Table 4.1). The results correspond exactly with our expectations: participants reported imitation of happiness only if the target was liked, $F(1,264) = 67.45$, $p < .001$, $\eta_p^2 = .20$, and sadness only if the target is liked, $F(1,264) = 8.04$, $p = .005$, $\eta_p^2 = .03$, whereas participants reported no imitation of anger regardless of whether the target was liked or not, $F < 1$.

Also with respect to *helping* main effects of emotion, $F(2,264) = 137.54$, $p < .001$, $\eta_p^2 = .51$, and liking, $F(1,264) = 59.75$, $p < .001$, $\eta_p^2 = .19$, as well as a significant interaction of emotion and liking, $F(2,264) = 6.68$, $p = .001$, $\eta_p^2 = .05$, were found. Participants wanted to help more if the target was liked and angry compared to disliked and angry, $F(1,264) = 53.06$, $p < .001$, $\eta_p^2 = .17$. Participants also wanted to help more if the target was liked and sad compared to disliked and sad, $F(1,264) = 14.72$, $p < .001$, $\eta_p^2 = .05$. The scores for liked happy and disliked happy target were equally low, $F(1,264) = 5.28$, $p = .02$, $\eta_p^2 = .02$. People thus want to help others the most if they are liked and angry or liked and sad, which is to be expected since helping is clearly affiliative behaviour for these emotions.

Table 4.1

The means of participant's actions and participant's feelings as a function of whether the target was disliked or liked and which emotion the target was showing, for Study 4.1.

| Emotion of the target | Happy | | Sad | | Angry | |
|---|---|---|---|---|---|---|
| Disliked or liked | Disliked | Liked | Disliked | Liked | Disliked | Liked |
| Participants' actions | | | | | | |
| Join in | $3.28_a$ (2.06) | $\mathbf{6.36}_b$ (1.68) | $2.82_a$ (1.83) | $3.89_c$ (1.86) | $2.77_a$ (1.60) | $2.76_a$ (1.63) |
| Disengage | $\mathbf{5.02}_a$ (1.23) | $2.86_b$ (1.20) | $3.36_b$ (1.52) | $2.71_b$ (1.17) | $\mathbf{4.72}_a$ (2.06) | $2.94_b$ (1.25) |
| Help | $2.87_a$ (1.56) | $3.59_a$ (1.35) | $\mathbf{6.16}_b$ (1.71) | $\mathbf{7.34}_c$ (1.12) | $4.76_d$ (1.79) | $\mathbf{7.07}_c$ (1.32) |
| Participants' feelings | | | | | | |
| Happiness | $3.15_a$ (1.74) | $\mathbf{6.84}_b$ (1.43) | $2.98_a$ (1.80) | $2.34_a$ (1.19) | $2.53_a$ (1.36) | $2.66_a$ (1.29) |
| Sadness | $3.00_a$ (1.75) | $2.00_b$ (1.12) | $3.56_c$ (1.71) | $\mathbf{5.49}_c$ (1.22) | $3.80_a$ (1.73) | $4.00_a$ (1.95) |
| Anger | $\mathbf{7.97}_a$ (2.62) | $3.43_b$ (1.69) | $3.80_{bc}$ (1.87) | $4.86_c$ (1.99) | $\mathbf{7.36}_a$ (2.88) | $5.08_c$ (2.27) |

*Note:* Scores are given on a scale from 1 (absolutely not) to 9 (absolutely). The standard deviations are in parentheses. Means that do not share the same subscript are significantly different (p < .005).

With respect to *disengagement* also main effects of emotion, $F(2,264) = 13.52$, $p < .001$, $\eta_p^2 = .09$, and liking, $F(1,264) = 96.96$, $p < .001$, $\eta_p^2 = .27$, were found, as well as a significant interaction of emotion and liking, $F(2,264) = 8.65$, $p < .001$, $\eta_p^2 = .06$. As expected participants wanted to disengage more if the target was disliked and angry compared to liked and angry, $F(1,264) = 43.30$, $p < .001$, $\eta_p^2 = .14$, and if the target was disliked and happy as opposed to liked and happy, $F(1,264) = 65.40$, $p < .001$, $\eta_p^2 = .20$. The scores for liked happy and disliked happy target were equally low, $F(1,264) = 5.74$, $p = .02$, $\eta_p^2 = .02$. So disengagement seems to be an appropriate reaction only towards disliked happy and angry people, which is to be expected since disengaging is clearly non-affiliative behaviour. Although we expected disengaging behaviour towards sad targets it makes sense that this did not take the form of disengaging behaviour: any form of active non-affiliative behaviour is not socially or morally accepted behaviour if someone is crying.

*First choice of action.* We analyzed the 'first choice' variable using Chi-Square tests with liking and emotion as independent variables (see Table 4.2 for the percentages). There was a significant difference between the first reactions mentioned towards a liked or disliked target for happiness, $\chi^2(2, N = 91) = 38.85$, $p < .001$, anger, $\chi^2(2, N = 89) = 21.45$, $p < .001$, and sadness, $\chi^2(2, N = 90) = 11.23$, $p = .004$. Comparing the patterns for the liked target, $\chi^2(6, N = 135) = 69.18$, $p < .001$, and disliked target showed a significant effect of emotion, $\chi^2(4, N = 135) = 31.42$, $p < .001$. Evidently most of the emotion-liking combinations have their own specific reaction pattern. Interestingly the only ones that are not significantly different are the reaction patterns to the

disliked happy and angry targets, $\chi^2(2, N = 90) = 9.18$, $p = .01$, reactions to all other situations were significantly different ($p$'s <.005). The only situation that fits with theories on imitation is when the target is liked and happy: only in this condition do some people choose imitation as their first reaction. If the target is liked and sad most people choose to help the target. If the target is liked and angry people also choose to help the target. For the disliked targets we expected and found dissimilar reactions. If the target is disliked and happy or angry participants choose to disengage. If the target is disliked and sad people choose to help the target.

Table 4.2
The percentage of participants that picked the action as a first choice as a function of liking and emotion of the target, for Study 4.1.

| Emotion of the target | Happy | | Sad | | Angry | |
|---|---|---|---|---|---|---|
| Disliked or liked | Disliked$_a$ | Liked$_b$ | Disliked$_c$ | Liked$_c$ | Disliked$_a$ | Liked$_d$ |
| Actions | | | | | | |
| Join in | 0.0 % | 28.9 % | 0.0 % | 0.0 % | 0.0 % | 0.0 % |
| Disengage | **52.2 %** | 0.0 % | 11.1 % | 0.0 % | **43.2 %** | 2.2 % |
| Help | 0.0 % | 0.0 % | **40.0 %** | **71.1 %** | 18.2 % | **33.3 %** |
| Other (neutral) behaviour | 47.8 % | 71.1 % | 48.9 % | 28.9 % | 38.6 % | 64.2 % |

*Note:* Columns that do not share the same subscript are significantly different (p < .005)

*Other dependent variables.* Participant's feelings followed the same patterns as the actions. See Table 4.1 for the means. Participants' *happiness* showed a main effect of emotion, $F(2,264) = 76.46$, $p < .001$, $\eta_p^2 = .37$, liking, $F(1,264) = 34.21$, $p < .001$, $\eta_p^2 = .12$, and a significant interaction of emotion and liking, $F(2,264) = 54.51$, $p < .001$, $\eta_p^2 = .29$. The liked happy target showed the highest scores for happiness, similar to the findings for imitation. There was no significant effect of liking for participants' *sadness*, $F(1,264) = 3.75$, $p = .054$, $\eta_p^2 = .01$. However, there was a significant main effect of emotion, $F(2,264) = 37.45$, $p < .001$, $\eta_p^2 = .22$, and an interaction of emotion and liking on sadness, $F(2,264) = 18.95$, $p < .001$, $\eta_p^2 = .13$. Simple effects analysis showed that participants felt sad only towards the sad liked target, which is also similar to the findings on imitation. Participants' *anger* showed a significant main effect of emotion, $F(2,264) = 16.90$, $p < .001$, $\eta_p^2 = .11$, liking, $F(1,264) = 48.67$, $p < .001$, $\eta_p^2 = .16$, and an interaction of emotion and liking, $F(2,264) = 35.05$, $p < .001$, $\eta_p^2 = .21$. Simple effects analysis showed that participants felt angry the most when confronted with a disliked angry or a disliked *happy* target, similar to the results on disengagement.

