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Leaders' Emotional Contagion

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Abstract

Emotional contagion between individuals can occur consciously or subconsciously. It can be understood as the copying of each other's facial expressions, voices, and movements without being aware of it, which helps individuals feel the same emotions. Modalities of expression include a complex neurological process that facilitates coordination and cooperation in social groups. Additionally, psychological aspects such as personality traits and interpersonal variables influence emotional contagion. The psyche of leaders is frequently challenged, as they must constantly appear as role models to maintain others' trust in their decisions. Our investigation finds that organizations benefit from incorporating more positive emotions through helpful and cooperative behavior, better teamwork, and job performance. Positive emotions affect all elements of emotional contagion and might contribute to improving the leader-follower relationship. The degree of attention affects the level of emotional contagion, with higher attention resulting in stronger contagion.

Keywords*:* modalities of expression, neuroscience, psychology, leader-follower relationship.

Introduction

Emotional contagion between individuals is of great importance and can occur consciously or subconsciously (Barsade, 2002; Gump & Kulik, 1997; Schoenewolf, 1990). Chartrand and Bargh (1999) showed that emotions can be transferred through various modes, such as facial expressions, body posture, and vocal utterances. Additionally, psychological aspects such as personality traits (e.g., Doherty, 1997) and interpersonal variables (Hess & Blairy, 2001) influence emotional contagion, for example by determining the observer's receptivity to emotions.

Teamwork is currently a high priority in the workplace, and individual team members contribute their individual moods, perceptions, attitudes, learning styles, cognitive abilities, and personality traits to the group (Vijayalakshmi & Bhattacharyya, 2012). At the same time, empathy, sensitivity to others, self-observation, receptivity, affiliation, personality structures, and level of stress influence the transfer of moods and emotions. The transfer of emotions from leaders to others is particularly strong due to their special role in the group (Connelly et al., 2002).

Moreover, the quality of relationships and interactions has physical impacts, particularly in the workplace, on the immune system, cardiovascular health, and the neuroendocrine system (Heaphy & Dutton, 2008; Uchino et al., 1996). Hence, the quality of the leader-follower relationship has an impact on the follower's health, job satisfaction, organizational commitment, effort, learning, and development, as well as their intention to quit (Rowold & Laukamp, 2009; Bommer et al., 2004; Gerstner & Day, 1997; Bass & Avolio, 1990).

Studies have shown that leaders operate in a perpetually tense situation (Cardno, 2007; Middlewood & Cardno, 2001) in which they

are required to achieve expected results with limited resources and fulfill both their own expectations and those of others while conforming to social norms and values (Hoyt et al., 2013; Turner, 2001). The psyche of leaders is frequently challenged, as they must constantly appear as role models to maintain others' trust in their decisions. This can lead to emotional exhaustion and decline in performance (Baer et al., 2015).

At the same time, leaders' emotions influence aspects such as the emotional state (Lewis, 2000) and work performance (George, 1995) of their followers, and this has an impact on the success of an organization. Leaders also need to regulate their emotions to maintain followers' motivation (Huy, 2002), communicate their vision, and establish an emotional bond with followers (Humphrey et al., 2008).

Nevertheless, there are few studies on leadership performance that consider the emotional contagion between humans and the impact of leaders on followers. This article seeks to answer the following research questions:

i) What role does emotional contagion play in organizations?

ii) What leadership behavior impacts organizations positively?

Theoretical Framework

Emotions can be measured and categorized in various ways. A categorization of emotions derived via state of consciousness can be made using Hawkins' (2014) consciousness map. Using kinesiological muscle testing, he showed that human consciousness can be calibrated in accordance with energy levels, which are associated with emotions, perceptions, attitudes, and worldviews.

Hawkins showed that higher levels of consciousness are linked with greater power, which comes from within and gives individuals a more heightened sense of purpose in life. Power is associated with positive and life-affirming energies. The lower levels of consciousness are associated with greater forces. These forces are characterized by resistance and have a temporary goal. They also include negative and hostile energies.

The map of consciousness consists of various levels of consciousness, using a logarithmic scale from 1 to 1000. The critical transition point between forces and power is 200, which is associated with integrity and courage. This level defines what humans see and how humans react and feel. Figure 1 shows these energy levels, including their consciousness processes, emotions, and views of life.

	Level	Log	Emotion	Process	Life-View
POWER	Enlightenment	700-1000	Ineffable	Pure Consciousness	Is
	Peace	600	Bliss	Illumination	Perfect
	Joy	540	Serenity	Transfiguration	Complete
	Love	500	Reverence	Revelation	Benign
	Reason	400	Understanding	Abstraction	Meaningful
	Acceptance	350	Forgiveness	Transcendence	Harmonious
	Willingness	310	Optimism	Intention	Hopeful
	Neutrality	250	Trust	Release	Satisfactory
FORCE	Courage	200	Affirmation	Empowerment	Feasible
	Pride	175	Scorn	Inflation	Demanding
	Anger	150	Hate	Aggression	Antagonistic
	Desire	125	Craving	Enslavement	Disappointing
	Fear	100	Anxiety	Withdrawal	Frightening
	Grief	75	Regret	Despondency	Tragic
	Apathy	50	Despair	Abdication	Hopeless
	Guilt	30	Blame	Destruction	Evil
	Shame	20	Humiliation	Elimination	Miserable

Figure 1: Map of Consciousness

Shaw et al. (2016) found that emotions can be detected and classified through voice. The features investigated were the energy of speech pitch, which is responsible for the rise and fall of vowel sounds, and the format frequency, which determines, among other things, the timber of a vowel.

In addition, Shaw et al. also recorded an accurate representation of the short-term power spectrum of a tone using the Mel-Frequency Cepstrum Coefficients (MFCC). These features, with an accuracy classification rate of 85 percent, were found to be suitable investigative features for defining the emotions of happiness, anger, and sadness in speech. Lastly, the study found that anger held the highest amount of energy, followed by happiness, while sadness elicited the lowest energy.

