



Emotional leader communication in the digital age: An experimental investigation on the role of emoji

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ABSTRACT

The rapid pace of digitalization in the workplace confronts leaders and followers with the demand to get accustomed to digital ways of communication. The prevalent digital media platforms, like e-mail and messenger services, however, are less broad in informational depth, omitting nonverbal cues and usually adopting a more stifled and factual tonality. This constitutes a substantial challenge for leaders, as the transfer of emotions, mostly driven by a message's nonverbal delivery, constitutes one of the key pathways for their effectiveness. Quasi-nonverbal signals, like emoji, could be a means to re-enrich written leader communication with affect. We conducted two experiments to gain insights into the benefits and risks of emoji in leader communication. Our findings reveal the potential of positive emoji to enhance followers' ascriptions of desirable leader attributes, approval of the leader, and their other-regarding behaviour, however only in certain organisational contexts. Conversely, negative emoji substantially undermined the leader's standing, leading to various undesirable outcomes. Our findings thus allow for inferences on how followers will likely react to specific quasi-nonverbal displays and provide leaders with recommendations for adapting their affective signalling to elicit desired responses.

1. Introduction

In the current era characterized by global pandemics, climate change, and rapidly advancing globalization and digitalization, markets and economies are even more characterized by the volatility, uncertainty, complexity, and ambiguity that coined its moniker of a VUCA world (Baran & Woznyj, 2021; Bennett & Lemoine, 2014). A demographic that faces particular affordances in this context is economic, political, and social leaders, as they are at the forefront when it comes to coping with crisis situations, having to provide direction for internal and external stakeholders in order to successfully navigate their organisation through the plethora of hindrances put in their way (Cortellazzo, Bruni, & Zampieri, 2019). The most crucial tool for leaders to lead effectively is their communication, which is at the core of leadership research (e.g., Banks, Woznyj, & Mansfield, 2021; Liu, Chambers, & Moore, 2023). However, most of the current research on the role of leader communication for their emergence and effectiveness is limited to leader speeches (e.g., Jacquart & Antonakis, 2015; König, Mammen, Luger, Fehn, & Enders, 2018; Meslec, Curseu, Fodor, & Kenda, 2020), a form of leader-follower-communication that is becoming less prevalent in

modern times as digital leadership, decentralized organisations, and remote work are on the rise.

Based on a screening we conducted from February to April 2020, in the early phase of the COVID-19 pandemic, 315 leaders (33.3 % female, 66.7 % male; $M_{age} = 37.41$, $SD = 11.74$, range: 19 to 66) from Liechtenstein, Austria, Germany, and Switzerland indicated that, on average, 19.2 % of their communication with their team proceeded via e-mail and 10.1 % via instant messengers (e.g., WhatsApp or Slack), resulting in a total of 29.3 % digital written communication in their typical workday. This distribution remained largely consistent in an English-speaking sample consisting of 319 leaders from the US, China, and India (40.4 % female, 59.6 % male; $M_{age} = 40.24$, $SD = 11.47$, range: 16 to 69), with an average of 21.6 % e-mail and 9.1 % instant messenger, and thus a total of 30.7 % digital written communication. According to these findings, digital written communication accounts for nearly one-third of everyday leader-follower communication in our sample. This presents an auspicious opportunity for leaders to signal their leadership qualities and increase their followers' motivation and performance. Furthermore, these screenings reflect a time at the cusp of the COVID-19 crisis coming into full swing and forcing organisations

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around the world to switch to remote work, which likely resulted in written communication becoming even more prevalent in the following months.

Yet, research on leaders' digital written communication is scarce (but see [Fest, Kvaløy, Nieken, & Schöttner, 2021](#); [Nieken, 2022](#)). Previous findings on the potential benefits of employing emotion-laden, values-based and symbolic, i.e., charismatic, signals as a means to convey leadership capabilities (see [Antonakis, Bastardoz, Jacquart, & Shamir, 2016](#), p. 304) might not be replicable in this context, since it presents unique affordances to communicators. Incorporating emotions into digital written communication poses a particularly formidable challenge for several reasons. Firstly, written communication lacks a pathway to transfer nonverbal expressions ([Daft & Lengel, 1986](#)), the main mode of conveying emotions ([Purvanova & Bono, 2009](#)). Secondly, e-mail communication, in particular, is often expected to possess a more factual and sober tone. An emotion-laden language may therefore lead to adverse effects on leader effectiveness and approval if deemed inappropriate (e.g., [Glikson, Cheshin, & van Kleef, 2018](#)). Yet, digital communication also presents a remedy for the lack of a nonverbal channel. It allows leaders to substitute these absent signals through quasi-nonverbal cues, such as emoji depicting facial expressions and gestures ([Bai, Dan, Mu, & Yang, 2019](#); [Lo, 2008](#)), and thus to re-enrich their communication with affect. Consequently, emoji might be a valuable tool providing leaders with an alternative pathway to efficiently signal their emotions.

However, their suitability as a substitute for real affective displays is still ambiguous, especially within an organisational environment (Glikson et al., 2018; Riordan & Glikson, 2020). We therefore conducted two pre-registered experimental investigations on the role of emoji in leader communication, assessing followers' emotional, cognitive, and behavioural reactions to those affective displays. In both studies, we varied the emotional valence of the employed emoji and in Study 2 we additionally manipulated the context they were employed in (see Fig. 1). Herein, our goal was to provide leaders with suggestions based on causal evidence on how best to employ emoji so as not to jeopardise their status and effectiveness but instead grant them favourable attributions.

1.1. Emotional leader communication

1.1.1. Charisma and affect

Affect shapes our social interactions and attitudes and alters our motivation, cognition, and behaviour, particularly in the organisational

context (for a review, see [Elfenbein, 2023](#)). The field of leadership science examines how leaders effectively influence others (e.g., [Bass, 1985](#)). This necessitates an understanding of the precise mechanisms through which emotions are transferred and exert their widespread effects ([van Knippenberg & van Kleef, 2016](#)). The significance of affect in leadership is further highlighted by the signalling approach to charisma, a recent definition of charismatic leadership that overcomes the previous significant limitations of this concept as described by [van Knippenberg and Sitkin \(2013\)](#). This definition indicates *emotion-laden* leader signalling as one of the pillars of charismatic leadership (see [Antonakis et al., 2016](#), p. 304). Some of the extensive and robust findings supporting this approach include firstly that leaders who tend to experience positive emotions are more likely to emerge and be perceived as effective, stimulate higher group performance and exhibit more transformational leadership behaviours ([Joseph, Dhanani, Shen, McHugh, & McCord, 2015](#)). Secondly, verbal and nonverbal affective displays by leaders promote congruent affective reactions in followers, which entails the implication of emotional contagion taking place between a leader and their followers (e.g., [Awamleh & Gardner, 1999](#); [Bono & Ilies, 2006](#); [Erez, Misangyi, Johnson, LePine, & Halverson, 2008](#)). Thirdly, transferring emotions high in arousal to followers increases their motivational willingness to act ([Gable & Harmon-Jones, 2010](#)), which can have an immediate impact on their performance ([Koning & van Kleef, 2015](#)). Effective leaders are expected to be more apt at transmitting their own positive affectivity, i.e., their enthusiasm towards their organisations' vision, onto their followers ([Bono & Ilies, 2006](#)). This, in turn, heightens followers' mood and results in increased leader effectiveness and attraction. Ultimately, making followers emotionally involved in the organisation's goals is a key skill that makes charismatic leaders so outstandingly effective ([Holladay & Coombs, 1993](#); [House, 1977](#)). By doing so, leaders can increase their followers' affective commitment and their willingness to cooperate with others towards attaining shared goals ([Antonakis et al., 2016](#); [Bass, 1985](#); [Grabo, Spisak, & van Vugt, 2017](#); [Grabo & van Vugt, 2016](#); [Walter & Bruch, 2009](#)). Overall, a transferral of positive affect results in various desirable cognitive, attitudinal, and behavioural follower reactions ([Barsade, Coutifaris, & Pillemer, 2018](#)) and increases employee job satisfaction ([Judge & Kammeyer-Mueller, 2008](#)). All of these findings highlight the crucial significance of investigations on leaders' affectivity. Nonetheless, they also demonstrate that simply expressing experienced emotions is insufficient for leaders to become more effective. This is because emotional leader communication is fundamentally dependent on mutual interactions between leaders and

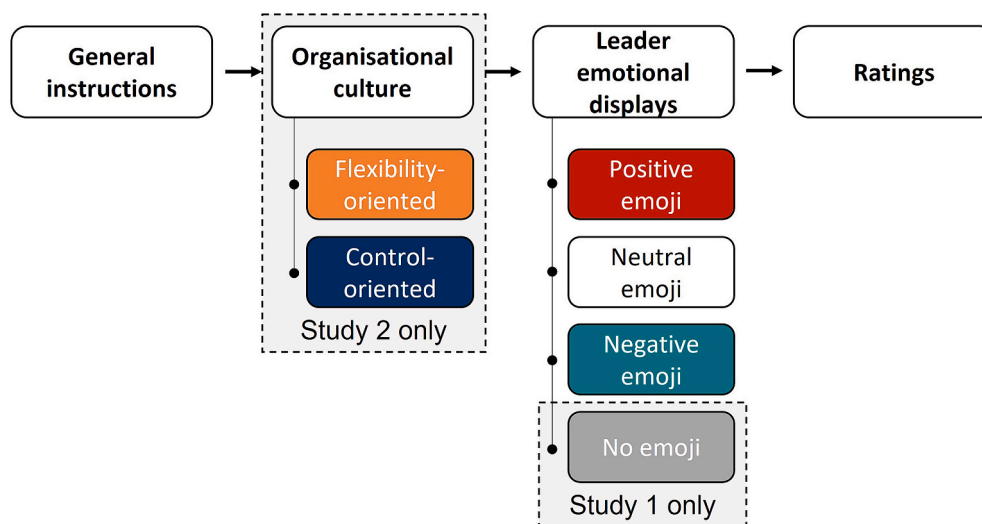


Fig. 1. Research design for our two experiments. Participants initially received general instructions and provided informed consent. They then received a randomly selected stimulus text depicting a certain organisational culture (Study 2 only) followed by an equally randomly selected e-mail from their imaginary leader, encompassing positive, neutral, negative, or no emoji (Study 1 only). Participants concluded the study by providing ratings of the leader and their message.

followers, and we should therefore always take both sides into account (Sy, Horton, & Riggio, 2018).