*Discussion*

The results of Study 4.1 show that it is unlikely that people always imitate other people. If the emotion was affiliative (happiness) or neutral on affiliation (sadness) liking lead to imitation, whereas disliking lead to dissimilar reactions: The only reports of imitation were found for the liked happy and liked sad target. The disliked targets were met with disengagement for the happy and angry target and helping behaviour for the sad target. As expected, even liked targets were met with dissimilar behaviour: A liked angry target is met with helping behaviour rather than imitation, and even though sadness shows some imitation people mostly want to help the liked sad target rather than imitate. These results show that liking and affiliativeness of the behaviour are likely to influence imitation.

Study 4.2

In Study 4.2 we repeated Study 4.1 with a slightly different situation description to establish the robustness of the findings and with additional questions about the emotion in the situation to use as a manipulation check.

*Method*

*Participants and design.*  Three hundred and fifty one female first year psychology students participated in Study 4.2 (in a different year than Study 4.1) as part of a multi week mass testing session to meet the requirements for a first year's psychology course. The study had the same design as Study 4.1.

*Procedure.*  The procedure was identical to Study 4.1. The new vignettes had the following format (disliked happy man): Imagine you have been working at a certain company for a while. There is one colleague there that you really can not stand. You have formed an intense mutual dislike and are avoiding each other as much as possible. One room in the company is used as a sort of kitchen and living room area for everyone. You go there to have a nice coffee break and see that he is sitting there. He is very happy and is almost unable to stop himself from laughing.

*Dependent measures.* The same dependent measures were used as in Study 4.1[2] with three added questions about the emotion in the situation ('How angry is this person in your opinion?', How sad is this person in your opinion?', How happy is this person in your opinion?') on a scale of 1 to 9 (not at all – very). The Cronbach's alpha for disengagement behaviour was .83 and for helping was .91. The Cronbach's alpha for the happiness items was .94, for sadness was .84 and for anger was .83.

*Results*

*Manipulation check.* We asked participants how angry, sad or happy they perceived the person in the situation to be. The happy target ($M = 7.14$, $SD = 1.68$) came across as much more *happy* than the sad ($M = 1.94$, $SD = 1.29$) and angry ($M = 2.16$, $SD = 1.34$) targets, $F(2,345) = 499.73$, $p < .001$, $\eta_p^2 = .74$. The angry target ($M = 7.83$, $SD = 1.12$) came across as much more *angry* than the sad ($M = 4.58$, $SD = 1.68$) and happy targets ($M = 2.61$, $SD = 1.72$), $F(2,345) = 336.87$, $p < .001$, $\eta_p^2 = .66$. And the sad target ($M = 7.81$, $SD = 1.68$) came across as more *sad* than the angry ($M = 6.43$, $SD = 1.51$) and happy targets ($M = 2.61$, $SD = 1.55$), $F(2,345) = 347.22$, $p < .001$, $\eta_p^2 = .67$. However, the liked happy target ($M = 7.65$, $SD = 1.72$) also came across as more happy than the disliked happy target ($M = 6.66$, $SD = 1.50$), $F(1,345) = 13.96$, $p < .001$, $\eta_p^2 = .04$ and the liked sad target ($M = 8.23$, $SD = 1.15$) as more sad than the disliked sad target ($M = 7.38$, $SD = 2.00$), $F(1,345) = 8.93$, $p = .003$, $\eta_p^2 = .03$ (the liked and disliked angry targets came across as equally angry, $F < 1$).

To control for these effects of liking on the perceived intensity of the emotions we made a new variable 'intensity' that consisted of the relevant emotion intensity for the specific situation:

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[2] We also looked at the emotions fear, worry and guilt in both Study 4.1 and 4.2. In Study 4.1 fear showed only a main effect of emotion, $F(2,264) = 7.94$, $p = .001$, $\eta_p^2 = .05$. Participants said they would be more afraid if the target was angry ($M = 3.46$, $SD = 1.78$) compared to if the target was happy ($M = 2.52$, $SD = 1.63$), $t = 3.80$, $p < .001$. Guilt also showed only a main effect of emotion, $F(2,264) = 10.22$, $p < .001$, $\eta_p^2 = .07$, even though the means showed a clear interaction: participants only reported guilt if the target was disliked and sad. Worry showed a main effect of emotion, $F(2,264) = 35.64$, $p < .001$, $\eta_p^2 = .21$ and an interaction of emotion and liking, $F(1,264) = 7.25$, $p = .001$, $\eta_p^2 = .05$. Simple effects analyses showed that participants seem to get the most worried if the target is a liked and sad or liked and angry. In Study 4.2 fear again showed an effect of emotion, $F(2,345) = 5.64$, $p = .004$, $\eta_p^2 = .03$. Participants said they would be more afraid if the target was angry ($M = 3.47$, $SD = 1.75$) compared to if the target was happy ($M = 2.72$, $SD = 1.78$), $t(345) = 3.35$, $p < .001$. Fear also showed a main effect of liking, $F(2,345) = 11.22$, $p = .001$, $\eta_p^2 = .03$. Participants said they would be more afraid if the target was disliked ($M = 3.38$, $SD = 1.70$) than if the target was liked ($M = 2.79$, $SD = 1.77$). Guilt showed the same pattern of means as in Study 4.1 but this time the interaction was significant, $F(1,345) = 6.58$, $p = .002$, $\eta_p^2 = .04$. Looking at the means participants felt guilty only if the target was disliked and sad. Worry again showed a main effect of emotion, $F(2,345) = 78.19$, $p < .001$, $\eta_p^2 = .31$ and an interaction of emotion and liking, $F(1,345) = 25.56$, $p < .001$, $\eta_p^2 = .13$. Looking at the means participants seem to get the most worried if the target is liked and sad or liked and angry.

the perceived intensity of the anger of the angry targets, perceived intensity of the sadness of the sad targets and the perceived intensity of the happiness of the happy targets. All the ANOVA's below were also conducted using this variable as a covariate: all of the results remained significant and had the same pattern of means, showing that intensity of the emotion does not explain our results.

We analyzed the results using ANOVA's with emotion and liking and target's gender as the independent variables. There were no interaction effects with the target's gender ($F$'s < 1), so we collapsed across this variable. Similar to Study 4.1 we addressed the issue of chance capitalization by using a stringent $p$ level of .005 to determine whether the results were significant. The means are reported in Table 4.3.

Table 4.3
The means of participant's actions and participant's feelings as a function of whether the target was disliked or liked and which emotion the target was showing, for Study 4.2.

| Emotion of the | Happy | | Sad | | Angry | |
|---|---|---|---|---|---|---|
| Disliked or liked | Disliked | Liked | Disliked | Liked | Disliked | Liked |
| **Participants' actions** | | | | | | |
| Join in | 3.53$_{ac}$ (1.84) | **6.65**$_b$ (1.76) | 3.12$_a$ (1.74) | 3.87$_c$ (1.95) | 3.19$_a$ (2.12) | 2.93$_a$ (1.88) |
| Disengage | **5.16**$_a$ (1.20) | 2.70$_b$ (1.32) | 3.71$_c$ (1.25) | 2.30$_b$ (1.07) | **5.00**$_a$ (1.20) | 2.81$_b$ (1.18) |
| Help | 2.64$_a$ (1.49) | 3.57$_b$ (1.79) | **6.23**$_c$ (1.46) | **8.00**$_d$ (1.12) | 4.90$_e$ (2.04) | **7.56**$_d$ (1.41) |
| **Participants' feelings** | | | | | | |
| Happiness | 3.25$_a$ (1.43) | **6.83**$_b$ (1.73) | 2.72$_c$ (1.34) | 1.94$_d$ (1.00) | 3.53$_a$ (1.63) | 2.39$_{cd}$ (1.10) |
| Sadness | 2.92$_a$ (1.67) | 2.01$_b$ (1.27) | 3.99$_c$ (1.75) | **5.49**$_d$ (1.91) | 3.66$_{ac}$ (1.75) | 4.14$_c$ (1.60) |
| Anger | **4.36**$_a$ (1.94) | 2.41$_b$ (1.55) | 3.17$_c$ (1.55) | 2.92$_{bc}$ (1.29) | **4.40**$_a$ (1.69) | 3.65$_{ac}$ (1.34) |

*Note:* Scores are given on a scale from 1 (absolutely not) to 9 (absolutely). The standard deviations are in parentheses. Means that do not share the same subscript are significantly different (p < .005).