Modalities of expression

Among the most basic approaches to emotional contagion is primitive emotional contagion. According to Hatfield et al. (1993), this occurs in two distinct automatic stages. In the first stage, emotions are automatically and unconsciously copied from a person by imitating facial expressions and body posture. In the second stage, the copied facial expression or posture is felt as an emotion in oneself. Van Kleef and Côté (2022) described primitive emotional contagion as a theoretical process in which the observer perceives the emotion in another person by copying the emotional expressions in the face, voice, and posture, resulting in physiological feedback.

A study by Strack et al. (1988) examined the effects of facial feedback on the perception of cartoons. Participants were asked to hold a pencil either between their teeth, which resulted in a smiling facial expression, or with their lips, which prevented smiling. The results showed that the cartoons were rated funnier by the subjects who held the pen between their teeth. These effects, however, were only remarkable according to one-sided statistical criteria, and in later studies using the same procedure Soussignan (2002) and Andreasson and Dimberg (2008) were unable to replicate the results. Neumann and Strack (2000) found that neural action codes were responsible for the observer's reactions with associated affect when perceiving an emotional expression in another person.

A number of studies using facial electromyography (EMG) have shown that subjects exposed to stimuli from happy and angry faces responded with the same specific patterns of facial muscle responses as those activated by happy and angry facial expressions (Lundqvist & Dimberg, 1995; Dimberg & Christmanson, 1991; Dimberg & Lundquist, 1990). Lundqvist (1995) also showed that stimulation by other emotional facial expressions, such as surprise, sadness, fear, and disgust also evoked specific patterns of facial muscle responses. These results were interpreted as imitative behavior, showing that facial expressions are contagious but that emotions are not transmissible.

Van Kleef and Côté (2022) found that emotions could be evoked in others through different types of verbal and nonverbal expressions and that the social impact of emotions in a particular situation on observers was qualitatively comparable regardless of how they were expressed. The effectiveness of the choice of expression modality depended on the situation (for example, facial expressions during telephone conversations were ineffective as an expression modality due to situational circumstances). Appropriateness in the choice of expression modality may impact social effects on emotions (for example, perceived appropriateness of sending smileys in a work context) (Glikson et al., 2018).

Emotions are also used to make inferences about the personality of the person expressing them. Knutson (1996), for instance, showed that expressing feelings of happiness was associated with high dominance and high affiliation.

In contrast, showing anger or disgust was associated with high dominance and low affiliation, and expressing sadness and fear was associated with low dominance. Tiedens (2001) and Tracy et al. (2013) also confirmed that strong emotions such as anger and pride increase the perception of dominance, power, and status, while weak emotions such as sadness weaken it.

In another experiment (De Melo et al., 2014), observers made inferences about a person's goals based on their emotional expressions. Here, people perceived a person's display of happiness as the achievement of their goal, whereas sadness was seen as a failure to achieve it. A person's expression of anger was appraised as a hindrance to their goal achievement combined with blaming others, while regret was interpreted as a hindrance to achieving their goal combined with self-blame.

Inferences are also made about oneself via expressed emotions. For example, in multiple studies Heerdink et al. (2013, 2015) found that showing joy to others was associated with

acceptance, warmth, and closeness as well as inclusion in the group, while expressing anger was associated with coldness, distance, rejection, and exclusion from a group.

Neurological aspects

Diverse neuroscientific techniques and tools are available to study the mental processes that lead to emotional contagion (Herrando & Constantinides, 2021). For example, techniques such as electroencephalography (EEG), functional magnetic resonance imaging (fMRI), and functional near-infrared spectroscopy (fNIRS) can be used, as well as others such as eye-tracking, face recognition, and skin conductance. Compared to traditional research methods such as surveys or focus groups, they provide the advantages of collecting real-time, subconscious information about emotional responses and behaviors and excluding subjective experiences that are often biased.

Different areas in the brain are activated to process emotions (Dixon et al., 2017; Shamay-Tsoory, 2009; Harrison et al., 2006; Hatfield et al., 1993; Panksepp, 1986; Papez, 1937). Furthermore, there is evidence for a mirror neuron system in the premotor cortex of the brain that is activated when a behavior is observed and performed, thus helping to understand the emotions of others (Bastiaansen et al., 2009; Leslie et al., 2004; Rizzolatti & Craighero, 2004; Carr et al., 2003; Wild et al., 2003).

Chartrand and van Baaren (2009) have shown that a social bond is formed by imitating the behavior of the other and that individuals respond physiologically most strongly to those people who are most important to their sense of self (Kiecolt-Glaser & Newton, 2001).

The brain's limbic system is responsible for resonance, which is the synchronicity of mutual exchange and physiological alignment between two people (Lewis et al., 2000). If this does not take place, there is dissonance between the two. The emergence of resonance is predominantly unconscious and occurs through positive emotional expressions such as eye contact or physical contact (Wheldall et al., 1986; Fisher et al., 1976), facial expressions (Rahko et al., 2010; Ekman, 1992), and the intonation of speech (Johnstone et al., 2006).

Barsade et al. (2018) showed that resonance can be evaluated through physical measurements such as skin conductance, heart rate, and connections between autonomic nervous system responses. Palumbo et al. (2017) and Kret (2015) argued that resonance is evident, for example, in the synchrony of heart rate and pupil diameter during social interactions, in the propensity to blush in response to an interaction partner blushing, and in the contagiousness of crying or yawning.

The perception of emotional states in relation to empathy has been examined multiple times. In these examinations, a distinction has been made between cognitive and affective empathy. Cognitive empathy, also known as cold empathy, mentalization of emotions, or affective theory of mind, is described as the mental process a person goes through in taking, understanding, and simulating another's perspective to anticipate experiences, intentions, and needs. This type of empathy is to be distinguished from emotional contagion (Walter, 2012; Decety & Lamm, 2006; Preston & de Waal, 2002).