1.1.2. Digital displays of affect

To achieve a transfer of emotions, leaders must frame and deliver their communication's content in an emotive manner. This can be accomplished, for example, by showing happy or disappointed facial expressions and using an excited or calm tone of voice. Yet, things get significantly more complicated when the nonverbal delivery channel is obstructed. For instance, when communication commences on a less information-rich medium (Lengel & Daft, 1957), such as e-mail or chat messaging (Goldenberg & Gross, 2020), that only transfer verbal expressions. Some possible verbal communication techniques that entail varying degrees of affectivity are speech imagery or image-based words (Emrich, Brower, Feldman, & Garland, 2001; Naidoo & Lord, 2008), as well as metaphors and storytelling (Antonakis, Fenley, & Liechti, 2011). Unlike many nonverbal emotional expressions that arise involuntarily from the leader's emotional experience, such emotional-verbal communication techniques must be carefully crafted. However, in e-mail and chat communication, efficiency is often a priority. Composing intricate rhetorical masterpieces contradicts the typical approach to this type of communication. This prompts the search for efficient ways to augment digital written leader communication with emotional rhetoric in a way that is worthwhile and has sufficient merit. Furthermore, even if verbal affective displays are included in e-mails, these emotions, though recognizable (Cheshin, Rafaeli, & Bos, 2011), often get misattributed (Byron, 2008). Yet, digital or *computer-mediated* written communication already provides a unique solution to reinstate emotions (Bai et al., 2019; Rice & Love, 1987): Quasi-nonverbal behaviours (Lo, 2008), such as emoticons (e.g., “:)”), emoji (e.g., 😊 or 🤔), or GIFs (short, animated, and silent sequences of images) may be able to re-enrich our communication with affective displays. Emoji were specifically designed to depict a plenitude of facial expressions and gestures that could otherwise not be portrayed and thus present a promising substitute for the “real thing” (Erle, Schmid, Goslar, & Martin, 2021; Kaye, Wall, & Malone, 2016, 2017, 2021). They can validly depict the senders' mood (Kaye & Schweiger, 2023), shift the perceived meaning of verbal communication, add valence to an otherwise neutral text, and facilitate the processing and interpretation of ambiguous emotions and information (Pfeifer, Armstrong, & Lai, 2022). Emoji further provide an opportunity to forge an emotional bond between sender and receiver, bringing back warmth to the otherwise cold digital communication climate (Boutet, LeBlanc, Chamberland, & Collin, 2021). Most importantly, emoji appear to mimic facial expressions in the way they are processed on a cognitive and emotional level, and evoke similar reactions (Erle et al., 2021). This further supports emoji's equivalence with nonverbal affective displays.

1.1.3. The appropriateness of emoji for workplace communication

The use of these innovative forms of nonverbal communication for representing emotions, however, remains a contentious issue (Bai et al., 2019; Kaye, Malone, & Wall, 2017). While emoji can be perceived as vessels of emotional valence (e.g., Coyle & Carmichael, 2019; Jones, Wurm, Norville, & Mullins, 2020) and reflect positively back on the sender (e.g., Aretz & Mierke, 2019; Kaye et al., 2021), such effects appear to be highly context-dependent. Especially in formal workplace communication, emoji might result in impressions of low competence and not benefit perceptions of warmth (Glikson et al., 2018). In the context of leadership, one study found that both emoji and emoticons employed by a male leader decreased ascriptions of assertiveness but increased ascriptions of warmth irrespective of the receivers' gender (Aretz & Mierke, 2019). However, another study on the impact of leaders employing non-face emoji found likeability and effectiveness ratings to increase in the eyes of male receivers, while women found them less suitable (Riordan & Glikson, 2020). This study further

indicated that organisational culture, specifically the communication climate being formal or informal, might alleviate or exacerbate negative consequences of emoji use amongst leaders.

So, while at first glance, emoji might appear to be substitutes for nonverbal affective displays, they entail some caveats that need to be considered before employing them. Emoji are a systematic and planned expression of affect (Riordan, 2017a; Walther & D'Addario, 2001) that can entail ambiguous meanings (Jaeger & Ares, 2017; Jaeger, Roigard, Jin, Vidal, & Ares, 2019; Weissman, 2019). Their use therefore does not always fulfil the same functions as their real-world counterparts would (e.g., Feldman, Aragon, Chen, & Kroll, 2017; Kaye et al., 2017; Tossell et al., 2012; Walther & D'Addario, 2001). This becomes a particularly non-negligible issue in the context of leader-follower communication. Leaders need to know in which circumstances they would be well- or ill-advised to employ different types of quasi-nonverbal behaviours in. We aimed to elucidate this matter by conducting two studies that investigate the influence of leaders' use of emoji in e-mail communication on receivers' attributions, cognitive inferences, emotional contagion, approval of the leader, and other-regarding behaviours. To extend the existing literature and previous findings regarding different outcomes depending on the emotional valence of leader emotions, we differentiated between positive and negative affective displays and compared them to neutral non-face emoji and a message without quasi-nonverbal cues. We applied a new perspective to derive our hypotheses and interpret our findings by referring to three central theories: The signalling approach to charisma (Antonakis et al., 2016; Grabo et al., 2017), the emotion as social information model (EASI; van Kleef, 2009), and implicit theories of leadership emotions (Sy & van Knippenberg, 2021). These allowed us to take both the sender and receivers of a message into account, and to relate changes in leader communication causally to inferences of underlying characteristics.

1.2. Hypotheses development

1.2.1. Processing of emoji

The signalling approach to charisma posits, that leaders communicate certain characteristics using observable behaviours that others perceive and utilize to judge their aptitude for a leadership position, i.e., their charisma (Antonakis et al., 2016). As we focus on the emotional dimension of charismatic signalling, the EASI model lends itself as a framework for analysing reactions towards affective displays. This model posits that emotions are inherently social and always processed to differing degrees on both an emotional and cognitive pathway by their receivers (van Kleef, 2009). The former leads to an emotional contagion between sender and receiver, while the latter stimulates cognitive inferences about the senders' intent. Ultimately, both pathways shape the receivers' behavioural reactions toward these affective displays (van Kleef, 2009; van Knippenberg and van Kleef, 2016). Herein, previous studies have shown emoji to function similarly to real-world affective displays (Boutet et al., 2021; Erle et al., 2021; Riordan, 2017a; Rodrigues, Lopes, Prada, Thompson, & Garrido, 2017), though they appear to emphasize the emotional contagion path (Erle et al., 2021). We, therefore, focus on the emotional contagion pathway, while analysing cognitive inferences in a more exploratory manner. Thus, we expect individuals observing emoji in leader communication to experience congruent emotions (van Knippenberg & van Kleef, 2016).

Hypothesis 1. Positive and negative quasi-nonverbal leader communication elicits a congruent emotional response in participants.

1.2.2. Emoji as signals for charisma

This brings us to the benefits of leaders achieving emotional contagion. The core task of leaders is to influence their followers in order to increase their motivation and encourage their collaboration in the pursuit of shared goals (van Knippenberg, 2012; Walter & Bruch, 2009; Yukl & Van Fleet, 1992). This process relies largely on leaders' ability to

influence their followers' evaluations of themselves (van Knippenberg & van Kleef, 2016). Experiencing emotions, even indirectly through one's leader (Bono & Ilies, 2006; Walter & Bruch, 2009), is one of the main factors that shape attributions and behaviours (Barsade, 2002; Barsade & Gibson, 2007). Leaders displaying positive affect were, in fact, shown to be perceived as more charismatic (Awamleh & Gardner, 1999; Bono & Ilies, 2006; Damen, van Knippenberg, & van Knippenberg, 2008). This substantiates the role of emotional expressivity being one of the three pillars of charismatic leader signalling (Antonakis et al., 2016). Charismatic signalling fundamentally informs followers on the characteristics and motivations of their leaders, ultimately leading to a generalized ascription of positive attributes like authenticity, effectiveness, likeability, and persuasiveness (Grabo et al., 2017; Maran, Liegl, Moder, Kraus, & Furtner, 2021; Maran, Furtner, Liegl, Kraus, & Sachse, 2019; Reh, van Quaquebeke, & Giessner, 2017; Tskhay, Zhu, & Rule, 2017). These attributes are aggregated to a so-called leader index (Grabo et al., 2017) which informs followers whether they should approve of the leader (e.g., Antonakis et al., 2016; Gerpott, Lehmann-Willenbrock, Silvis, & van Vugt, 2018). We expect this process of emotional expressivity leading to ascriptions of charisma, desirable leader attributes, and, ultimately, increased approval to hold true for positive quasi-nonverbal affective displays.