*Actions.* With respect to *imitation* main effects of emotion, $F(2,345) = 36.88$, $p < .001$, $\eta_p^2 = .18$, and liking, $F(1,345) = 35.90$, $p < .001$, $\eta_p^2 = .09$, were found, as well as a significant interaction of emotion and liking, $F(2,345) = 17.40$, $p < .001$, $\eta_p^2 = .12$. These results correspond with our expectations: participants reported imitation of happiness only if the target was liked, $F(1,345) = 78.37$, $p < .001$, $\eta_p^2 = .19$, whereas participants reported no imitation of anger regardless of whether the target was liked or not, $F < 1$. However, although the means were in the right direction the means for the sad target were not significantly different this time, $F(1,345) = 4.81$, $p = .03$, $\eta_p^2 = .01$.

With respect to *helping* main effects of emotion, $F(2,345) = 207.74$, $p < .001$, $\eta_p^2 = .55$, and liking, $F(1,345) = 112.56$, $p < .001$, $\eta_p^2 = .25$, were found, as well as a significant interaction of

emotion and liking, $F(2,345) = 8.65$, $p < .001$, $\eta_p^2 = .05$. Participants wanted to help more if the target was angry and liked compared to angry and disliked, $F(1,345) = 82.54$, $p < .001$, $\eta_p^2 = .19$. Participants also wanted to help more if a liked target was sad compared to a disliked target, $F(1,345) = 38.11$, $p < .001$, $\eta_p^2 = .10$. Participants also wanted to help more if a liked target was happy compared to a disliked target, $F(1,345) = 9.91$, $p = .002$, $\eta_p^2 = .03$, although both means were low. People thus want to help the most if the person is liked.

Also with respect to d*isengagement* main effects of emotion, $F(2,345) = 22.29$, $p < .001$, $\eta_p^2 = .11$, liking, $F(1,345) = 240.50$, $p < .001$, $\eta_p^2 = .41$, and a significant interaction of emotion and liking, $F(2,345) = 6.04$, $p = .003$, $\eta_p^2 = .03$, were found. As expected participants wanted to disengage more if the target was disliked and angry compared to liked and angry, $F(1,345) = 93.92$, $p < .001$, $\eta_p^2 = .21$, and if the target was disliked and happy as opposed to liked and happy, $F(1,345) = 116.08$, $p < .001$, $\eta_p^2 = .25$. Participants also wanted to disengage more if a disliked target was sad compared to a liked target, $F(1,345) = 40.02$, $p < .001$, $\eta_p^2 = .10$, although both means were low.  So disengagement seems to be an appropriate reaction towards disliked people.

*First choice of action.* We analyzed the 'first choice' variable using Chi-Square tests with liking and emotion as independent variables (see Table 4.4 for the percentages). There was a significant difference between the first reactions mentioned towards a liked or disliked target for happiness, $\chi^2(2, N = 114) = 35.07$, $p < .001$, anger, $\chi^2(2, N = 116) = 20.85$, $p < .001$, and sadness, $\chi^2(3, N = 121) = 20.97$, $p < .001$. Comparing the patterns for the liked target, $\chi^2(6, N = 175) = 102.00$, $p < .001$, and disliked target showed a significant effect of emotion, $\chi^2(6, N = 176) = 36.97$, $p < .001$. Evidently most of the emotion-liking combinations have their own specific reaction pattern. The only ones that are not significantly different are the reaction patterns to the disliked happy and angry target, $\chi^2(3, N = 116) = 11.44$, $p = .01$, the reaction patterns to all target situations were significantly different ($p$'s <.005). The only situation that fits with the conventional theories on imitation is the one for the liked happy target: only in that case do some people choose imitation as their first reaction. If the target is liked and sad most people choose to help the target. If the target is liked and angry people choose too help the target. For the disliked targets we expected and found dissimilar reactions. If the target is disliked and happy or angry participants choose to disengage. If the target is disliked and sad people choose to help the target.

*Other dependent variables.* Participant's feelings followed the same patterns as the actions. See Table 4.3 for the means. Participants' *happiness* showed a main effect of emotion, $F(2,345) = 120.77$, $p < .001$, $\eta_p^2 = .41$, liking, $F(1,345) = 14.09$, $p < .001$, $\eta_p^2 = .04$, and a significant interaction of emotion and liking, $F(2,345) = 102.86$, $p < .001$, $\eta_p^2 = .37$. The liked happy target showed the highest scores for happiness, similar to the findings for imitation. There was no

significant effect of liking for participants' *sadness*, $F(1,345) = 4.05$, $p = .045$, $\eta_p^2 = .01$. However, there was a significant main effect of emotion, $F(2,345) = 54.84$, $p < .001$, $\eta_p^2 = .24$, and an interaction of emotion and liking on sadness, $F(2,345) = 15.20$, $p < .001$, $\eta_p^2 = .08$. Simple effects analyses showed that participants felt sad only towards the sad liked target, which is also similar to the findings on imitation. Participants' *anger* showed a significant main effect of emotion, $F(2,345) = 11.74$, $p < .001$, $\eta_p^2 = .06$, liking, $F(1,345) = 34.36$, $p < .001$, $\eta_p^2 = .09$, and an interaction of emotion and liking, $F(2,345) = 8.99$, $p < .001$, $\eta_p^2 = .05$. Simple effects analysis showed that participants felt angry the most towards angry *and* happy disliked targets, similar to the results on disengagement.

Table 4.4
The percentage of participants that picked the action as a first choice as a function of liking and emotion of the target, for Study 4.2.

| Emotion of the target | Happy | | Sad | | Angry | |
|---|---|---|---|---|---|---|
| Disliked or liked target | Disliked$_a$ | Liked$_b$ | Disliked$_c$ | Liked$_d$ | Disliked$_a$ | Liked$_e$ |
| Actions | | | | | | |
| Join in | 5.1 % | **34.5** % | 1.7 % | 0.0 % | 0.0 % | 0.0 % |
| Disengage | **44.1** % | 1.8 % | 10.0 % | 1.6 % | **40.4** % | 5.1 % |
| Help | 0.0 % | 0.0 % | **31.7** % | **72.1** % | 14.0 % | **25.4** % |
| Other (neutral) behaviour | 50.8 % | 63.7 % | 56.6 % | 26.3 % | 45.6 % | 69.5 % |

*Note:* Columns that do not share the same subscript are significantly different (p < .005)

*Discussion*

Study 4.2 provided further support for our hypotheses. Although Study 4.2 showed that liking influences the perceived intensity of emotions of the target, this study also showed that the behavioural and emotional reactions to the different emotion-liking combinations were not merely the result of these differences in intensity. For example, the difference between the reactions to the liked happy person and disliked happy person were not merely due to the happiness being perceived to be less intense. Moreover, the results were largely identical to the results of Study 4.1.

Liking again lead to imitation for the affiliative emotion whereas disliking lead to dissimilar reactions: The only reports of imitation were for the happy liked target. The disliked targets were reported to be met with disengagement for the happy and angry target and helping behaviour for the sad target. Even the liked targets were met with dissimilar behaviour: Only the reactions to the happy liked target looked like a classic case of imitation and contagion.