Affective empathy, also called "hot empathy" or emotional empathy, is based on sharing emotions, whereby sensory, motoric, physiological, and affective states of others are adopted or elicited (Walter, 2012; Nummenmaa et al., 2008; Hatfield et al., 1993). Accordingly, affective empathy has been equated with primitive emotional contagion (Decety & Lamm, 2006; Preston and de Waal, 2002; Hatfield et al., 1994). Walter (2012) found that specific areas in the brain are responsible for cognitive empathy, while different areas are responsible for affective empathy.

However, Singer & Lamm (2009) showed that neither emotional contagion nor mimicry is sufficient to explain the emergence of empathy. Accordingly, empathy is conditional on self-awareness and the ability to distinguish between oneself and others. This refers to the ability to determine whether affective experiences are self-initiated or caused by

others (De Vignemont & Singer, 2006; Decety & Lamm, 2006; Decety & Jackson, 2004).

Psychological aspects

The extent to which others adopt emotions or mimicry also depends on many psychological aspects. Hatfield et al. (1993) and Lundqvist and Dimberg (1995) found that emotions can be transmitted and received by anyone, but that the susceptibility to emotional contagion is different for each individual. In this regard, several studies have shown that receptivity may depend on individual personality traits and structures.

A long-held theory was that there is a positive relationship between the individual variables of affective orientation, emotionality, empathy (Omdahl & O'Donnell, 1999), affiliation (Gump & Kulik, 1997), and self-esteem (Doherty, 1997) for susceptibility to emotion. However, Doherty (1997) proved that the personality structures of self-assertion, emotional stability, and alienation were negatively correlated with susceptibility to emotions. Zelenski and Larsen (1999) observed that personality traits such as reward sensitivity, punishment sensitivity, and impulsive thrill-seeking are associated with varying degrees of sensitivity to emotional awareness.

Hatfield (1992) demonstrated that the level of attention influences the extent of emotional contagion, whereby greater attention leads to greater contagion.

These attentional processes can be influenced by, for example, gender (Doherty et al., 1995; Lundqvist, 1995), propensity for spontaneous imitation (Laird et al., 1994), and general receptivity to emotions from others (Doherty, 1997).

Interpersonal aspects also influence emotional contagion. Influencing factors include the emotional bond between people (Hess & Blairy, 2001), how well individuals know each other (Barsade, 2002), and how much individuals trust each other (Omdahal & O'Donnell, 1999). In another study, Lanzetta and Englis (1989) demonstrated that individuals who were in a cooperative relationship imitated the facial expressions of the others, while they exhibited the opposite behavior toward individuals with whom they were in a competitive interaction.

Other studies (Anderson et al., 2003; van Kleef et al., 2008) have noted that partners in a weaker position of power adopt the emotional expressions of their partner more strongly than vice versa. In contrast, Hsee et al. (1990) found among teachers and students that individuals with higher power are more sensitive to the emotions of their less powerful partners.

Van Kleef and Côte (2022) found that certain emotional expressions elicit specific behavioral responses in the person observing them. Tackman and Srivastava (2016) observed that people who express joy and thus appear extraverted and pleasant trigger an affiliative response in others. The expression of gratitude can also trigger a desire to affiliate with the grateful person and with the object to which the gratitude is directed (Algoe et al., 2020).

Emotional expressions of sadness (Hendriks & Vingerhoets, 2006; Clark et al., 1987) or disappointment (van Doorn et al., 2015) increased helpfulness compared to neutral expressions. Expressing nervousness, despair, and anxiety positively influences intimacy and friendships (Graham et al., 2008). In contrast, the suppression of emotions decreased connection and the desire to connect (Butler et al., 2003), whereas the expression of feelings of appeasement led to the rebuilding of trust (van Kleef & Côté, 2022; Keltner et al., 1997; Feinberg et al., 2012) as well as the reduction of retaliation behaviors such as aggression (van Kleef & Côté, 2022; Keltner et al., 1997; Ohbuchi et al., 1989).

Methodology

Based on the understanding that leaders are essential for organizations' efficiency and the psychological well-being of the employees and everyone connected to them (Hogan & Kaiser, 2005) and that leaders' personalities can be seen as the reflection of an organization (Shaul

& Berson, 2018), we investigated the relationship between leaders and followers.

As shown in Figure 2, the model of emotional contagion helps assign behavioral phenomena to specific areas. Those areas include expressive modalities, neurological aspects, and psychological aspects. As these areas overlap and influence each other, some contain variables that can be allocated to more than one area.

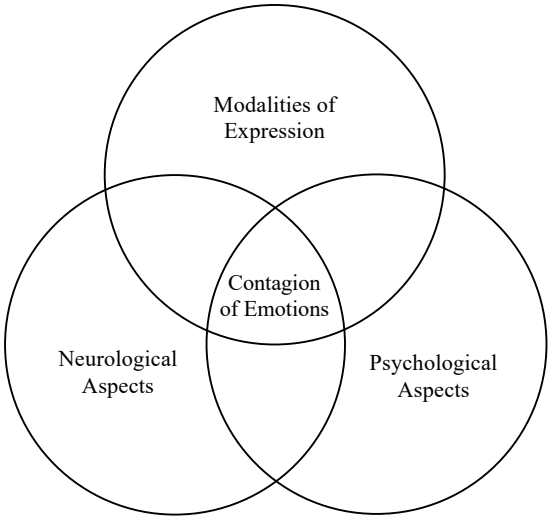

Figure 2: The Model of Emotional Contagion

Contagion of emotions in organizational structures

Emotions can be defined as relatively intense and short-lived affective reactions (Frijda, 1986) induced by specific environmental stimuli (Reber, 1985), a specific goal, or a specific cause (Lazarus, 1991). Moods, in contrast, are weaker and more diffuse affective responses to general environmental stimuli but are not directed toward specific causes, and are transient and result in relatively unstable short-term intraindividual changes, representing a generally pleasant/positive or unpleasant/negative feeling (Frijda, 1986; Tellegen, 1985).