Hypothesis 2. Positive compared to neutral and no emoji will increase participants' attributions of charisma and desirable attributes to, as well as approval of, the leader.

While the effects of emotional expressivity are not exclusive to positive affective displays, negative affect should only be able to elicit similar outcomes when perceived as appropriate, which we will discuss in greater detail below.

1.2.3. *Emoji as a tool to stimulate other-regarding behaviour*

Followers who approve of their leader more strongly identify with them, their goals, and the organisation, thus strengthening their willingness to support and cooperate with others in order to achieve these goals (Antonakis et al., 2016; Grabo et al., 2017). Additionally, positive affect, especially when coming from a leader, appears to stimulate other-regarding behaviour including prosocial behaviour and cooperation (Krumhuber et al., 2007; van Knippenberg and van Kleef, 2016). Emoji appear to possess a similarly affiliative function as actual affective displays, being able to build and strengthen the personal relationship between the sender and the receiver (Boutet et al., 2021; Erle et al., 2021). Therefore, we expect the utilization of positive emoji to posit communication on a more personal level and leading to an alignment of identities (Shamir, House, & Arthur, 1993). This should increase receivers' empathic concern towards the leader (Erle et al., 2021), stimulate a greater willingness to cooperate, and promote prosocial behaviour (Grabo and van Vugt, 2016).

Hypothesis 3. Positive compared to neutral and no emoji will increase participants' empathic concern, willingness to cooperate, and prosocial behaviour.

1.2.4. *Adverse effects of utilizing emoji*

The positive effects of emotional expressivity should technically not be limited to positive affect alone (Lindebaum & Jordan, 2014). Negative affect can also lead to desired outcomes like extra effort and creativity, but only when certain conditions are met: When it is deemed appropriate (Koning & van Kleef, 2015; van Knippenberg & van Kleef, 2016), when directed at the leader themselves rather than the follower (Silard & Dasborough, 2021), or when displayed in conjunction with positive affect. The latter tactic however walks a thin line between the positive effects of emotional complexity (Stollberger, Guillaume, & Knippenberg, 2023) and the negative effects of ambivalence (Lim, Tai, & Kouchaki, 2021). Overall, the effectiveness of negative affect seems to be mostly reliant on the cognitive inference pathway (van Knippenberg

& van Kleef, 2016), which appears to be less heavily involved in the processing of emoji (Erle et al., 2021). Furthermore, for our investigation, we employed standardized stimulus material depicting a consistent emotional valence directed at the reader, which was not based on an appropriate evaluation of actual performance. Therefore, we expect leaders to only benefit from employing positive emoji, while they will be perceived more negatively when employing negative ones and consequently will not stimulate empathy, cooperativeness, and prosocial behaviour.

Hypothesis 4. Negative compared to neutral and no emoji will decrease participants' attributions of charisma and desirable attributes to, as well as approval of, the leader.

Hypothesis 5. Negative compared to neutral and no emoji will decrease participants' empathic concern, willingness to cooperate, and prosocial behaviour.

The effectiveness of leadership is highly reliant on followers' expectations on how a leader should act based on their implicit schemas of prototypical leaders (Eden & Leviatan, 1975). Yet, they also have implicit theories of leadership emotions, which modulate how they perceive affective leader displays (Sy & van Knippenberg, 2021). Should a leader's emotional expressions contradict these expectations, the benefits of displaying and transferring affect might be substantially reduced. Studies found a multitude of positive attributions associated with leaders who engage in charismatic signalling during face-to-face communication (e.g., Grabo & van Vugt, 2016; Maran, Furtner, Liegl, et al., 2019, 2021; Tskhay et al., 2017). However, e-mail communication presents a context with unique expectations and affordances where leaders' use of emoji may be perceived as inappropriate and elicit detrimental effects (Aretz & Mierke, 2019; Riordan & Glikson, 2020). Based on this potential mismatch between the receiver's implicit picture of how a leader is supposed to exhibit emotions and the observed affective signalling, we expect leaders to be viewed as less prototypical for their role and to receive lower ratings in regard to their appropriateness, competence, and dominance when employing emoji. The latter attributes, while still mostly desirable for a leader to have (e.g., Anderson & Kilduff, 2009), present a more traditional view of leaders. We therefore expect them to particularly suffer from a deviation from expectations.

Hypothesis 6. Emoji use, regardless of its valence, will decrease participants' ascriptions of prototypical leader attributes (appropriateness, dominance, competence, and leader prototypicality).

1.2.5. *The context-dependence of emoji*

The EASI model also emphasizes the moderating role of contextual variables like media richness and followers' need for structure (van Knippenberg & van Kleef, 2016). To investigate emotional processing, we therefore expanded upon previous research by comparing affective displays of varying valence and by further including the role of organisational culture, as conceptualized by the competing values framework (Cameron & Quinn, 2011). In particular, we anticipated that innovative and flexible organisational cultures, such as an adhocracy, would offset the potentially adverse or dampening effects of using emoji in e-mail communication. Such organisations are often characterized by a less formal communication style (Riordan & Glikson, 2020) and the more prevalent use of organisational communication platforms such as Slack or Microsoft Teams. As these platforms strongly encourage emoji usage, it is not uncommon for leaders to communicate using emoji within such an organisational culture. Previous research has shown the high context dependence of both charismatic signals and cues in general (e.g., Ernst et al., 2022; Grabo et al., 2017; Maran et al., 2021), affective displays (e.g., Diener, Thapa, & Tay, 2020; Koning & van Kleef, 2015; van Knippenberg & van Kleef, 2016), and emoji in particular (e.g., Glikson et al., 2018; Riordan & Glikson, 2020), supporting this claim. Therefore, we expect that the positive effects of positive affective displays, as well as the negative effects of negative ones are stronger within a

flexibility-oriented culture compared to a more formal control-oriented and hierarchical culture. We expect no differences in ratings of prototypical leader attributes, as our second study will focus on differences between the three emoji conditions rather than comparing them to plain text.

Hypothesis 7. The effects of the messages' valence on participants' attributions of charisma and desirable attributes to and approval of the leader will be more pronounced within the flexibility-oriented as opposed to the control-oriented culture setting.

Hypothesis 8. The effects of the messages' valence on participants' empathic concern, willingness to cooperate, and prosocial behaviour will be more pronounced within the flexibility-oriented as opposed to the control-oriented culture setting.

To investigate these hypotheses, we conducted two pre-registered¹ between-subject post-test experiments (see Fig. 1). The first study assessed leader impressions based on a standardized e-mail with four different conditions: plain text, text with positive or negative facial expression emoji, or text with neutral emoji depicting inanimate objects. This initial study allowed us to examine hypotheses 1–6. To expand on its discoveries, we conducted a second experiment, encompassing a context modulation that framed a particular organisational culture (either being flexibility- or control-oriented) the respective e-mail was written in, along with the three different emoji conditions of Study 1. Thus, we were able to investigate hypotheses 7 and 8 and gain a greater understanding of the interactions between emotional valence and contextual factors.

2. Study 1

The aim of this experiment was to investigate how a leader's use of positive and negative emotional quasi-nonverbal cues (i.e., emoji) affects receivers' affect, attributions, and willingness to cooperate when compared to either using emoji of neutral valence or refraining from emoji use. At the beginning of the experiment, participants received instructions to immerse themselves into a leader-follower scenario (following the guidelines presented by Lonati, Quiroga, Zehnder, and Antonakis (2018) and similar research procedures detailed in Maran et al., 2021). Next, we randomly allocated them to rate one of four e-mails framed as being written by their leader. Following the stimulus presentation, participants reported their cognitive, emotional, and behavioural responses to the message (see Measures). In addition, we collected sociodemographic data.

Participants were recruited via the authors' and study assistants' personal networks and received no monetary compensation for participating. The research was conducted utilizing online questionnaires.

2.1. Methods and design

2.1.1. Sample

We acquired a sample of 112 adults² but had to exclude one participant due to them providing evidently incorrect answers (e.g., having more than 40 years of leadership experience while only being 20 years old). This left us with a final sample of 111 participants (52 female, 58 male, 1 diverse; $M_{\text{age}} = 27.71$, $SD = 10.56$, range 18–62), the majority being employed (63.1 %), mostly in the education (18.0 %), health (7.2 %), technology or finance sector (6.3 % each). 36.9 % reported to possess previous leadership experience of at least one year (median: 3–5

years) and 29.7 % were currently engaged in a management role.

Participants were equally allocated to either of the four conditions. However, the exclusion of one participant resulted in the negative stimulus text receiving one less rating. For a breakdown of demographics across conditions, see the *Supplementary Information* (Table S1).

2.1.2. Measures

Emotional contagion. Participants' emotional response to the stimulus texts was assessed by means of their emotional contagion (Erle et al., 2021), on a 10-point Likert-scale ranging from 1 = very negative to 10 = very positive to indicate their own affect. Additionally, we collected affect ratings on the affect grid (Russell, Weiss, & Mendelsohn, 1989), which allows for a simultaneous assessment of emotional arousal and valence on a 9×9 matrix, pre- and post-stimulus presentation. For statistical analyses, we referred to the difference in rated valence and arousal between the two points of measurement.

Cognitive inferences. To assess participants' tendency to utilize the cognitive inference pathway, we collected ratings of the perceived emotional intensity, and valence of the message, as well as the ease of grasping the senders' emotional state (Erle et al., 2021), each on a 10-point Likert-scale. In addition, we collected ratings of the perceived age (numeric) and gender (female, male, neutral, diverse) of the leader for further exploratory analyses (Glikson et al., 2018).