Sadness and anger are met with helping behaviour rather than imitation. These results show that liking and affiliativeness of the behaviour are likely to influence imitation.

## General Discussion

Although people often imitate each other, they will obviously also sometimes do just the opposite and react with dissimilar behaviour to each other. Our results corroborate this general conjecture. They lend support to the hypothesis that when someone is smiling, people often smile back, whereas when the person who is smiling is disliked, people are more likely to turn away. Although such dissimilar reactions might seem unsurprising, the mere idea of such reactions nevertheless goes against recent findings in the imitation literature. This imitation literature shows that most behaviour is imitated and the researchers argue that the same should hold for emotions (e.g. Lakin et al.2003). The present studies show support for the notion that imitation is not always a likely or preferred reaction towards other's behaviour: The affiliativeness of the behaviour and the liking for the person showing the behaviour can lead to reactions that can be quite dissimilar to the initial behaviour of the other person.

*Disliking and Imitation*

We predicted that liking would lead to more imitation for happiness and sadness as shown in earlier research (Likowski et al. 2008), which is exactly what we found. We showed that the only situations that showed reactions of imitation were situations that involved liked happy and sad targets. Building on earlier findings, we further expected that disliking would not merely warrant less imitation but also lead to dissimilar reactions. And indeed, this is what we found: Both studies showed that people report dissimilar reactions towards happiness, sadness and anger if the target is disliked. People want to disengage when confronted with disliked happy and angry targets, and report helping behaviour when confronted with disliked sad targets (although considerably less than when confronted with liked sad targets). These actions are all clearly dissimilar to the initial behaviour of the other person.

*Liking and Imitation*

Even when the target is liked, however, we neither expected nor found imitation for every emotion. We expected that there would be no imitation regardless of whether the target was liked or disliked if the emotion was non-affiliative (such as anger), because the message sent through imitating such an emotion is ambiguous: it could be seen as affiliative (empathy) but

could also be seen as non-affiliative (anger directed at the target). People will prefer to send a clearly affiliative message to the liked target and a clearly non affiliative message to the disliked target. This is indeed in line with what we found: In both studies there was no imitation of anger, neither towards liked targets, nor towards disliked targets. People instead want to help liked angry targets and disengage from disliked angry targets.

Even though there has been no research on how liking affects the imitation of anger, there have been numerous studies on reactions to anger in an intergroup context.  These might have shed light on how liking affects imitation, since studies on group membership and imitation show that effects of group membership are most likely driven by liking for the in-group and disliking for the out-group (Yabar, Johnston, Miles, & Peace, 2006). Most of the intergroup studies on anger show that people react with more anger when faced with an angry in-group member rather than an angry out-group member (Bourgeois & Hess, 2008; Gordijn, Yzerbyt, Wigboldus & Dumon, 2006; Gordijn, Wigboldus, Hermsen & Yzerbyt, 1999; Gordijn, Wigboldus & Yzerbyt, 2001), seemingly contradicting our findings. However, it is important to note that in these intergroup studies the anger was always clearly directed at a third party, removing ambiguity of imitation: If the anger is clearly directed at a third party it is unlikely to be interpreted to be directed at the interaction partner but only as empathy and agreement ("You are right, I am also very angry at them!"). Only one study by Bourgeois and Hess (2008, study 2) gave participants no information about the direction of the anger. As we would expect this study showed no differences between imitation to anger displayed by an out-group member or in-group member: Imitation was equally low in both cases. This is in line with our findings that people do not imitate either liked or disliked angry targets.

Unexpectedly, we also show that people are likely to react dissimilarly towards liked sad targets. People do report imitation of liked sad targets and  they do so considerably less than towards happy liked targets as expected. Yet when people talk about there first reaction to such a target they do not even mention imitation, but only mention helping the other person. However, the helping behaviour is clearly just as affiliative as imitation or perhaps even more. Furthermore, helping behaviour seems more appropriate in a situation where someone is crying, because the person's problems are more likely to go away if the person is helped rather than imitated.

Looking at the overall picture people only report imitation towards a happy liked other. In all the other situations people report dissimilar reaction patterns, which begs the question if imitation is really as prevalent as the current literature suggests. Do people have an inclination to imitate other people's emotions and need to suppress such inclinations in order to show different behaviour? Or do people also have the ability to react flexibly to specific emotional situations? In any case, our results suggest that there is likely to be a lot more room for dissimilar

reactions than previously thought: Behaviours of disliked others may lead not only lead to less imitation but also to dissimilar reactions. And even behaviour of liked others will not always lead to more imitation: If the behaviour is non-affiliative, imitation seems to be quite unlikely.

# Chapter 5

# General discussion

Based on previous results of research investigating the link between imitation and liking, most researchers have typically argued that imitation often leads to more liking and liking often leads to more imitation (for an overview, see Lakin et al., 2003). However, this thesis has clearly suggested that this may be an overgeneralization: imitation did lead to *less* liking and liking did lead to *less* imitation. The present thesis showed that the meaning of behaviour was important for the effects of imitation, and that this meaning of behaviour also affected whether imitation occurs in the first place. Whether imitation lead to more liking or not depended on whether the meaning of the behaviour that is imitated was affiliative: if the behaviour that was imitated was not (perceived to be) affiliative then *less* liking occurred as a result of imitation. And liking in turn affected imitation differently when the behaviour was meaningful: People generally wanted to imitate others they like, but when the behaviour was non-affiliative this was no longer true. This thesis focused on imitation of behaviour that was inherently social: The expression of emotions. When imitating emotional expressions, the meaning of these expressions was crucial: Is the meaning affiliative or not? The thesis explored the following questions: 'Will I like you more if I imitate your emotional expression?' and 'Will I be more likely to imitate your emotional expression if I like you more?'

## Summary of main findings

### *Will I like you more if I imitate your emotional expression?*

The first question I aimed to answer in this thesis was whether imitation is able to lead to more liking when an emotional expression is imitated. More specifically, the aim of C*hapter 2* was to show that imitation could lead to less liking if the behaviour that is imitated is non-affiliative. In this case, imitating meant sending this non-affiliative signal back to the other person, and this was likely to decrease liking. Indeed, this was what was found: Imitating an angry person lead to less liking of that person, while imitating a happy person lead to more liking. These findings supported the idea that imitation will not *always* and will not *necessarily* increase liking, as many studies on imitation have argued or implied. The important factor determining whether imitation lead to more liking appeared to be whether the behaviour that was imitated was affiliative or non-affiliative: Whereas imitating affiliative behaviour did increase liking, imitating non-affiliative behaviour lead to less liking. Chapter 2 also showed that these effects occurred even when the person showing the emotion in the video clip was an avatar (generated by the computer) rather than a real person.

The results of Chapter 2 were, however, not conclusive. One might argue that the reason the angry faces were liked less after imitation was because frowning simply puts people in a more

negative mood whereas smiling puts people in a more positive mood. Even though the other dependent variables did not show such a mood effect, I nevertheless wanted to address this issue in the following chapter. In *Chapter 3* the behaviour that was imitated was kept exactly the same and only the meaning of what was imitated changed. The meaning was changed by changing the target of the behaviour. When people believed that the anger they saw was directed at them personally this was expected to have a different effect than if they believed the anger was directed at someone or something else. Chapter 3 showed that the target of the behaviour indeed mattered: Imitating anger had a negative effect on liking when people imagined themselves to be the target of this anger, but no effect on liking when people imagined they were *not* the target. So the negative effect of imitating an angry person disappeared when the people imitating knew that the anger was not directed at them personally. Confirming that it was the meaning of the behaviour that was important, not the behaviour itself.