The dispositional affect is a personality trait that represents a relatively stable and long-term variable of an individual and determines his or her experience of moods (Watson et al., 1988; Watson & Clark, 1984). Barsade (2002) asserted that dispositional affect can influence contagion but is not directly contagious.

Russell's (1980) affective circumplex, as shown in Figure 3, shows emotions arranged in a circular diagram, with moods and dispositional affects examined across several basic dimensions. The x-axis of the circumplex represents the dimension of pleasantness, which expresses emotional valence, while the y-axis represents energy or activity. Moods are generally examined in relation to their valence (Barsade and Gibson, 2007), indicating how pleasantly or unpleasantly they are perceived (Frijda, 1986; Tellegen, 1985).

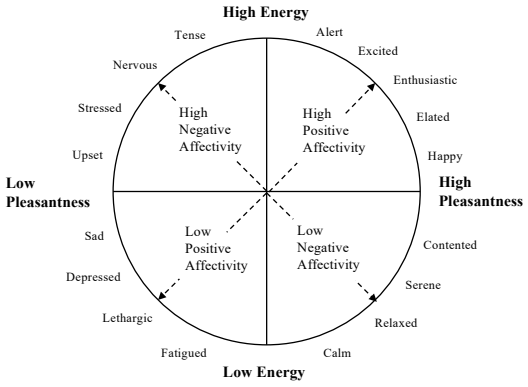

Figure 3: The Circumplex Model of Affect

Results

Staw and Barsade (1993) argued that dispositional affect can be determined through either trait pleasantness or the combination of pleasantness and energy (Watson et al., 1988). Positive affectivity (PA) and negative affectivity (NA) can be derived afterward. For instance, individuals with high dispositional NA exhibit despair, anger, and negative self-perception, whereas individuals with low NA tend to be composed, calm, and relaxed. Conversely, individuals with high dispositional PA tend to feel affects such as joy, well-being, and cheerfulness, whereas individuals with low PA tend to feel sad, dull, and lethargic (Watson & Tellegen, 1985).

In a study of 70 work teams performing different tasks, Bartel and Saavedra (2000) observed that mood convergence appeared in

all dimensions of the affective circumplex. They also noted several moderators who contributed to mood convergence, such as social and task interdependence, norms of mood regulation in the group, and stability of group membership.

Larsen and Diener (1987) identified other individual factors that influence emotional contagion in groups, including the strength of how emotions are felt, the strength of the receptivity of emotions (Doherty, 1997; Hatfield et al., 1994), and the expressiveness of people's emotions (Kring et al., 1994), which they found to be significant. Mehrabian (1972) found that other group members primarily perceive emotions through nonverbal signals rather than words.

Group-related factors also influence the emotions and behavior of a group and its members. Ilies et al. (2007) argued that a stronger collectivist tendency toward the team leads to stronger emotional contagion. Group members share their emotions within the group at the group level, and based on the strength of group identification they influence attitudes and behavior toward their own group and outside groups (Smith et al., 2007). Van der Schalk et al. (2011) and Weisbuch and Ambady (2008) also found that emotions expressed by members within a group were more strongly imitated than emotions expressed by those outside the group.

Seger et al. (2009) showed that the extent to which members identify with the group determines how firmly they hold on to group-level emotions. The implicit and explicit process of emotional contagion is also influenced (Yang and Mossholder, 2004; Staples and Webster, 2008) by factors such as the interdependence of the group members, the extent of power and status structures within the team, team stability, and group culture.

Emotional contagion also influences the cognition, behaviors, and attitudes of individuals or groups, either by putting them in a particular mood (Lazarus, 1991; Damasio, 1994) or by helping the group to determine how they are feeling (Knight, 2013; Hess et al., 2000; Frijda, 1988). Parkinson (1996) found that social-affective information is also transmitted between group members, which according to Hess and Kirouac (2000) induces a collective evaluation of events and exerts an influence on the group. This also provides information about group cohesion: for example, smiling as a sign of approval, acceptance, and bonding helps the group survive, while fearful facial expressions serve as a warning of impending danger (Levenson, 1996).

Positive affect leads to more helpful and cooperative behavior (Isen & Levin, 1972) at the group level, less conflict in the group (Barsade, 2002), and more prosocial behavior at work (George, 1991; George & Brief, 1992). With regard to this last, moods such as dispositional affects have been shown to be particularly influential. By contrast, discrete negative emotions in an organization more often lead to antisocial and deviant behavior (Spector and Fox, 2002) and to a reduction of prosocial, supportive, and cooperative behavior (Frost, 2004). Furthermore, positive mood leads to increased cooperation in negotiations (Baron, 1990), whereas negative mood decreases cooperation during negotiation (Forgas, 1998).

According to Weiss and Cropanzano (1996), it is unclear whether dispositional affect or mood has a more significant influence on performance. However, Staw and Barsade (1993) observed that positive dispositional affect significantly influences the effectiveness of decision-making. Staw et al. (1994) showed that employees who addressed work obstacles with a positive mood tended to perform better 18 months later, exhibiting better evaluations and higher salaries than their negative counterparts.

Affects have an impact on cognitive effort and performance. Isen (2003) and Sullivan and Conway (1989) showed that positive mood promotes greater cognitive effort, enhances problem-solving ability, and increases the capacity to engage in more complex logical reasoning. Torrente et al. (2013) showed that positive emotions are associated with increased teamwork engagement, demonstrating that

positive emotional contagion leads the team to engage in the task with a sense of unity, giving rise to a feeling of pride and joy in their own work.

Positive moods and positive dispositional affect lead to better job performance in various jobs (Staw et al., 1994; George, 1991; Seligman & Schulman, 1986). The meta-analysis by Lyubomirsky et al. (2005) further shows that positive emotions and moods promote diverse measures of job performance indicators, such as higher salary, better supervisor evaluation, improved negotiation skills, and an increased tendency to make decisions for the benefit of the organization. Barsade (2002) found that positive emotional contagion led to increased perceived individual performance in oneself and other group members.