Leader's charisma. The perceived charismatic influence and affability of the leader were assessed using the General Charisma Inventory (GCI; Tskhay, Zhu, Zou, & Rule, 2018). This questionnaire was designed to measure an individual's everyday charisma beyond the mere leadership context and thus provides a suitable measure for immediate charisma ascriptions. Both dimensions of charisma were assessed by three items on a 5-point Likert-scale (1 = strongly disagree; 5 = strongly agree). McDonald's omega reliability (Hayes & Coutts, 2020) was at $\omega = 0.72$ for charismatic influence and $\omega = 0.84$ for affability.

Desirable and prototypical leader attributes. As further outcomes of the variations in leader communication, we measured multiple attributes desirable to a leader, concretely appropriateness (three items; $\omega = 0.86$), likeability (three items; $\omega = 0.91$) and effectiveness (four items; $\omega = 0.92$) of the leader (based on Riordan & Glikson, 2020, adapted from Johnson, Murphy, Zewdie, & Reichard, 2008). Additionally, we assessed participants' first impressions in regard to the desirable attributes of leaders' authenticity and persuasiveness, as well as the prototypical attributes of dominance, and competence (e.g., Antonakis et al., 2011; Glikson et al., 2018; Oosterhof & Todorov, 2008). The former three scales were rated on a 7-point (1 = not at all; 7 = very), the first impressions on a 9-point Likert-scale (1 = strongly disagree; 9 = strongly agree). As the final measure of prototypical leader attributes, we employed a measure of perceived leader prototypicality (Cronshaw & Lord, 1987; adapted by Antonakis et al., 2011), to capture whether the leader sending the e-mail appeared representative of their role. This measure contains three items ($\omega = 0.81$), each being rated on a 9-point Likert-scale (1 = strongly disagree; 9 = strongly agree).

Leader approval. We assessed whether participants would approve of the sender of the e-mail as their own leader with a dichotomous (yes/no) question (Maran et al., 2021).

Other-regarding behaviour. Participants indicated their empathic concern on a scale from 1 = very cold to 10 = very warm regarding their feelings towards the leader (Erle et al., 2021). Their willingness to cooperate was assessed by employing the Stag Hunt paradigm (Grabo & van Vugt, 2016; Skyrms, 2004). Participants indicated on a dichotomous item whether they would individually hunt a rabbit (=0) or rather cooperate with other participants of this study to hunt a more valuable stag (=1).

2.1.3. Stimulus material

We presented participants with one of four e-mails, each containing the same text and only being varied for emotional quasi-nonverbal

¹ Pre-registrations and datasets for both studies are available on the Open Science Framework (OSF): <https://osf.io/k9ubn/>

² A power analysis using G*Power (version 3.1.9.7) indicated a sample of $N = 112$ as sufficient for detecting strong effects ($f = 0.40$; Glikson et al., 2018) at a power of .95 and an alpha error probability of .05.

displays (i.e., positive, negative, neutral, or no emoji; see *Supplementary Information*). In the former three conditions, each e-mail contained four emoji depicting either positive or negative facial expressions, or neutral objects; the fourth condition contained no emoji. Beyond comparing the use of positive and negative emoji to the absence of such quasi-nonverbal behaviours, we included neutral emoji as an active control condition. This was based on findings indicating that non-face emoji can transfer affect as well (Riordan, 2017b) and the potential of perceptions of inappropriateness stemming from the mere presence of emoji in an e-mail. The e-mail was written by an active leader based on instructions of them having to provide feedback on a project to one of their employees. They were instructed to include both praise and critique. We only edited the e-mail by slightly shortening it and inserting emoji at fitting positions within the text. As a manipulation check, the chosen positive and negative face emoji (as the database does not contain non-face emoji) were evaluated regarding their emotional valence and arousal based on the Lisbon Emoji and Emoticon Database (LEED; Rodrigues, Prada, Gaspar, Garrido, & Lopes, 2018). Based on the ratings collected in this database the mean valence rating for the four positive emoji was at $M = 6.14$, while the negative emoji were rated at an average of $M = 2.92$ on a scale ranging from 1 = very negative to 7 = very positive. Mean arousal ratings were similar for both types of emoji (positive: $M = 4.87$; negative: $M = 5.19$).

To counteract potential biasing effects of the leader's demographics, they were given a gender-neutral name ("Robin"), and no further information regarding their gender (Glikson et al., 2018) or age (van Vugt & Grabo, 2015) was provided.

2.2. Results and discussion

2.2.1. Data analyses

To test our hypotheses, we computed multivariate four-factorial between-subject analyses of covariance (MANCOVA) for each set of outcomes (see *Measures*) that met the prerequisites for this type of analysis. In the case of significant results of the MANCOVA, we specified the effects by computing corresponding univariate analyses of covariance (ANCOVAs) and, again depending on their significance, we followed up with pairwise comparisons. To account for these multiple comparisons and counteract alpha error accumulation, we utilized a Bonferroni-correction on the ANCOVAs and for pairwise comparisons. Participants' gender (as two dummy coded variables) and age were included as covariates in all analyses. Test statistics for the MANCOVAs are based on Pillai's Trace, reported as V . All reported p -values are two-tailed. Data analyses were conducted in IBM SPSS Statistics (version 29). For an overview on all MANCOVAs and ANOVAs, see *Supplementary Information, Table S2*. The results of pairwise comparisons based on significant main effects are summarized in *Table 1*. We report

exploratory analyses on perceived age and gender in the *Supplementary Information*.

2.2.2. Hypothesis testing

Emotional contagion. Beginning with the EASI model, the emotional contagion pathway was affected by the experimental variation ($V = 0.18$, $F_{9,312} = 2.15$, $p = .025$, $\eta^2_p = 0.06$). On the one hand, participants reported feeling more negatively inclined when reading messages containing negative emoji, as opposed to those featuring positive emoji ($F_{3,104} = 4.76$, $p_{\text{Bonf}} = .011$, $\eta^2_p = 0.12$; see *Fig. 2A* and *Table 1*). On the other hand, neither changes in participants' emotional valence nor arousal as indicated on our secondary emotion measure, the affect grid, differed across conditions.

Cognitive inferences. Participants' cognitive inferences about the message's emotional valence and intensity, as well as the sender's emotional state, varied across our four experimental conditions ($V = 0.21$, $F_{9,312} = 2.61$, $p = .006$, $\eta^2_p = 0.07$). This was mainly attributable to perceived valence ($F_{3,104} = 7.06$, $p_{\text{Bonf}} < .001$, $\eta^2_p = 0.17$). The message containing negative emoji was perceived substantially less positive than the message containing positive emoji, indicating our experimental manipulation has indeed been successful. However, while the control and neutral conditions received ratings lying between the negative and positive conditions, these differences did not reach significance. The experimental variation of the e-mails further did not substantially affect ratings of emotional intensity or facilitate the assessment of the sender's emotional state.

Charisma. The four conditions overall affected participants' attributions of charisma to the leader ($V = 0.26$, $F_{6,208} = 5.17$, $p < .001$, $\eta^2_p = 0.13$). Ratings of charismatic influence varied across conditions ($F_{3,104} = 6.94$, $p_{\text{Bonf}} < .001$, $\eta^2_p = 0.17$; see *Fig. 2B*), with the leader sending negative emoji receiving lower ratings than when using no, neutral, or positive emoji. The latter three, however, were rated in a similar manner (all p_{Bonf} 's = 1.000). For the affability dimension ratings of the e-mail containing negative emoji differed from the control and positive, but not the neutral e-mail, which, however, was rated substantially lower in charisma than the positive one ($F_{3,104} = 7.57$, $p_{\text{Bonf}} < .001$, $\eta^2_p = 0.18$; see *Fig. 2C*).

Desirable leader attributes. Impressions of these attributes were overall affected by the experimental variation ($V = 0.31$, $F_{12,309} = 2.99$, $p < .001$, $\eta^2_p = 0.10$). This was attributable, firstly, to substantial differences in perceived leader effectiveness ($F_{3,104} = 7.60$, $p_{\text{Bonf}} < .001$, $\eta^2_p = 0.18$; see *Fig. 2D*), and secondly, persuasiveness ($F_{3,104} = 7.50$, $p_{\text{Bonf}} < .001$, $\eta^2_p = 0.18$; see *Fig. 2F*). For both attributes, the negative valence received lower ratings than the control, neutral, and positive condition. Thirdly, negative emoji led to lower ratings of likeability, compared to the neutral and positive valence conditions ($F_{3,104} = 7.08$, $p_{\text{Bonf}} < .001$, $\eta^2_p = 0.17$; see *Fig. 2E*). Authenticity ratings did not differ across conditions.

Table 1

Mean differences and Bonferroni-adjusted significance for pairwise comparisons between the experimental conditions in Study 1. We only report comparisons for significant main effects.

	Negative vs Control	Negative vs Neutral	Negative vs Positive	Control vs Neutral	Control vs Positive	Neutral vs Positive
Emotional contagion	-1.07	-0.70	-1.57**	0.37	-0.50	-0.88
Perceived valence	-1.13	-1.24	-2.10***	-0.11	-0.98	-0.87
Charisma influence	-0.76**	-0.75**	-0.89***	0.01	-0.14	-0.14
Charisma affability	-0.70*	-0.47	-1.20***	0.23	-0.50	-0.74*
Persuasiveness	-2.39***	-1.65*	-1.81**	0.75	0.58	-0.17
Effectiveness	-1.37**	-1.32**	-1.47***	0.05	-0.10	-0.16
Likeability	-0.95	-1.21**	-1.63***	-0.26	-0.68	-0.42
Appropriateness	-1.97***	-1.92***	-1.18*	0.06	0.79	0.73
Prototypicality	-2.06***	-2.13***	-1.33*	-0.06	0.73	0.80
Competence	-2.46***	-2.23***	-1.02***	0.23	0.54	0.31
Leader approval	-0.49***	-0.57***	-0.46**	-0.08	0.03	0.11
Empathic concern	-1.46*	-1.36	-2.09***	0.10	-0.63	-0.73
Cooperativeness	-0.15	-0.27	-0.35*	-0.12	-0.20	-0.08

Note. Mean differences are based on estimated marginal means accounting for the influence of participants' age and gender.