Chapter 3 also showed that non-emotional *facial* cues can determine the effect of imitation on liking. The influence of knowing who the anger was directed at was only present when people imagined a *woman* to be angry or not angry at them. When the angry person was a *man*, direction of the anger did not matter anymore: people always liked the angry man less after they had imitated him. Thus even though people knew that the anger was not directed at them personally, which decreased its non-affiliative meaning, imitating did cause them to become negative about the angry man. A pilot study showed that the angry man was seen as more aggressive and more frightening even though the woman and man were seen as equally angry. It seems that the fact that the face was male provided information on how the emotion should be interpreted: Knowing that the angry person was a man suggested that his behaviour *was* aggressive and thus non-affiliative, even though the direction of the anger indicated otherwise.

To summarize, together Chapters 2 and 3 showed that when looking at effects of imitation on liking, the distinction between affiliative and non-affiliative behaviour from the perspective of the imitator was important. When the behaviour that was imitated was perceived as affiliative, imitation did lead to liking. Conversely, when the behaviour that was imitated was perceived as non-affiliative, imitation would lead to *less* liking, but only when people felt the behaviour was directed at them personally. Since social behaviour is rarely meaningless, it would be wise to take meaning of behaviour into consideration when studying the impact of imitation on social interactions in the future.

*Will I be more likely to imitate your emotional expression if I like you more?*

In Chapter 4, I explored the reverse question: whether liking would lead to more imitation of emotions. The aim was to investigate whether liking could also lead to less rather than more

imitation, and whether other affiliative or non-affiliative reactions are sometimes more likely than imitation. The results showed that people generally did *not* join in with the other person's emotion. The only times that people were inclined to show reactions of imitation were when the other person was liked and happy or liked and sad. Moreover, even in the case of a liked sad person people preferred to help the person rather than join in with the person's sadness. As expected, people preferred not to imitate angry behaviour, neither that of a liked person, nor that of a disliked person. People instead wanted to *help* a liked angry person (clear affiliative behaviour) and *disengage* from a disliked angry person (clear non-affiliative behaviour). Both studies in Chapter 4 also showed that people reported dissimilar reactions rather than imitative reactions towards happiness and sadness if the other person was disliked. People wanted to disengage from a disliked happy person, and wanted to help a disliked sad person (although considerably less compared to how much they wanted to help a liked sad person). Although it was perhaps surprising that people wanted to act affiliatively towards disliked people that were displaying sadness, both these behaviours were clearly different from the initial behaviour shown by the other person.

Looking at the overall picture people only reported imitation of a happy person they liked. In all the other situations people reported other types of affiliative or non-affiliative behaviour. Thus, similar to what I reported in Chapters 2 and 3, the meaning of the behaviour seemed to determine the effect of liking on people's preferred reactions. Moreover, dissimilar reactions were far more likely than previously thought: Behaviour of disliked others lead to a great preference for dissimilar reactions. And even behaviour of liked others did not always lead to more imitation: When the behaviour was non-affiliative, imitation seemed to be quite unlikely.

With respect to the questions that were examined in this thesis it appears that the meaning of the behaviour was indeed very important. Whether imitation of behaviour lead to liking depended for a large part on the meaning of that behaviour, and the same held for whether liking was likely to lead to imitation. This thesis showed that a focus on the (affiliative) meaning of behaviour is necessary for a good understanding of the link between imitation and liking.

## Relations with other research

### Imitation and liking

There is a strong conviction in the research area of imitation and liking that imitation serves the function of binding people together and should therefore lead to more liking (for an overview of this perspective, see Lakin et al., 2003). However, a first indication that imitation

does not always lead to more liking was found in a study on the influence of imitation of dominant behaviour on liking (Tiedens & Fragale, 2003). In this research it was found that complimentary reactions to dominant behaviour had a more positive effect on liking than imitation of this behaviour. In the present thesis, I looked at yet another domain that is very relevant when studying liking: affiliative behaviour. The results showed that imitation of this type of behaviour also did not always lead to more liking. The difference for both these types of behaviour with the earlier studies in this field seems to be the meaning of the behaviour: if the behaviour itself is meaningful then imitating the behaviour also has meaning and will not always have positive effects. Since behaviour often is meaningful this suggests that the strong conviction that imitation should lead to more liking needs to be readdressed.

This thesis is no less relevant for the reverse conviction also posited by researchers in the imitation and liking field: that liking should lead to more imitation (for an overview, see Lakin et al., 2003). This thesis showed that this is also likely to be an overgeneralization. Even when the other was liked, imitation was not the preferred reaction to either expressions of sadness or anger. Many investigators of the imitation-liking link have also suggested that even though imitation may be lessened to such an extent that it is barely visible, it will never be totally absent or replaced by other behaviours. However, recently there have been studies that cast doubt on this idea (Bourgeois, & Hess, 2008; Gergely, Bekkering, & Kiraly, 2002; Moody, McIntosh, Mann, & Weisser, 2007). These studies show that sometimes there will be no imitation at all and sometimes people do react dissimilarly instead of imitating. The difference between these studies and the ones that only show imitation appears to be the focus on meaningful behaviour. This thesis showed results in line with this idea and built on it by showing which reactions were the most likely to occur in specific circumstances. This strongly suggests that that both the conviction that liking always leads to imitation and the conviction that imitation is always present need some serious rethinking.

*Emotion imitation*

Chapter 4 suggested that non-affiliative behaviour is not likely to be imitated regardless of whether the person showing the behaviour is liked or disliked. Furthermore, Chapter 2 and 3 showed that imitation of such behaviour will generally have negative consequences for liking. Seemingly contradictory to this, previous research shows that seeing expressions of anger can elicit frowns (Blairy, Herrera, & Hess, 1999; Dimberg, & Thunberg, 1998; Dimberg, Thunberg, & Elmehed, 2000; Hess, & Blairy, 2001). But on the other hand, other studies show that frowns are imitated less than other facial expressions such as smiling and yawning (Hinsz, & Tomhave, 1991; Estow, Jamieson, & Yates, 2007). Close examination of these studies shows that the studies

that revealed imitation used more vivid stimuli (video and confederates rather than photos). Perhaps the use of non-vivid stimuli decreased the likelihood that the participants felt the anger was directed at them personally. And Chapters 2 and 3 also suggested that imitation might be more beneficial and thus more likely to occur when people feel the anger was not directed at them personally.

It is also somewhat unclear whether the studies that did show frowning in response to expressions of anger, also clearly showed that these expressions of anger are imitated. There are a number of other emotions that include frowning: For example, several studies use frowning to measure imitation of anger *as well as* sadness (Blairy, Herrera & Hess, 1999; Hess & Blairy, 2001). It is possible, therefore, that when the people in these studies frowned towards angry faces this might not have been imitation but a different expression including frowning, such as deep thought, frustration, uncertainty or sadness. Moreover, more recent research indeed suggests that these frowns towards angry faces can perhaps best be seen as reactions to the stimuli rather than as imitation (Dimberg, Thunberg & Grunedal, 2002; Moody et al, 2007). A study by Dimberg and colleagues (2002) showed, for example, that frowning is facilitated towards pictures of angry faces but also to pictures of snakes, suggesting that the frown is not necessarily imitation but more a general emotional reaction or reaction of negativity. In sum, it seems important for (future) emotion imitation research to use more vivid stimuli, investigate the extent to which imitation occurs and look at other possible reactions and ways to distinguish between these reactions.

<center>Limitations</center>

*Intentional imitation*

The research in this thesis provided some useful insights with respect to several research domains, but there were also some limitations. One important issue is that most previous research on imitation and liking has studied unconscious, spontaneous imitation whereas the research in this thesis studied intentional imitation. That is, in some studies in this thesis the participants were asked to imitate, and in other studies in this thesis they were asked to indicate whether they would imitate in a certain situation. However, previous research studied whether people imitate spontaneously without being asked or without even being aware they are doing so. Moreover, previous research studied the effects of imitation when people are being imitated by a confederate without being aware that that person is doing so.