Negative affects also have an impact on organizations. In organizational contexts, such as hiring decisions (Robbins & DeNisi, 1994; Hollmann, 1972) or auditing of behavior (Ashton & Ashton, 1990), negative emotions receive more attention than positive ones. Kemper (1984) found that this negativity is self-perpetuating and can escalate and take on a greater magnitude once it is present between individuals (Raush, 1965). Barsade (2002) considered this a possible explanation for why groups in work environments tend to move toward unpleasant moods rather than pleasant ones (Bartel & Saavedra, 2000).

Emotional intelligence (EI), described as a critical ability to accurately perceive the emotions of others, also has an important role in organizations. Elfenbein et al. (2007) found in their meta-analysis that a better perception of emotions led to better work outcomes in a wide variety of professional fields, such as medicine, human services, public service, and schools, and among business executives and corporate leaders. Furthermore, high EI leads to better results in problem-solving tasks (Decety & Lamm, 2006; Lyons & Schneider, 2005) and managerial simulations (Day & Carroll, 2004; Matsumoto et al., 2004; Feyerherm & Rice, 2002). In addition, social competence is rated higher by supervisors and teammates in employees with higher EI than in employees with lower EI (Lopes et al, 2006).

Another aspect that influences a group's emotions and performance is the group's affective diversity. Studies with top management teams showed that greater affective fit among group members led to a more positive evaluation of relationships within the group and that members perceived their influence within the group to be more significant (Barsarde et al., 2000).

Few studies have examined specific emotions and their impact on groups. Duffy and Shaw (2000) found that group envy led to more absenteeism, reduced group satisfaction, and diminished group performance. This was due to the increase in social loafing, a decrease in group cohesion, and the reduction of the feeling of group strength associated with group envy.

Studies have shown that emotions are also shaped through implicit or explicit norms of a group or an organization where what kinds of emotions are expressed and are allowed to be expressed are prescribed (Kelly & Barsade, 2001; Barsade & Gibson, 1998).

Table 1: The Role of Emotional Contagion in Organizations

Organizational Aspects	Negative Emotions	Positive Emotions
Cooperation	Reduction of prosocial, supportive, and cooperative behavior	More helpful and cooperative behavior
Socialization	Promotion of antisocial and deviant behavior	Increased teamwork engagement
Group Performance	Group envy leads to absenteeism, a reduction in group satisfaction, and a decrease in group performance	Better job performance
Problem-solving		Promotion of cognitive effort, problem-

		solving ability, and the ability to conduct more complex logical reasoning
Attention	Negative emotions receive more attention than positive ones	

Modalities of expression

Various investigations have found that emotional contagion is a possible factor by which leader affect influences follower affect and that it has a significant impact in the context of workplace leadership (Halverson, 2004; Cherulnik et al., 2001; K. M. Lewis, 2000; Sy et al., 2005). Volmer (2012) and Sy et al. (2005) also found that the transfer of emotions occurs through individual group members as well as at the collective level, and thus has an impact on performance.

Emotional expressions of leaders elicit different emotions in followers and can influence followers' approach to tasks. The leader's positive and negative moods evoke corresponding affective states in followers (Bono & Ilies, 2006; Sy et al., 2005). A leader's display of joy leads to increased creative performance in followers, while an expression of sadness increases followers' analytical performance (Visser et al., 2013). The followers' motivational intentions increase when the leader shows enthusiasm (Venus et al., 2013).

A skillful and appropriate way of expressing positive and negative emotions by the leader could have an impact on the follower's feelings of passion and commitment towards the company (Cardon et al., 2009; Cardon, 2008).

Emotional expressions can also influence the performance of the followers. For example, studies have shown that the positive mood of a leader results in enhanced group performance in the customer service area (George, 1995) and to a positive influence on coordination, but also to a reduction of the group's effort (Sy et al., 2005). Moreover, Liu et al. (2017) stated that when the leader expresses enthusiasm or joy, employees produce more suggestions for improvement in work practices and performance. This can be attributed to the reciprocal positive affect and to psychological safety, which is perceived to be greater at that point.

Positive emotions, which have a higher activation potential, also yield better results than emotions with a lower activation potential (Ruak, 2010), and the converse is true for negative emotions. Additionally, there is some evidence that a leader's expression of anger may focus the followers' attention on specific tasks to solve a problem (George, 2000).

Followers also use the leader's emotional expressions to draw inferences about their performance. In a laboratory study, group members interpreted feedback from the leader expressed cheerfully (through face, voice, and body language) as a better achievement of the task than when anger was expressed while giving the same feedback in terms of content (Van Kleef et al., 2009).

Affects influence inferences made about leaders' performances. Accordingly, leaders who display positive affect are assessed as better leaders (Staw & Barsade, 1993). Leaders with high positive affect either pursued or were perceived as pursuing a transformational leadership style, and thus came across as being more effective (Joseph et al., 2015).

Lewis (2000) found that the leader's expression of negative emotions, such as anger or sadness, affected employees' perceptions of the leader and led to a decrease in the perceived effectiveness of the leader. However, Wang et al. (2018) showed that perceptions of leader effectiveness increased when expressions of anger were viewed as appropriate and attributed to a lack of integrity on the part of the followers. In this case, the leader's reaction was viewed as strength in dealing with unacceptable behavior. Conversely, the leader's

perceived effectiveness decreased when inappropriate anger was expressed, as this was perceived as a reaction to a lack of competence.

Melwani and Barsade (2011) found that contemptuous expressions from high-status individuals are more likely to be seen as appropriate than similar expressions from low-status individuals (Melwani & Barsade, 2011). They also found that low-status recipients performed better after being given contemptuous feedback than when receiving neutral feedback. Higher-status recipients, by contrast, responded to contemptuous feedback with aggressive behavior and did not perform better.