* $p < .05$, ** $p < .01$, *** $p < .001$.

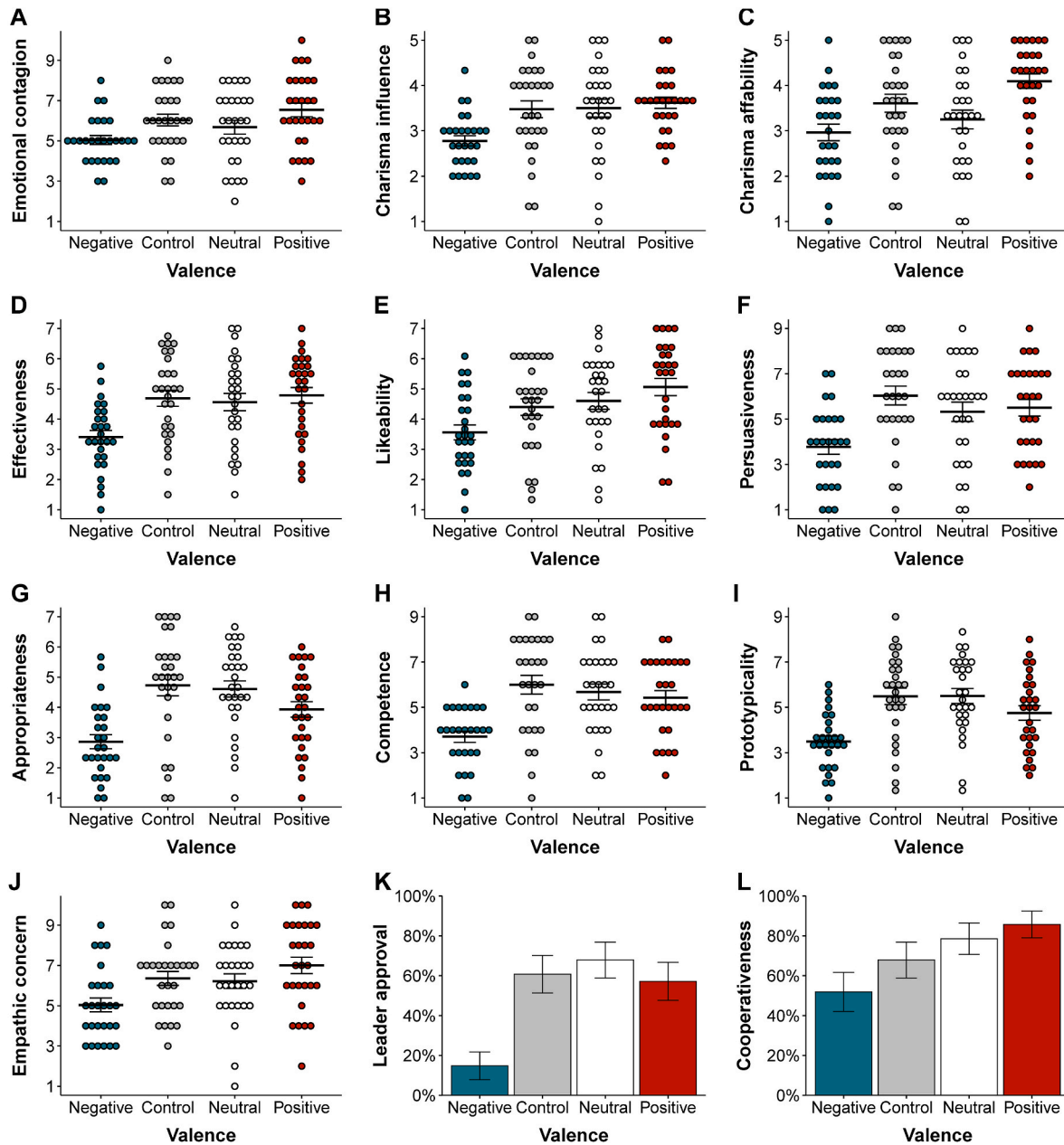


Fig. 2. Visualization of the significant main effects in Study 1. The diagrams display the distributions of participants' responses across the four emoji valence conditions. Error bars denote the standard error of the mean. $N = 111$.

Prototypical leader attributes. When it comes to the attributes we expected to be lowered by the utilization of all types of emoji, we also found the experimental variation to take effect ($V = 0.37$, $F_{12,309} = 3.62$, $p < .001$, $\eta_p^2 = 0.12$). ANCOVAs indicated that appropriateness ($F_{3,104} = 11.48$, $p_{\text{Bonf}} < .001$, $\eta_p^2 = 0.25$; see Fig. 2G), competence ($F_{3,104} = 12.58$, $p_{\text{Bonf}} < .001$, $\eta_p^2 = 0.27$; see Fig. 2H), and prototypicality ratings ($F_{3,104} = 9.56$, $p_{\text{Bonf}} < .001$, $\eta_p^2 = 0.22$; see Fig. 2I) were indeed perceived differently across conditions. Pairwise comparisons revealed consistent patterns across the three variables, with the e-mail containing negative emoji receiving lower ratings than the control, neutral, and positive e-mail. Positive emoji also appeared to stimulate slightly lower ratings compared to the control and neutral condition, but not to a significant degree, and neutral emoji did not change perceived appropriateness when compared to the control condition. Dominance ratings were not affected by the experimental variations. Overall, prototypical leader attributes therefore mainly seem to be affected by the presence of negative emoji, not emoji in general.

Leader approval. Negative emoji led to a lower approval compared to all other conditions ($F_{3,104} = 8.93$, $p_{\text{Bonf}} < .001$, $\eta_p^2 = 0.21$; see Fig. 2K).

Other-regarding behaviour. Using negative emoji resulted in less concern compared to using no or positive emoji ($F_{3,104} = 6.14$, $p < .001$, $\eta_p^2 = 0.15$; see Fig. 2J).

While participants' willingness to cooperate increased in a roughly linear manner across conditions ($F_{3,104} = 3.33$, $p = .022$, $\eta_p^2 = 0.09$; see Fig. 2L), cooperativeness rates only differed significantly between the negative and positive emoji condition. An exploratory linear contrast analysis, however, indicated a linear increase of cooperativeness from the negative, over the control and neutral, to the positive emoji condition ($F_{1,107} = 8.85$, $p = .004$, $d = 0.44$).

2.2.3. Discussion

Our analyses revealed intriguing insights into the impact of emoji usage within messages. Participants perceived messages enriched by negative emoji as possessing a more negative valence compared to those

incorporating positive emoji. This result substantiates the efficacy of our affect manipulation. However, participants' inferences about the sender's emotional state remained largely unaffected by the emoji's valence. This finding might be attributable to the coexistence of elements of both praise and critique within the e-mail. Despite this ambivalence in the verbal content, emoji shaped how recipients perceived the overall tonality of the message. More importantly, negative emoji transferred negative affectivity. However, this was only indicated by the single-item measure of emotional contagion (Erle et al., 2021) and not by changes in affect measured before and after reading the e-mail on the affect grid (Russell et al., 1989). This discrepancy might be due to the standardized nature of the employed scenario, which potentially lacked the requisite personal relevance necessary to induce more substantial changes in affect. Notably, some participants also reported difficulty in self-assessing their affectivity using the complex matrix set-up in the study debriefing, suggesting that this measure might not have been the most suitable means of accurately tracking changes in affect. Overall, the observations therefore only partially confirm Hypothesis 1.

In terms of participants' perceptions of the leader, we observed similar patterns for the ascriptions of charisma, desirable leader attributes, and approval. Positive emoji did not substantially increase ratings compared to the utilization of neutral (except for charisma affinity ratings) and no emoji, providing only partial support for Hypothesis 2. However, all these ratings, except for authenticity, were notably lower in the negative compared to the positive emoji condition and, in most cases, all three other conditions, thus confirming Hypothesis 4. Rather surprisingly, only negative emoji impeded ratings of appropriateness, leader prototypicality, and competence. While positive emoji did not shed a more positive light on the leader, they neither appeared to be detrimental. This was even more so the case for neutral emoji, which did not differentially affect leader impressions compared to the plain text. Therefore, Hypothesis 6 could not be confirmed.

Ultimately, the extent of emotional contagion, as it leads to attributions of charisma, desirable leadership traits, and approval is expected to determine how strongly individuals regard others in their goal pursuit, and this, in turn, indicates whether the leadership influence process was successful. Empathic concern was again substantially dampened by utilizing negative emoji, but not increased by positive ones. For participants' willingness to cooperate we only detected substantial differences between the conditions showing negative and positive emoji. Yet, there seemed to be a linear trend in the level of cooperativeness across conditions, which indicates that more substantial differences between conditions might be observable in larger samples. Hypotheses 3 and 5 were, therefore, partially confirmed.