The choice for the use of intentional imitation in this thesis was nevertheless a logical one. Based on my theorizing I expected that the behaviour that I wanted to study, the behaviour that

could have a negative effect on liking, would generally not be imitated. Therefore, to be able to study the effects of imitating such behaviour on liking I had to instruct people to imitate. Another approach to avoid awareness of the imitation could have been to instruct a confederate to imitate the participant unobtrusively. However, to be able to study anger this would have meant that I would first have had to get the participants to express anger which is generally difficult to do. Furthermore, based on my theorizing the way and magnitude with which the behaviour (anger) was expressed could have been important. This would have meant inducing anger and making sure the way it was expressed was identical for each participant or somehow controlling for the different forms of expressions and different magnitudes of the expressions. Since this made studying imitation of anger in the more traditional way exceedingly difficult if not impossible, the choice for using intentional imitation was easily made.

However, the choice to use intentional imitation did have an obvious downside. There is a possibility that the results in this thesis were merely obtained because intentional imitation was studied and would not have occurred when studying spontaneous imitation. Recent research shows, however, that intentional imitation has similar effects on liking compared to spontaneous imitation (Stel & Vonk, 2008). Nevertheless there are differences between intentional imitation and spontaneous imitation. For example, intentional imitation involves different neural pathways than spontaneous imitation (Matsumoto & Lee, 1993; Tassinary & Cacioppo, 2000), intentional imitation is slower and more effortful (Dimberg et al, 2002), and intentional imitation is more sensitive to situational demands and cultural influences (Ekman, 1992). These differences actually suggest that, if anything, the effects of intentional imitation are likely to be *less* strong. This thesis might thus actually have been conservative in its choice for intentional imitation. However, without an actual comparison between the two it could still be argued that the spontaneous imitation is the more conservative choice. For example, the simple fact that people are aware that they are meant to copy the other person's behaviour could result in more people guessing the real purpose of the research and thus influencing the results. The studies in this thesis were of course checked for this possibility and did not show any such effects: people were generally completely unaware why they were asked to imitate. I personally think it is more likely that intentional imitation is the more conservative manipulation. Therefore, the negative effects on liking should hold for spontaneous imitation of anger or any other non-affiliative behaviour as long as it is directed at the perceiver.

Another issue with using intentional imitation and the paradigm used in this thesis, was that in this paradigm the person who is imitating was also always the one who is judging the other person. In contrast, in the paradigms used for spontaneous imitation the one who judges can be either someone who is imitating or someone who is being imitated. Obviously, when talking about meaning of the behaviour it is the meaning for the one who is doing the judging

that is important. If someone is smiling lovingly, but the person who is judging thinks that the smile is at his or her expense, then imitating is not likely to result in much liking for that person. However, the intentions of the person who is showing the initial behaviour and the intentions of the person who is imitating could also be important since these intentions are likely to influence the actual behaviour that is shown. If, however, the person doing the judging is also always the one imitating it is hard to determine which intentions and interpretations are most important. Therefore it would be good to disentangle these in future research.

*Possible processes*

The focus in this thesis was mainly on finding out whether meaning of the behaviour can influence the link between imitation and liking. However, an important related question remained unanswered: What is the process behind the effect of imitation on liking? Lakin and Chartrand (2003) show that an active affiliation goal leads to more imitation. Imitating anger is unable to serve an affiliation goal due to the non-affiliative nature of anger. I argued that because of its non-affiliative nature imitating anger would probably lead to less rather than more liking. However, there was no evidence that an affiliation goal was involved or needed. Perhaps people just spontaneously disliked the people they looked angry at. If this is true, this does not explain why the people that imagined the anger of the other person was not directed at them did *not* like the other person less after imitating the anger. This suggests that there was some inference about the situation involved, although not necessarily on a very conscious level. I think that people do make inferences about the emotions of other people which enables them to respond in a meaningful manner to these emotions. I also think they can do so without consciously thinking about it.

Future research

*Other non-affiliative emotions and behaviour*

When studying liking and imitation the affiliative nature of the behaviour being imitated is a very relevant factor to consider. In this thesis therefore the non-affiliative emotion anger and affiliative emotion happiness were studied and compared. An interesting direction for future research might be to study other non-affiliative or affiliative emotions. Disgust, for example, is also a non-affiliative emotion (Hess et al., 2000; Knutson, 1996). Similar to anger, disgust should also not be imitated when shown by someone that is liked, because this would mean sending a signal to the other person that could be interpreted as non-affiliative. And similar to anger,

imitating disgust should also lead to less rather than more liking, because it is non-affiliative. It could be very useful for the research area of imitation and liking to build on the results in this thesis and discover whether indeed the effects hold for other emotions as well.

Naturally, expressions of emotions are not the only behaviour that can be considered affiliative or non-affiliative. Another way to build on the results of this thesis would be to study other nonverbal behaviour that could be considered non-affiliative or affiliative. Nonverbal behaviour that could be considered affiliative is leaning over towards someone or lightly touching someone and nonverbal behaviour that could be considered non-affiliative is turning away from someone or crossing arms. For the non-affiliative behaviour I expect that similar to anger it should not be imitated when shown by someone that is liked, because this would mean sending a signal to the other person that could be interpreted as non-affiliative. And in the same line of reasoning imitating non-affiliative behaviour such as crossing arms should lead to less rather than more liking. Conversely, I expect that the affiliative behaviour, such as touching someone, should be imitated readily and imitation should lead to more liking unless the other person is disliked. Finding out whether it is not just anger or facial expressions that can have an impact on the relationship between imitation and liking would provide further insight into the relevance of meaningful behaviour and perhaps the processes underlying the effects.

Similar to this thesis the target of the behaviour is likely to be important for studying this other non-affiliative and affiliative behaviour as well. If, for example, the non-affiliative behaviour is not directed at the perceiver, imitating such behaviour could serve an affiliative goal and should therefore be much more likely to lead to more liking. It will probably be important to know, for instance, whether a person showing disgust is disgusted with you personally or with the food on his plate. Furthermore, it could also be good to manipulate the direction of the behaviour in different ways, such as through gaze or posture. This would give more insight into the effect of meaning on imitation and liking. For example, imitation generally lead to more liking if the meaning of the behaviour itself was affiliative. Imitating anger could therefore have lead to more liking when it was not directed at the imitator personally. However, Chapter 3 showed that when people simply imagined that a person was not angry at them this was not enough for them to like the other person more when they imitated the person. They merely did not show the decrease in liking that people showed when they imitate the other person and *did* feel they were the target of the anger. However, perhaps if people can actually observe that the anger is not directed at them, imitation would indeed result in *more* liking similar to imitating happiness.

*Other non-affiliative cues*

Similarly, subtle facial cues for aggressiveness will probably affect this other non-affiliative and affiliative behaviour as well. As in Chapter 3 of this thesis, a man with crossed arms is likely to be considered to be more aggressive, and imitating such a person would therefore be more likely to lead to less liking, regardless of other factors such as who is the target of the behaviour. It might also be interesting to investigate new cues to aggressiveness. Skin tone and facial bone structure, for example, might be have a profound impact since people are more likely to believe someone's acts are aggressive and hostile when that person is black (Devine, 1989; Duncan ,1976; Sagar & Schofield, 1980). A person with dark skin tone who is looking angry or crossing arms would thus probably also be liked less after imitation regardless of other factors. Other less subtle cues to aggressiveness such as statements about a person's aggressiveness are also likely to have similar effects on the relationship between imitation and liking.

*Other relevant dimensions*

Finally, there are bound to be other dimensions than the affiliative dimension that are relevant for the link between imitation and liking. For instance, dominance has been studied (Tiedens & Fragale, 2003), and in line with this thesis this study on imitation of dominance and liking has shown that dissimilar reactions towards dominant behaviour leads to more liking whereas imitation leads to less liking. Another dimension that might determine whether behaviour is readily imitated and will lead to more liking might be whether behaviour is task related. I expect that task related behaviour such as picking up a phone will not be readily imitated unless someone is trying to teach this behaviour to another person. All in all, there are likely to be many more domains that influence the link between imitation and liking. I think that for any such new domains of behaviour one thing will turn out to be key: The meaning of behaviour is essential for our understanding of the link between imitation and liking.