Observers associate expressions of contempt and compassion with perceptions of leaders (Melwani et al., 2012). Thereafter, a leader's expression of anger can increase the perception of the leader's power, while an expression of sadness can decrease the perceived power (Tiedens, 2001).

Johnson (2008) showed that perceptions of the leader's charisma influence emotional contagion and follower behavior, whereas Sy et al. (2013) showed that not only does the leader's charisma influence followers, but the group's mood also influences the leader's charisma.

In a cognitively demanding task, the followers' mood affects the leader's performance; here it is mainly implicit processes that influence the leader (Tee et al, 2013). Followers may also intentionally and consciously express explicit emotions to influence the leader's outcomes. Follower satisfaction and likability contribute to some extent to leader effectiveness (Ashforth & Humphrey, 1995; Conger & Kanungo, 1987; Dasborough & Ashkanasy, 2002).

Emotions significantly impact the leadership process, as they determine how leaders feel and express their emotions and how followers feel about their leaders (George, 2000). The regulation of emotions by the leader is of great importance. On the one hand, they must be able to suppress unpleasant emotions while showing optimistic expressions to maintain followers' motivation. On the other hand, they must also be able to handle and understand the emotions of others as well as empathize with them to, for example, promote change acceptance (Huy, 2002).

The regulation of a leaders' emotional expressions is a significant element of the followers' perception of the leaders' authenticity and trust (Gardner et al, 2009). Nevertheless, it is essential that the emotions a leader expresses are perceived as authentic by the employees, as this also increases trust in the leader and improves work performance (Caza et al., 2015).

Leaders can also utilize their emotional skills and the emotional tone of a group to achieve goals. In doing so, the leader must first identify the collective emotional state and the situational aspects responsible for it. Then, to lead the group toward the desired goal, the leader should develop and communicate a reaction to the situation by taking into account this emotional tone(Pescosolido, 2002).

Neurological aspects

Research in neuroscience has examined neurological processes related to team interaction (Waldman et al., 2015) and leader-follower interaction (Boyatzis et al., 2012). Neuroscientific research has produced new insights into teamwork processes and leadership phenomena (Senior et al., 2011).

One observation from this research is that more neurological engagement was achieved among team members in a team problem-solving context when emergent leaders spoke during the team meeting. Individual engagement mainly includes cognitive and emotional aspects that go beyond what can be observed in the individual's behavior. Based on this, it can be deduced that mere observation or surveying of team members would only have been partially purposeful in identifying factors that promote engagement (Waldman et al., 2013).

There is evidence that brain structures influence personality traits that are important for leaders. In a study of 55 high-level leaders using EEG technology, Peterson et al. (2008) found that there were differences in the left

prefrontal cortex between leaders who possessed traits such as optimism, hope, and confidence compared to those who did not. The left prefrontal cortex is a region of the brain associated with feeling happiness.

The brain's receptivity is changeable and can develop (deCharms et al., 2005). Luthans et al. (2007) emphasized that certain capacities, such as optimism and hope, can be developed. Boyatzis et al. (2012) showed that relationships with resonant leaders lead to mutual positive emotions, create subjective feelings of synchrony between one another, and activate the parasympathetic nervous system, which is associated with physiological effects such as rest and good digestion.

Conversely, relationships with dissonant leaders are characterized by negative emotions, disagreement, and the activation of the sympathetic nervous system, which can lead to physiological effects such as fight or flight responses.

EI plays a key role in effective leadership (Kerr et al., 2006; Ashkanasy & Tse, 2000; Boal & Hooijberg, 2000; George, 2000). In this regard, George (2000) emphasized that effectiveness can occur at all organizational levels. Anand and Udayasuriyan (2010) and Blattner and Bacigalupo (2007) further suggest that leaders with high EI are better at resolving conflicts and have greater success in negotiations. In addition, House and Aditya (1997) demonstrated that EI is important for leaders to achieve high-quality and effective social interactions with employees.

Leaders' EI also impacts a group's interaction and performance in the context of emotional contagion. Barsade (2000) argued that leaders' EI is in a process with followers' work and performance outcomes, in which affects contribute. From the perspective of interaction and communication, Riggio and Reichard (2008) found that leaders' emotional and social skills are related to the processes and outcomes of leadership, and further argued that the mediation of emotions plays a central role in social interactions, especially in charismatic leadership.

Empathy and the ability to regulate emotions are of great importance for leaders to develop and communicate their vision and to build an emotional bond with their followers (Humphrey et al., 2004). Cognitive and not emotionally reactive processes are essential for the regulation of emotions. Cole et al. (2004) assumed that emotions are first experienced and then regulated. Locke (2005) argued that emotions can be reprogrammed or altered by cognitive thinking, which is not determined by neurological structures. Nevertheless, he acknowledged that there may also be a possible neurological basis for emotions. Phelps (2006) demonstrated that there is an interconnection between the mechanisms of emotion and cognition that occurs mainly in the amygdala: The amygdala responds to emotions by modulating neural systems and determines cognitive and social behavioral responses.

Psychological aspects

Characteristics associated with a leader's role impact followers' receptivity to the leader's expressions and the strength of the leader's emotion transfer. Connelly et al. (2002) asserted that due to the leader's unique role in the group, the transfer of the leader's emotions is particularly strong to the followers. Additionally, Snodgrass (1985) stated that employees with lower hierarchical status are more aware of their supervisor's emotions. According to Fischer and Manstead (2008), cultural factors at the national and organizational levels also play a role, depending on whether the prevailing power distribution can be qualified as either authoritarian or egalitarian.

Followers' receptivity also influences how they absorb emotions from leaders. For example, Johnson (2008) showed that the greater the followers' receptivity, the greater the leader's positive influence on the employees' positive affect. In contrast, the leader's negative affect had a more significant impact on reducing the employees' positive affect when their receptivity was at a higher level.