Lastly, exploratory analyses on the potential effects of emoji usage on perceptions of leader age and gender revealed no differences across conditions (see Supplementary Information). Yet, it should be noted that participants' age acted as a significant covariate in all of our MANCOVAs except the exploratory analysis on perceived age and gender, where participants' own gender played a substantial role (see Supplementary Information, Table S2). In detail, participants' age was related negatively to most ratings of desirable leader attributes, empathic concern, and perceptions of the messages' valence. This suggests that while the receivers' age worsens their judgement of the leader, there doesn't seem to be an association between leaders' emoji utilization and ascriptions of a specific age or gender.

3. Study 2

To expand the findings of our first study to different organisational contexts, we added a second experimental condition, depicting the organisational culture the imaginary leader was operating in as being either flexibility- or control-oriented. To account for this additional complexity and as Study 1 indicated no significant differences in perceptions of leaders employing neutral or no emoji, we focused on

comparing reactions to the three e-mails containing quasi-nonverbal cues, dependent on these two culture modulations. This resulted in an experimental 2 (flexibility-vs control-oriented culture scenario) $\times$ 3 (positive vs negative vs neutral valence) factorial between-subject design (see Fig. 1). After reading both a text depicting a culture scenario and the leader's e-mail, participants again responded to our questionnaires (see Measures).

We recruited participants via study assistants' personal networks, sending out links to our online questionnaire. To encourage participation, we raffled six gift cards among subjects. Chances of winning were not tied to any responses in the questionnaire. As being acquainted with formal leader-follower relationships and variations in organisational culture will facilitate participants to immerse themselves in the presented scenario, we restricted our sample to individuals with previous work experience.

3.1. Methods and design

3.1.1. Sample

In total, 253 individuals participated in our study,³ of which twelve had to be excluded from further data analyses due to failing multiple attention checks, leaving us with a final sample of 241 participants (149 female, 89 male, 3 diverse; $M_{\text{age}} = 33.57$, $SD = 14.54$, range: 18–72). 16.2 % of our sample indicated they were not currently employed, 52.3 % were employed in a non-management role, and 31.5 % were in leadership positions. Overall, 53.1 % declared they had previous leadership experience ranging from one to forty or more years (median: 3–5 years). Most were working in the education and health sector (14.1 % each), followed by technology (10.0 %), sales and retail (8.3 %), production (5.4 %), and tourism (5.0 %). For an overview on participant characteristics across groups, see Supplementary Information (Table S3). All participants provided informed consent.

3.1.2. Measures

We employed the same measures of emotional contagion, cognitive inferences, leader's charisma (influence: $\omega = 0.75$, affinity: $\omega = 0.83$), appropriateness ($\omega = 0.87$), likeability ($\omega = 0.90$), effectiveness ($\omega = 0.91$), first impressions of desirable and prototypical leader attributes, prototypicality ($\omega = 0.75$), leader approval, empathic concern, and cooperativeness as indicated in Study 1. For this study, we additionally assessed a wider variety of desirable leader attributes using the first impression methodology described in Study 1, including the leader's ability to inspire and their enthusiasm as indicators of a successful transmission of positive affect and arousal (Antonakis et al., 2011; Bono & Ilies, 2006; Damen et al., 2008), trustworthiness as a component of social cognition and predictor for leadership perceptions (e.g., Fanelli, Misangyi, & Tosi, 2009; Grabo & van Vugt, 2016), and credibility as an important outcome of successful costly leader signalling (Grabo et al., 2017) and antecedent of effective leadership (Williams, Raffo, & Clark, 2018).

To assess participants' prosocial behaviour in reaction to the leader communication, we employed a simulated trust game (Berg, Dickhaut, & McCabe, 1995) in which participants firstly filled the role of the Trustor, being able to gift up to 10 lottery tickets to another participant of the study, for whom the number of received tickets would be tripled. Secondly, they were instructed to imagine themselves in the role of a Trustee, having received either 1, 5, or 10 tickets from another participant (Grabo & van Vugt, 2016) in a randomized order. Participants then indicated how many tickets they would send back to the Trustor (minimum 0 tickets, maximum thrice the number they received).

³ This sample size is based on a power analysis using G*Power (version 3.1.9.7) indicating a required sample of 251 participants when assuming a medium effect size of $f = 0.25$ for the interaction effect between the culture and the valence variations, a 0.05 alpha error probability and a power of .95.

Lastly, we assessed participants' exposure to emoji communication within their organisation by asking them to indicate the percentage of e-mails they received from their supervisor that contained emoji.

3.1.3. Stimulus material

Prepending one of the three e-mails displaying positive, negative, or neutral emoji we employed in Study 1, participants also received a vignette text describing the culture of the organisation they themselves and the imaginary leader would be part of. These descriptions were based on the competing values framework (Cameron & Quinn, 2011), detailing either a flexibility-oriented dynamic and innovative online retailer or a control-oriented formalised and well-established organisation (based on Maran et al., 2021; see *Supplementary Information*).

3.2. Results and discussion

3.2.1. Data analyses

To further test our hypotheses 1 through 5 and to investigate hypotheses 7 and 8, we followed the same statistical procedures as outlined in Study 1, with the variation of computing 2×3 factorial between-subject MANCOVAs for the two cultural contexts and the three variations in emoji valence, as well as specific Bonferroni-corrected ANCOVAs and pairwise comparisons to ascertain the direction of significant main and interaction effects. Participants' gender and age were again included as covariates in all models. All other statistical procedures and inference criteria remained consistent with Study 1. We report exploratory analyses on the ratings of prototypical leader attributes and perceived age and gender, all MANCOVAs, ANCOVAs, and culture-specific analyses in the *Supplementary Information* (see *Supplementary Analyses* and *Tables S4–S6*). For pairwise comparisons based on the main effects see *Table 2*.

3.2.2. Hypothesis testing

Emotional contagion. The emotional contagion path was affected by both message valence ($V = 0.09$, $F_{6,462} = 3.53$, $p = .002$, $\eta_p^2 = 0.04$) and an interaction effect ($V = 0.06$, $F_{6,462} = 2.54$, $p = .020$, $\eta_p^2 = 0.03$), while culture variations had no impact on their own. Whereas neither of these effects were present for changes in emotional valence and arousal indicated on the affect grid, we found the emoji's valence ($F_{2,232} = 9.71$, $p_{\text{Bonf}} < .001$, $\eta_p^2 = 0.08$), as well as their interaction with the culture variation ($F_{2,232} = 7.51$, $p_{\text{Bonf}} = .002$, $\eta_p^2 = 0.06$) to affect the degree of emotional contagion (see *Fig. 3A*). Overall, negative emoji led to more negative affect in participants than neutral and positive ones (see *Table 2*). However, this effect was only actually present in the control-oriented setting ($F_{2,118} = 18.20$, $p < .001$, $\eta_p^2 = 0.24$), with negative emoji being associated with a substantial transfer of negative affect compared to neutral and positive emoji. Analyses indicated no transfer

Table 2

Mean differences and Bonferroni-adjusted significance for pairwise comparisons between the experimental conditions in Study 2. We only report comparisons for significant main effects.

	Negative vs Neutral	Negative vs Positive	Neutral vs Positive
Emotional contagion	−0.93***	−0.97***	−0.03
Perceived valence	−0.85**	−1.17***	−0.32
Charisma affinity	−0.24	−0.43*	−0.18
Likeability	−0.44	−0.83***	−0.40
Ability to inspire	−1.16**	−1.52***	−0.36
Trustworthiness	−0.79*	−1.06***	−0.27
Appropriateness	−0.93***	−0.81**	0.12
Leader approval	−0.15	−0.28***	−0.13
Empathic concern	−0.68	−1.23***	−0.54

Note. Mean differences are based on estimated marginal means accounting for the influence of participants' age and gender.

* $p < .05$, ** $p < .01$, *** $p < .001$.

of affect in the flexibility-oriented culture.

Cognitive inferences. When it comes to the cognitive inference pathway, the MANCOVA again revealed a main effect for valence ($V = 0.11$, $F_{6,462} = 4.62$, $p < .001$, $\eta_p^2 = 0.06$), as well as an interaction between valence and culture ($V = 0.09$, $F_{6,462} = 3.45$, $p = .002$, $\eta_p^2 = 0.04$). As in Study 1, the main effect is solely attributable to differences in perceived emotional valence ($F_{2,232} = 11.72$, $p_{\text{Bonf}} < .001$, $\eta_p^2 = 0.09$), while the emotional intensity and the ease of interpreting the emotional state of the sender did not vary across conditions. The message was perceived more negatively in the negative than in the neutral or positive emoji condition. The interaction effect was also only present for perceived valence ($F_{2,232} = 9.70$, $p_{\text{Bonf}} < .001$, $\eta_p^2 = 0.08$). Following the pattern of previous interaction effects, valence was only perceived differently within the control-oriented context ($F_{2,118} = 22.17$, $p < .001$, $\eta_p^2 = 0.27$). In this setting, negative emoji were perceived as more negative than neutral and positive emoji, while positive emoji were also perceived as more positive than neutral ones, indicating a successful manipulation of affect (see *Fig. 3B*).

Charisma. Overall, multivariate analyses solely indicated a main effect for emoji valence on charisma ascription ($V = 0.05$, $F_{4,464} = 2.99$, $p = .019$, $\eta_p^2 = 0.03$). This main effect was only present for the affinity dimension of charisma ($F_{2,232} = 3.92$, $p_{\text{Bonf}} = .042$, $\eta_p^2 = 0.03$; see *Fig. 3B*). Specifically, the leader was rated lower in charismatic affinity in the negative as compared to the positive emoji condition.