<div align="center">Conclusion</div>

The findings in this thesis give insight into important issues with respect to several research areas and can hopefully be an exciting start to a new direction in imitation research: A focus on the meaning of the behaviour that is imitated. The findings suggest it might be wise to take a new look at some conclusions that had been made about imitation and liking and the findings also give rise to many new interesting questions. I would like to conclude this thesis

with some practical advice. Many people are seeking training or advice in the realm of nonverbal behaviour to improve their performance at work or improve their social functioning. It is not just managers, sales people and coaches who follow such classes, but also, for example, autistic people and even people like you and me. In these classes they often hear that they can create rapport and liking by imitating others. Clearly the results of this thesis have suggested that sometimes imitating can backfire. My advice would be that instead of learning how to imitate others effectively, we might be better of focusing on what the behaviour of the other conveys and how we can reply to this message in a meaningful and empathic way. Sometimes liking can be achieved by imitation. But often life is more complex and then it is better to choose a different approach.

# Samenvatting

# (Summary in dutch)

Soms kom je van die stelletjes tegen die alleen nog maar oog hebben voor elkaar. Ze bestellen hetzelfde ijsje, maken elkaars zinnen af en spiegelen elkaar zo volledig dat het bijna eng is. Ze zijn zelfs emotioneel op dezelfde golflengte: als de een lacht, lacht de ander ook, als de een heel verdrietig is over een film dan is de ander dat ook. Toch gaat er soms iets mis op afspraakjes van verliefde stelletjes. Dan zegt bijvoorbeeld de man iets ongelukkigs en de vrouw wordt boos op hem. Dan wordt het interessant. Wordt hij ook boos of zal hij zijn excuses aanbieden en proberen haar te kalmeren? Wat zou er gebeuren als hij wel boos zou worden? Waarschijnlijk zou dat het einde zijn van het afspraakje en misschien zelfs wel de relatie…

Dit voorbeeld illustreert dat mensen elkaar soms imiteren, zeker als ze elkaar aardig vinden (Lakin, Jefferis, Chang, & Chartrand, 2003; Stel, Blascovich, McCall, & Vonk, 2005). Hoewel onderzoek aantoont dat mensen elkaar ook imiteren als ze geen hechte relatie met elkaar hebben (zie Lakin, et al., 2003 voor een overzicht), imiteren mensen elkaar vaak meer wanneer ze elkaar aardig vinden (Lakin et al., 2003; Stel et al., 2005). Omgekeerd kan imitatie er zelfs voor zorgen dat mensen elkaar aardiger gaan vinden (Chartrand & Bargh, 1999). Dus een verliefd stelletje zal zich door elkaar te imiteren nog meer tot elkaar aangetrokken voelen.

Aan de andere kant zal imitatie ook zijn grens hebben, zelfs wanneer imitatie normaliter een grote kans zou hebben goed uit te pakken, zoals voor een verliefd stelletje. Als de man in het voorbeeld imitatie als reactie op de vrouw kiest en dus boos wordt, zal het waarschijnlijk niet goed aflopen met het afspraakje. In dat geval zou een non- of anti-imitatieve houding beter uitpakken, bijvoorbeeld door excuses aan te bieden. Het lijkt dus niet te gewaagd om te zeggen dat imitatie niet altijd de beste optie zal zijn om er voor te zorgen dat mensen elkaar aardiger gaan vinden. Ook zal het niet altijd zo zijn dat mensen die elkaar aardig vinden elkaar altijd meer imiteren: als de persoon die boos werd een vervelende ober was geweest was de man waarschijnlijk juist wel boos terug geworden.

Het interessante is dat onderzoek dus vaak een positieve relatie veronderstelt tussen hoe aardig mensen elkaar vinden en hoeveel mensen elkaar imiteren, terwijl er blijkbaar vrij gemakkelijk situaties te verzinnen zijn waarin die relatie waarschijnlijk negatief zal zijn. Wat bepaalt of men elkaar na imitatie aardiger vindt en wat zorgt ervoor of men een aardig persoon wel of niet imiteert? Wellicht is de betekenis van het gedrag van belang. Een negatieve relatie is bijvoorbeeld waarschijnlijk bij boosheid. Een uitdrukking van boosheid is natuurlijk niet zomaar gedrag, maar is bedoeld als een signaal naar de ander toe. In het voorbeeld is het signaal: 'Ik vind het niet leuk dat je dat tegen mij zegt'. Daarentegen is het gedrag dat er juist wel voor zorgt dat men elkaar aardiger gaat vinden vaak gedrag dat geen sociaal signaal met zich mee draagt. Voorbeelden van dit soort gedrag uit eerdere onderzoeken is wiebelen met een voet of het aanraken van het eigen gezicht. In tegenstelling tot het imiteren van sociaal neutraal gedrag zullen mensen wanneer ze gedrag imiteren dat *niet* sociaal neutraal is, niet alleen dat gedrag

laten zien maar ook het signaal dat bij dat gedrag hoort. Als de man in het voorbeeld reageert met boosheid richting de vrouw dan wordt dus niet alleen het gedrag geïmiteerd, maar zal hij onherroepelijk ook haar het non-affiliatieve signaal wat hoort bij de boosheid (terug)sturen. Het is erg waarschijnlijk dat elkaar dergelijk non-affiliatieve signalen sturen een effect zal hebben op hoe aardig men elkaar vervolgens vindt.

Het is dus waarschijnlijk dat de specifieke betekenis van het gedrag dat wordt geïmiteerd belangrijk is voor de relatie tussen hoe aardig mensen elkaar vinden en imitatie. Voorgaand onderzoek heeft zich echter niet op de betekenis van het gedrag wat geïmiteerd wordt gericht en heeft hoofdzakelijk imitatie bestudeerd door te kijken naar relatief betekenisloos gedrag. Een belangrijk doel van dit proefschrift is te laten zien dat een dergelijke focus op de betekenis van het geïmiteerde gedrag wel degelijk noodzakelijk is. Als imitatie wordt bestudeerd zonder te kijken naar de betekenis van het geïmiteerde gedrag dan kan dit leiden tot te sterke generalisaties, zoals het geloof in een intrinsieke positieve relatie tussen imitatie en hoe aardig mensen elkaar vinden. Om te laten zien dat een focus op de (sociale) betekenis van gedrag noodzakelijk is heb ik mij in dit proefschrift gericht op een vorm van gedrag dat bij uitstek sociaal te noemen is: emotionele gezichtsuitdrukkingen. Dit proefschrift heeft de volgende vragen willen beantwoorden: 'Vind ik jou aardiger als ik jouw emotie imiteer?' en 'Imiteer ik jouw emotie meer wanneer ik je aardiger vind?'

## Vind ik jou aardiger als ik jouw emotie imiteer?

Emotionele gezichtsuitdrukkingen zijn duidelijk sociale signalen. Met een glimlach laat men een ander weten dat men vriendelijke bedoelingen heeft, terwijl een frons vaak bedoeld is om te laten zien dat men ontevreden is over het gedrag van de ander. Onderzoek laat zien dat mensen dit ook zo ervaren. Blijdschap wordt als affiliatief gezien door anderen en boosheid als sterk non-affiliatief (Hess, Blairy, & Kleck, 2000; Knutson, 1996). Wanneer emoties geïmiteerd worden wordt dus niet alleen het gedrag geïmiteerd, maar wordt ook de bijbehorende boodschap meegestuurd. Dit zou natuurlijk kunnen beïnvloeden of de ander na imitatie wel of niet aardig wordt gevonden. De verwachting was dat men de ander wel aardiger zou vinden wanneer het geïmiteerde gedrag affiliatief was, omdat dit alleen maar het affiliatieve aspect van imitatie zou versterken. Wanneer echter het geïmiteerde gedrag non-affiliatief was, zou dus een non-affiliatief signaal teruggestuurd worden en was dus de verwachting dat de ander juist minder aardig gevonden zou worden. Het doel van de studies in hoofdstuk 2 en hoofdstuk 3 was om deze verwachtingen te testen.