Goleman et al. (2013) and Padilla et al. (2007) showed that followers are more susceptible to a

leader's influence in times of crisis, because the need for solidarity grows in unstable situations; consequently, in such situations the group's susceptibility to the leader's appeals increases.

During crises, the desire for leadership and direction emerges, which is why followers become more receptive to the expressed emotions of the leader (Van Knippenberg & Hogg, 2003). Madera and Smith (2009) showed that the emotional contagion of leaders to followers in crises had an impact on how followers judged the leader's intentions.

Furthermore, there is a connection between a leader's personality, the leadership style, and the followers' expression or perception of their emotions. Rubin et al. (2005) found that leaders chose their leadership style based on their personality and that this style was shaped by their ability and tendency to influence followers' emotions.

Bono and Judge (2004) found that extroverted leaders tended to express positive emotions, while Judge et al. (2002) found that a charismatic leadership style was more likely to be chosen when personality traits such as agreeableness were present. Crant and Bateman (2000) argued that proactive leaders are perceived as charismatic by followers. Studies (Sy et al., 2013; Ilies et al., 2013) have indicated that the increased capacity for emotional expressiveness leads to an increased perception of a leader's idealized influence.

Furthermore, Taylor (2012) showed that followers associate leaders with the personality trait neuroticism with a perception of abusive surveillance, and Kant et al. (2013) found that the leader trait anger was associated by followers with perceptions of petty tyranny through the leader.

Eagly et al. (2003) found that gender also influenced leadership style, especially when the leader's expression of emotions was of particular importance. Women pursued a stronger transformational leadership style than men, which may be due to their increased empathy and their willingness to express and share emotions to achieve a particular outcome.

Affects influence followers' organizational citizenship behaviors (OCB) and evoke inferences about the leaders' leadership style. OCB refers to the voluntary willingness to go above and beyond the follower's actual role requirements without compensation through the formal reward system (Ryan, 2001; Graham, 1995; Solomon, 1992). Koning & Van Kleef (2015) found that a leader's expression of anger, which was perceived as inappropriate by followers based on their prior performance, decreased OCB.

In addition, affect influences reciprocity and thus also influences OCB, as these are interrelated (Deckop et al., 2003). Lawler et al. (2000) and Lawler and Thye (1999) both showed that frequent social exchanges promoted positive emotions and reduced uncertainty, which in turn promoted commitment to exchange relationships.

Social exchange relationships between the employee and the organization or the leader appear to be the causal base for OCB (Eisenberger et al., 2001; Masterson et al., 2000; Wayne et al., 1997; Settoon et al., 1996). Accordingly, favorable treatment by the organization or by the leader is reciprocated by the employee through OCB.

The favorable leader treatment described by Wayne et al. (1997), which represented supportive leadership behavior, as well as the extent to which supervisors exhibited trust, responsibility, and influence to their followers.

Table 2: The Elements of Emotional Contagion and the Leader-Follower Relationship

Modalities of Expression	Neurological Aspects	Psychological Aspects
Joy leads to increased creative performance	Optimism, hope, and confidence	Anger perceived as inappropriate by followers

Enthusiasm or joy motivates employees more and increases performance.	Relationships between leader and followers	Frequent social exchanges promote positive emotions and reduce uncertainty
Positive affect is associated with better leaders and a transformational leadership style Positive emotions show a higher activation potential Regulation of emotional expressions contributes authenticity and trust	Empathy and the ability to regulate emotions	Favorable treatment by the organization is reciprocated Supportive leadership behavior

Discussion

Emotions are contagious at both the dyad and group levels (Barsade, 2002; Hatfield et al., 1993) and in both, the energy of how something is expressed contributes to the extent of contagion (Shaw et al., 2016; Barsade, 2002). However, the choice of how to express emotions appears to have a different social influence between dyads and groups. The emotional impact on observers is qualitatively comparable across all modes of expression as long as the choice is appropriate and effective for the situation (Van Kleef & Côté, 2022). However, in groups, emotions are primarily perceived by other group members through nonverbal signals rather than words (Mehrabian, 1972).

These findings on expressiveness might also be explained by the feature of constant orientation to the group as well as collective evaluation in the transfer of emotions in groups. Such social-affective information between group members (Parkinson, 1996) serves, among other things, to reflect on the well-being of the group (Knight, 2013; Hess et al., 2000; Frijda, 1988), to aid the collective evaluation of events (Hess and Kirouac, 2000), and to help the group to survive (for example, fearful facial expressions as a warning of impending danger) (Levenson, 1996).

In both dyads and groups, several moderators impact the transfer of emotions, for example, personality traits such as the extent of individuals' susceptibility contribute to the transfer process of emotions (Johnson, 2008; Omdahl & O'Donnell, 1999; Doherty, 1997; Gump & Kulik, 1997). The moderators to mood convergence in groups, however, appear to be more diverse, because group-related variables also contribute to the contagion process that is not found at the dyad level, or at least not to the same extent. For instance, Bartel and Saavedra (2000) showed that norms of mood regulation in the group or stability of group membership play a role in mood convergence.

Based on this, we can derive the hypothesis that the transfer process of emotions is more complex in groups than in dyads. Furthermore, interpersonal factors are essential in both the transfer of emotions in groups and the transfer of emotions in dyads: For example, the extent of power impacts the transfer of emotions (Staples & Webster, 2008; 2008; Yang & Mossholder, 2004; Hsee et al., 1990). Additionally, the emotional bond (Hess & Blairy, 2001), trust (Omdahl & O'Donnell, 1999), the interdependence of relationships (Staples & Webster, 2008; Yang & Mossholder, 2004), and how well the individuals know each other (Hess & Blairy, 2001) are important for emotion transfer in dyads.