Desirable leader attributes. The emoji's valence affected attributions of desirable leader attributes ($V = 0.18$, $F_{16,452} = 2.75$, $p < .001$, $\eta_p^2 = 0.09$), and while the cultural context on its own did not affect impression formation, the interaction of both experimental factors did ($V = 0.12$, $F_{16,452} = 1.84$, $p = .025$, $\eta_p^2 = 0.06$).

Univariate analyses on persuasiveness, effectiveness, authenticity, and credibility ratings revealed no effects. Yet, we found the main effect to be present for trustworthiness ($F_{2,232} = 7.25$, $p_{\text{Bonf}} = .007$, $\eta_p^2 = 0.06$; see *Fig. 3C*) and ability to inspire ($F_{2,232} = 11.09$, $p_{\text{Bonf}} < .001$, $\eta_p^2 = 0.09$; see *Fig. 3D*) with ratings being substantially lower in reaction to negative as compared to either neutral or positive emoji. However, neither of these ascriptions was shaped by an interaction effect.

Leader's likeability was shaped by both valence ($F_{2,232} = 9.06$, $p_{\text{Bonf}} = .001$, $\eta_p^2 = 0.07$; see *Fig. 3E*) and the interaction of valence and culture ($F_{2,232} = 7.26$, $p_{\text{Bonf}} = .007$, $\eta_p^2 = 0.06$; see *Fig. 3C*). The attribute was overall rated lower in response to negative emoji compared to positive ones. When comparing both cultural settings, ratings only differed in the control-oriented context ($F_{2,118} = 17.85$, $p < .001$, $\eta_p^2 = 0.23$), with ratings being lower in the negative as compared to the neutral and positive condition, and the latter even receiving higher ratings than the neutral one. Ratings in the flexibility-oriented context remained consistent irrespective of valence.

Lastly, ratings of enthusiasm were solely affected by the interaction effect ($F_{2,232} = 8.08$, $p_{\text{Bonf}} = .003$, $\eta_p^2 = 0.07$; see *Fig. 3D*). The leader was rated consistently in enthusiasm when providing the information that they operate within a flexibility-oriented culture. Yet, when describing them to operate in a control-oriented setting, they were perceived as more enthusiastic when using positive as compared to neutral or negative emoji ($F_{2,118} = 13.05$, $p < .001$, $\eta_p^2 = 0.18$).

Leader approval. While not being affected by culture, leader approval was shaped by both emoji valence ($F_{2,232} = 6.70$, $p = .001$, $\eta_p^2 = 0.06$) and the interaction of both factors ($F_{2,232} = 3.94$, $p = .021$, $\eta_p^2 = 0.03$; see *Fig. 3G*). The leader was approved more often in the positive compared to the negative valence condition. As for the previous interaction effects, this main effect was only present in the control-oriented culture setting ($F_{2,118} = 11.50$, $p < .001$, $\eta_p^2 = 0.16$), with the leader employing positive emoji receiving higher approval than both when employing neutral or negative ones.

Other-regarding behaviour. Empathic concern towards the leader was affected by the valence of the employed emoji ($F_{2,232} = 8.64$, $p < .001$, $\eta_p^2 = 0.07$; see *Fig. 3J*), and by the combined factors ($F_{2,232} = 7.51$, $p = .039$, $\eta_p^2 = 0.03$; see *Fig. 3F*). It was overall reported to be substantially

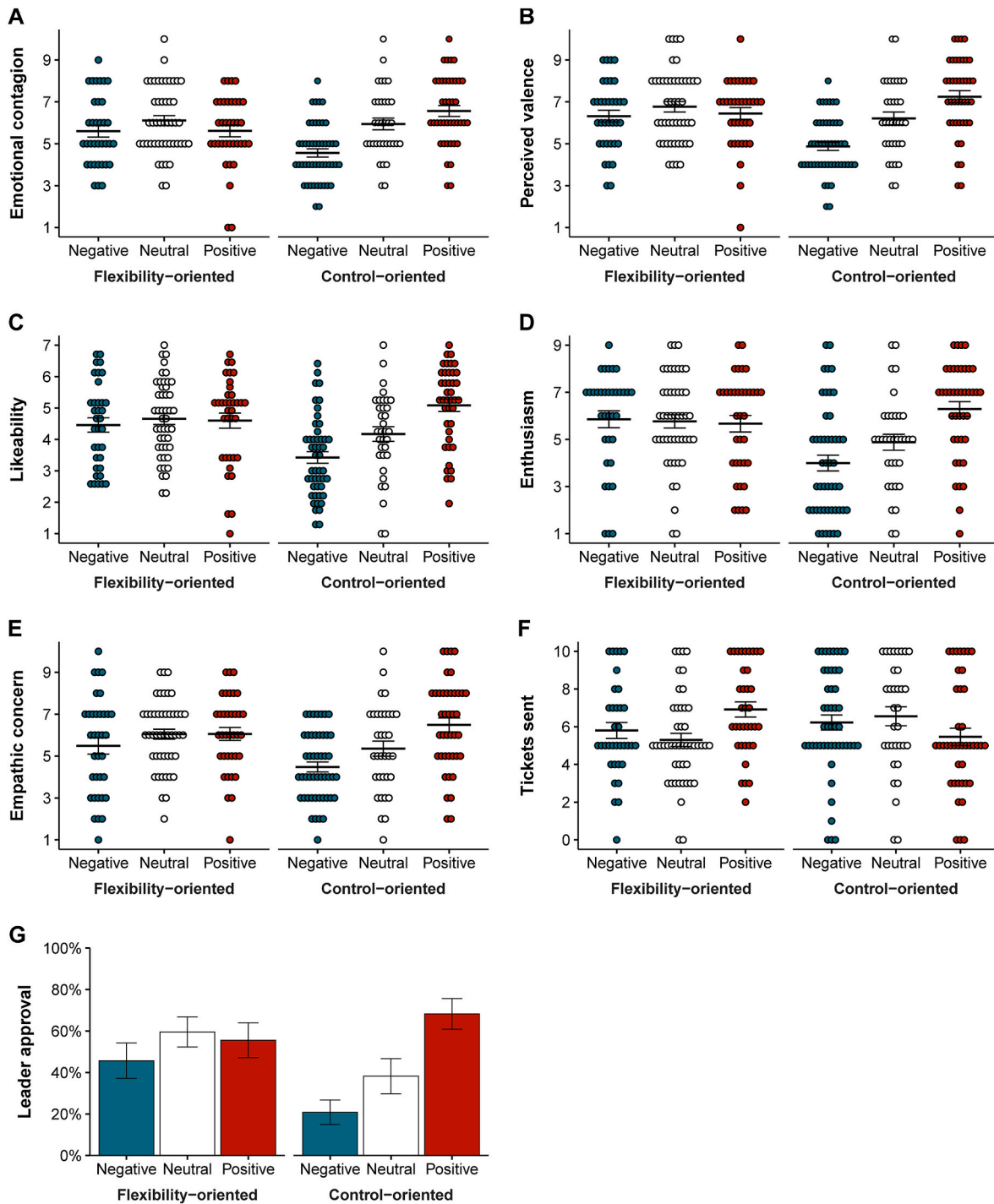


Fig. 3. Visualization of the significant interaction effects in Study 2. The diagrams display the distributions of participants' responses across the two culture and three valence conditions. Error bars denote the standard error of the mean. $N = 241$.

lower after being exposed to negative as compared to positive emoji. When computing separate analyses for both organisational culture settings, we found this effect to only be present for the control-oriented context ($F_{2,118} = 12.44, p < .001, \eta_p^2 = 0.17$). In this condition, participants reported greater warmth towards the leader in response to positive, compared to neutral or negative emoji.

Participants' willingness to cooperate in the stag hunt paradigm did not differ between participants. Yet, when in the Trustor's role, variations in valence and culture interacted to predict the number of tickets sent ($F_{2,232} = 5.65, p = .004, \eta_p^2 = 0.05$; see Fig. 3F). In the flexibility-oriented culture, emoji valence shaped trust ($F_{2,112} = 4.72, p = .011$,

$\eta_p^2 = 0.08$), with participants' sending more tickets in the positive as compared to the neutral condition. The number of tickets sent did not differ in the control-oriented culture.

Lastly, participants' prosocial behaviour, as indicated by the number of tickets they sent back, was not affected by our experimental variations.

3.2.3. Discussion

Participants were again able to process the emoji's valence congruently with the intended valence, further validating our stimulus material. More importantly, the depicted emotions were transferred to

receivers, thus further supporting [Hypothesis 1](#).

Regarding higher attributions of charisma, desirable leader attributes, approval, and other-regarding behaviour as a consequence of positive emoji, our results only partly replicated those from Study 1. They only supported [Hypothesis 2](#) and our expectations for empathic concern in the control-oriented culture setting and overall did not support hypotheses 3 and 5. The firm positioning of the leader communication within either a flexibility- or a control-oriented organisational context appears to have fundamentally influenced the participants' impressions of the leader beyond the utilization of emoji and the particular context. The likeability of the leader, along with the added desirable leader attributes of trustworthiness and their ability to inspire, however, were shaped by the valence of the employed emoji as expected, thus providing partial support for [Hypothesis 4](#). Enthusiasm only followed the predicted pattern in the control-oriented context.

No differences were expected in terms of prototypical leader qualities based on emotional valence for this study, as all conditions included emoji. Despite this, the negative emoji significantly decreased the perceived appropriateness of the leader's communication, again potentially explaining the particularly negative reactions towards negative emoji (see *Supplementary Information*).