Hoofdstuk 2 liet inderdaad zien dat de ander aardiger werd gevonden na het imiteren van blijdschap. Ook klopte de verwachting voor boosheid: de ander werd juist *minder* aardig

gevonden na het imiteren van boosheid. Dit effect was zelfs aanwezig wanneer de proefpersonen een avatar (een door de computer gegenereerde persoon) imiteerden in plaats van opnames van echte mensen.

Uit hoofdstuk 3 bleek vervolgens dat echt de betekenis van het gedrag belangrijk was en bijvoorbeeld niet het verschil tussen het imiteren van een positieve of negatieve emotie. In hoofdstuk 3 was de te imiteren emotie namelijk constant gehouden (boosheid). Alleen de (non-affiliatieve) betekenis van de boosheid voor de proefpersoon werd veranderd door de proefpersonen zich te laten voorstellen dat de boosheid wel of juist niet op hen gericht was. Wanneer men dacht dat de boosheid wel op hen gericht was vonden ze de ander minder aardig. Slechts wanneer duidelijk was dat de boosheid niet op hen gericht was vonden de mensen die de ander geïmiteerd hadden de ander even aardig als de mensen die de boosheid niet geïmiteerd hadden.

Hoofdstuk 3 liet ook zien dat niet-emotionele gezichtskenmerken invloed hebben op het effect van imitatie. Uit hoofdstuk 3 bleek dat mannen wanneer ze boos zijn bijvoorbeeld gezien worden als agressiever en angstaanjagender dan vrouwen. Het leek zo te zijn dat dit meegenomen werd bij het imiteren. Wanneer men de man imiteerde maakte de richting van de boosheid niet meer uit: ongeacht de richting van de boosheid vond men de boze man minder aardig na het imiteren. Het gegeven dat de persoon een man was gaf waarschijnlijk de proefpersonen informatie over hoe de emotie geïnterpreteerd moest worden. Dat de boze persoon een man was suggereerde dat zijn gedrag agressief was bedoeld, en dus non-affiliatief, ondanks dat de richting van het gedrag iets anders impliceerde.

Samengenomen bleek uit hoofdstuk 2 en 3 dus dat het uitmaakt of gedrag affiliatief of juist non-affiliatief was. Wanneer het gedrag als affiliatief werd gezien vond men de ander aardig na imitatie. Wanneer het gedrag echter als non-affiliatief werd gezien, vond men de ander juist *minder* aardig na imitatie. Aangezien sociaal gedrag zelden betekenisloos is zou het verstandig zijn om in de toekomst de betekenis van het gedrag mee te nemen wanneer imitatie bestudeerd wordt.

### Imiteer ik jouw emotie meer wanneer ik je aardiger vind?

De literatuur suggereert ook dat mensen die aardig worden gevonden meer geïmiteerd zouden moeten worden. Het doel van hoofdstuk 4 was om uit te zoeken of aardige mensen wellicht soms ook minder in plaats van meer geïmiteerd kunnen worden. De verwachting was dat affiliatieve en 'neutrale' emoties wel tot imitatie zouden leiden wanneer de ander aardig gevonden werd terwijl ze zouden leiden tot andere (non-affiliatieve) reacties wanneer de ander onaardig gevonden werd. Daarnaast was de verwachting voor non-affiliatieve emoties zoals

boosheid dat mensen boosheid niet zouden willen imiteren onafhankelijk van of de ander aardig of onaardig werd gevonden. Imitatie van boosheid kon namelijk zowel non-affiliatief als affiliatief opgevat worden afhankelijk van bijvoorbeeld de interpretatie en richting van de emotie. De verwachting was dat men liever duidelijk affiliatief gedrag zou willen vertonen richting een vriendelijk persoon en duidelijk non-affiliatief gedrag richting een onaardig persoon.

De resultaten waren dat mensen over het algemeen niet geneigd zijn om met de emotie van anderen mee te gaan. Deelnemers rapporteerden alleen imitatiereacties wanneer de andere persoon aardig werd gevonden en blij was of wanneer deze aardig werd gevonden en verdrietig was. Zelfs in dat laatste geval (aardig en verdrietig) wilden de deelnemers aan het onderzoek de persoon liever helpen dan mee gaan in het verdriet van de ander. Daarnaast rapporteerden mensen geen imitatieve reacties als de ander onaardig werd gevonden en blijdschap of verdriet liet zien. Mensen wilden graag afstand nemen van onaardige personen die blij waren en wilden een onaardig persoon die verdrietig was graag helpen. Hoewel het misschien verrassend is dat mensen affiliatief wilden reageren richting een onaardig verdrietig persoon, waren deze reacties wel duidelijk verschillend van het initiële gedrag van de andere persoon en dus geen imitatie te noemen. Zoals verwacht imiteerden mensen liever geen boos gedrag, onafhankelijk van of de ander aardig of onaardig werd gevonden. De deelnemers wilden in plaats daarvan een aardige persoon die boos was graag helpen (duidelijk affiliatief gedrag) en graag afstand nemen van een onaardige persoon die boos was (duidelijk non-affiliatief gedrag).

Mensen rapporteerden dus vooral imitatie wanneer ze geconfronteerd werden met een aardig persoon die blij was. In alle andere situaties prefereerden mensen andere soorten affiliatief of non-affiliatief gedrag. Dus net als in hoofdstuk 2 en 3 bleek duidelijk dat de betekenis van het gedrag belangrijk was voor de relatie tussen hoe aardig mensen elkaar vonden en imitatie. Vooral de betekenis van het vertoonde gedrag bepaalde hoe men het liefst reageerde op iemand die aardig of juist onaardig gevonden werd. Daarbij waren andere reacties dan imitatie veel waarschijnlijker dan voorheen aangenomen werd: met name richting de onaardige personen was er een grote voorkeur voor andere, niet imitatieve, reacties. En zelfs het gedrag van de aardige personen leidde niet altijd tot een voorkeur voor imitatie: wanneer het gedrag non-affiliatief was, was er een sterke voorkeur om niet te imiteren.

## Conclusie

Het bleek inderdaad belangrijk te zijn voor de vragen die in dit proefschrift onderzocht werden om te weten wat de betekenis van het gedrag was dat werd geïmiteerd. Of imitatie van gedrag ertoe leidde dat men de ander aardiger ging vinden hing voor een groot deel af van de

betekenis van het gedrag. Hetzelfde gold voor de tegenovergestelde richting van het effect: betekenis van het gedrag was grotendeels bepalend voor of men aardige mensen meer of juist minder imiteerde. Dit proefschrift laat zien dat een focus op de (affiliatieve) betekenis van gedrag noodzakelijk is om de relatie tussen hoe aardig mensen elkaar vinden en imitatie goed te kunnen bestuderen.

In tegenstelling tot de literatuur tot nu toe laat dit proefschrift duidelijk zien dat imiteren wel degelijk ook negatief uit kan pakken voor sociale relaties. In het verleden heeft men in cursussen sociale vaardigheden en cursussen non-verbaal gedrag, op basis van het onderzoek naar imitatie, geclaimd dat de beste manier om relaties te creëren en te verbeteren was om de ander te imiteren en vanwege deze wonderbaarlijke effecten getracht de cursisten een onopvallende manier van imitatie aan te leren. In het licht van de bevindingen in dit proefschrift is het wellicht verstandiger om niet te proberen te leren hoe we anderen het beste kunnen imiteren. Waarschijnlijk is het veel effectiever om ons volledig te richten op wat het gedrag van de ander ons vertelt en hoe we daar op een betekenisvolle en empathische manier op kunnen reageren. Soms zal imiteren inderdaad de beste reactie zijn om een relatie te creëren of te verbeteren, maar vaak zal het leven ingewikkelder zijn en dan zal het beter zijn om een andere aanpak te kiezen.

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