Emotions are also transferred from leaders to followers (Halverson, 2004; Cherulnik et al., 2001; Lewis, 2000; Sy et al., 2005) and from followers to leaders (Tee et al., 2013). Both in the theoretical evidence (Lewis, 2000; Wang et al., 2018) and in the findings (Tracy et al., 2013; Tiedens, 2001; Knutson, 1996) of this article, we show that inferences are made about the person expressing emotions. However, we find that specific emotions are interpreted

differently. While Tiedens (2001) and Tracy et al. (2013) found that strong emotions such as anger increase the perception of dominance, Lewis (2000) indicates that anger leads to a decrease in the leader's perceived effectiveness. This implies that the interpretation of emotions of the expressing person is not based merely on inferences, but other contextual factors are involved.

Our findings confirm that expressions can be used to make inferences about oneself (Heerdink et al., 2013, 2015; Van Kleef et al., 2009) and about the intentions of the expressing person (Madera & Smith, 2009; Van Dijk et al., 2008; Sinaceur & Tiedens, 2006; Van Kleef et al., 2004). However, it can also be assumed that the context has an influence in each case. This is apparent from the fact that the inferences drawn from the displayed emotions of a leader were at the same time strongly related to the existing context.

Furthermore, it has been established that some neurological processes can be controlled by cognition (e.g., Decety & Svetlova, 2012; Walter, 2012; Locke, 2005; Preston & de Waal, 2002), while others are subject to unconscious processes (e.g., Boyatzis et al., 2012; Decety & Lamm, 2006; Preston & de Waal, 2002; Hatfield et al., 1994). The processing of emotions activates different areas in the brain (Dixon et al., 2017; Shamay-Tsoory, 2009; Harrison et al., 2006; Hatfield et al., 1993; Panksepp, 1986; Papez, 1937), and different brain structures predict different personality traits (e.g., DeYoung et al., 2010; Omura et al., 2005; Rauch et al., 2005). However, deCharms et al. (2005) emphasized that the brain's receptivity is changeable and can develop.

Furthermore, Humphrey et al. (2008) emphasized the importance of empathy and the regulation of emotions for various activities of leaders. According to Cole et al. (2004), emotions are first felt and then regulated, which according to Locke (2005) entails that emotions can be reprogrammed or altered by cognitive thinking. Thus, cognitive rather than emotional processes are essential for regulating emotions.

In the case of emotional contagion, an individual's role and the characteristics and circumstances associated with that role also impact emotional contagion: Connelly et al. (2002) found that the strength of emotional contagion of leaders' emotions to followers was stronger because of their specific role, and this is consistent with Hatfield's (1994, 1992) findings that higher emotional contagion occurs when there is greater attention.

Likewise, the findings of Snodgrass (1985) that employees with lower hierarchical status are more aware of their supervisor's emotions align with the findings of Van Kleef et al. (2008) that partners in a weaker position of power adopt the emotional expressions of their partner more strongly than vice versa.

These aspects can only arise in connection with a regular exchange. At the same time, frequent social exchanges promote positive emotions, which can lead to a promotion to the commitment of relationships (Lawler et al., 2000; Lawler & Thye, 1999). Social exchange relationships between the employee and the organization or the leader are the causal base for OCB (Eisenberger et al., 2001; Masterson et al., 2000; Wayne et al., 1997; Settoon et al., 1996). Also, Deckop et al. (2003) found that OCB and reciprocity are interrelated.

These findings are also consistent with research by Hawkins (2014), who showed that higher levels of consciousness are associated with greater power, which comes from within and can be measured based on different energy levels of muscles. This means the level of consciousness determines what we see, how we react, and how we feel.

Giving trust to employees is associated with increased OCB (Eisenberger et al., 2001; Masterson et al., 2000; Wayne et al., 1997; Settoon et al., 1996), which most likely creates more space for leaders to focus on their tasks. Also, creating trust (Barsade, 2002) and an emotional bond between people (Hess and Blairy, 2001) increases susceptibility to emotions. Leaders could use this to control the emotional tone of a group and achieve goals (Pescosolido, 2002).

Conclusion

Leaders' emotions impact the emotional contagion between the leader and the follower, the performance of the employees, and the success of an organization. At the same time, employees' emotions have an impact on the leader's performance as well as on his or her emotional state. Thus, there is an interplay between the leader's emotions and those of the followers.

Leaders must understand that emotions are contagious and evoke something in their counterparts both on the individual and group levels. Furthermore, in every situation they should be aware of whether the interaction partner is a group or an individual. On the one hand, this allows the leader to choose the right channel of expression. On the other hand, factors that determine the transfer process of emotion, which varies depending on the interaction partner or group, can be carefully incorporated into the interaction. Especially in the case of groups, the achievement of goals can be enhanced by consideration and management of the emotional tone.

In this context, leaders should regulate their emotions to maintain authenticity and not negatively impact employee trust. Against this background, leaders should ensure that their emotions appear authentic despite this regulation.

Emotional contagion is driven by both unconscious and conscious processes, and relies on the fact that certain personality traits can be changed. This means not only that leaders can improve their own personality traits, but also that the personality traits of their employees can be shaped and changed as soon as they are willing to work on them.

One's own role, the role of others, and associated characteristics must all be considered in interactions since these aspects also influence emotion transfer. In this context, it is also necessary to assess when the presence of a leader in a work context is productive and when it is more counterproductive. In addition, the context in which an interaction occurs must also be considered, as has emerged from the discussion.

This means one should not force anything, but rather find the right balance between effort and relaxed activity. Leaders should promote both situational awareness and self-awareness; these lead to greater power and impact what we see, how we react, and how we feel. Moreover, self-awareness gives power over oneself, how one evaluates a situation, and how one differentiates oneself from others. This can be very helpful to leaders not only in crises, but also in their everyday decisions.

However, because the emotional bond between individuals influences emotional transfer, the support team should be chosen cautiously. Also, when recruiting people to the organization and the inner team, social skills such as EI need to be highlighted.

A possible area for further research could be how peer pressure influences emotional contagion within the group and between leaders and the group. To date there has been little research on the influence of followers' emotions on the leader and how this, in turn, affects overall performance. Also, there is still potential for research on factors that determine a leader's receptivity.

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