We found significant interactions for multiple of our dependent variables which showed a similar and intriguing pattern. Irrespective of the e-mail's valence, ratings in the flexibility-oriented context showed little variation, while those in the control-oriented setting steadily increased from the negative to the neutral and then to the positive emoji condition. These findings contradict our expectation that emoji would play an even greater role in shaping receivers' reactions within flexibility-oriented contexts, thus rejecting [Hypothesis 7](#). Rather, it appears that emoji act as a more salient marker of leader affect in the control-oriented culture, which might be attributable to them being a rather uncommon occurrence within this context, and therefore a more relevant cue for receivers' impression formation. Although [Hypothesis 8](#) similarly could not be confirmed, the interaction of emotional valence and cultural context led to variations in the number of tickets initially given to other participants within the trust game. Participants sent out more tickets in response to positive as compared to neutral emoji, thus indicating differences in trust across the conditions. For a more in-depth discussion of these effects, see the *General Discussion*.

As a final note, participants' age again consistently led to less positive perceptions of the leader throughout the study (see *Supplementary Information, Table S4*), indicating a leader using emoji to be less well received by older recipients. Consistent with Study 1, the variations in valence did neither affect perceptions of the leaders' age nor gender, yet expectantly so, as all conditions in this study included emoji. Interestingly, although the leader was more frequently perceived as being male overall, a leader who uses emoji was more often perceived as female in the control-oriented culture compared to the flexibility-oriented culture (see *Supplementary Information*). Conversely, perceptions of the leader being male were more prevalent in the flexibility-oriented culture. This suggests that some context-dependent stereotypes might be present regarding the relationship between emoji usage and leader gender.

4. General Discussion

Across two pre-registered between-subject experiments, we examined the impact of positive, negative, and neutral emoji utilized in digital leader communication on various dimensions of receivers' cognitive and emotional responses. These dimensions encompass emotional contagion, cognitive inferences, attributions of charisma, as well as evaluations related to desirable and prototypical leader characteristics, leader approval, empathic concern, prosocial behaviour, and willingness to cooperate. Thereby, we aimed to provide a comprehensive understanding of the multifaceted outcomes resulting from quasi-nonverbal leader affective displays, spanning emotional, cognitive, and behavioural levels. In the first study, we conducted a comparative

analysis of reactions elicited by emoji with varying valence in contrast to a control condition that excluded emoji usage. Subsequently, the second study contextualized the use of emoji by leaders within the framework of a flexibility- or control-oriented organisational culture.

4.1. On the role of emotional valence

Overall, our findings aligned with our anticipations regarding the emotional contagion quality of affective emoji, as well as the detrimental effects of negative emoji. The former finding further endorses the role of *emoji as social information* ([Erle et al., 2021](#)) and reproduces the effect within the context of leader-follower interactions. In this context, leaders' negative affective displays frequently invoke unfavourable responses from their followers (e.g., [van Knippenberg & van Kleef, 2016](#)), particularly when these expressions are directed towards the receiver ([Silard & Dasborough, 2021](#)) and perceived as inappropriate ([Koning & van Kleef, 2015](#)). Our findings underscore the congruence between negative quasi-nonverbal and nonverbal displays of negative affect. Yet, this congruence was not observed for positive emoji, which we expected to offer similar benefits as positive nonverbal displays ([Elfenbein, 2023](#); [van Knippenberg & van Kleef, 2016](#)). Four particular factors may account for this lack of effects concerning positive emoji.

Firstly, negative emotions hold a higher immediate relevance for the receiver, as they typically call for behavioural change ([Erle et al., 2021](#)). Thus, negative emotions can prompt rapid changes in the receiver's attributions, while positive emotions may gradually shape them over time.

Secondly, the spectrum of distinct emotions is more finely delineated for negative emotions in comparison to the more homogeneous nature of positive affect ([Unkelbach, Fiedler, Bayer, Stegmüller, & Danner, 2008](#)). This distinction is even more pronounced when considering emoji ([Pfeifer et al., 2022](#)). Consequently, negative emoji tend to stimulate more intensive cognitive processing ([Pfeifer et al., 2022](#)), which may contribute to a more substantial impact on impression formation. In this regard, it is worth noting that our stimulus set contained two instances of anger and one each of sadness and worry in the negative condition, while all four emoji in the positive condition conveyed happiness.

Thirdly, our studies were scenario-based experiments, and participants had no prior knowledge of the leader they were presented with. Consequently, they might have held an innate neutral or slightly positive baseline view of the leader. This view might have been lessened by the use of negative emoji, as their valence would have been surprising and deviating from expectations. Conversely, the remaining three conditions confirmed the social expectations of an interaction with an unfamiliar individual, thus having no discernible effect on judgments. In fact, social-relational factors between sender and receiver greatly affect the processing of emotions along both the emotional contagion and cognitive inference pathways, as well as subsequent outcomes ([van Kleef, 2009; 2014; van Knippenberg & van Kleef, 2016](#)). Without these factors present, positive affective displays might not fully realize their potential.

Lastly, while positive emoji typically lead to more positive inferences about the sender ([Boutet et al., 2021](#)), the e-mail employed in our study contained both praise and critique of the recipient, making it evaluative in nature. This context fundamentally affects the outcomes of accompanying affective displays. Evaluative negative emotions can elicit particularly negative responses when perceived as inappropriate, yet they could be beneficial if the recipient deems them appropriate ([Koning & van Kleef, 2015; van Knippenberg & van Kleef, 2016](#)). However, the positive emotions depicted in our study were not warranted by any action of the participants and, therefore, might not have elicited particularly positive responses as they would in response to legitimately earned authentic praise. In summary, effective emoji usage, regardless of valence, appears to hinge on the direct targeting of the recipient, the presence of evaluative content, and the appropriateness to elicit the intended reactions ([Koning & van Kleef, 2015; Maran, Furtner, Kraus, Liegl, & Jones, 2019; van Kleef, 2014](#)).

4.2. On the role of organisational culture

The importance of contextual factors in understanding the interplay between organisational culture scenarios and the valence of emoji cannot be overstated. Although our findings may initially appear counterintuitive, their closer examination reveals a surprising rationale. We suggested that within a culture oriented towards flexibility, emoji communication may not be viewed as an uncommon practice. Consequently, the positive effects of such communication should not be limited by perceived inappropriateness or deviations from implicit theories regarding leader emotions (Sy & van Knippenberg, 2021). Nonetheless, it appears that emoji are perceived as so commonplace within this context that they diminish in relevance for the receiver, thereby explaining their attenuated effects on attributions and approval. This observation is consistent with previous findings on the role of leaders' attire (Maran et al., 2021), suggesting that leaders are only perceived as outstanding individuals when exhibiting perceivably outstanding behaviour. However, displaying such behaviour comes at a cost, as individuals risk repercussions when deviating from social norms (Levine, 1989). Engaging in outstanding behaviours anyway leads to either negative consequences or ascriptions of positive attributes, should the deviant be deemed to possess substantial status and acclaimed qualities. This so-called Red Sneakers Effect (Bellezza, Gino, & Keinan, 2014) may elucidate why leaders do not seem to face universal drawbacks from utilizing emoji (aside from negative ones), contrary to previous findings on detrimental effects for employees who do so (Glikson et al., 2018). Leaders actually possess the status necessary to be able to deviate from norms at low risk for repercussions, or even to influence normative shifts based on their own behaviour, especially when it comes to communication norms within their team (e.g., Malhotra, Majchrzak, & Rosen, 2007). And while using emoji can be costly, primarily owing to the time and effort involved in selecting appropriate ones (Riordan, 2017a; 2017b), the cost decreases with increasing familiarity. Further, when ill-fitting emoji only make up a small proportion of the total number of emoji used, it's likely they will just be ignored. Thus, while the flexibility-oriented culture scenario might be a more appropriate context to employ emoji in, it appears to also subvert their costliness and, thus, their informative value for receivers. In contrast, using emoji in a formal work context can be more meaningful to recipients because it is unexpected. This process explains why emoji impact desirable leader attributes and approval rates exclusively within the control-oriented setting. In the flexibility-oriented culture, on the other hand, using emoji presents a conformity with norms and thus increases a sense of belonging and engenders trust, while not affecting impression formation.

In conclusion, although some of our findings did not align with our initial expectations, examining the intricacies of our study design and gathering additional perspectives has provided us with a nuanced understanding of the pivotal role that various intricate contextual factors assume in this area of research. Through a collation of our anticipated and unanticipated findings, we derive implications that hold relevance for both the scholarly domain and practical application.

4.3. Implications for research and practice

Our studies advance the existing body of knowledge on emotional leader communication and charismatic leadership behaviours by combining the signalling approach to charisma (Antonakis et al., 2016; Grabo et al., 2017) with findings and theories on the role of affect in leader-follower relations (e.g., van Knippenberg & van Kleef, 2016) and the function of emoji as carriers of social information (Erle et al., 2021). Additionally, we found emoji to not necessarily be incongruous with followers' implicit theories of leaders' emotional expressions (Sy & van Knippenberg, 2021). In doing so, we introduce the concept of quasi-nonverbal behaviours as a potential signal of charisma and further support their suitability as a substitute for nonverbal affective displays

in digital leader communication.

Furthermore, our work responds to the often-heeded call to conduct experimental studies in leadership research (Lonati et al., 2018; Podsakoff & Podsakoff, 2019) which allowed us to draw causal conclusions, mitigate issues of endogeneity prevalent in this area of research, and further support the feasibility of this approach.

Beyond its scholarly contributions, our findings yield implications for effective leader-employee communication via e-mail or messaging platforms, aimed at boosting cooperation and fostering favourable perceptions and approval of the leader. We provide further insights that enable leaders to anticipate how followers are likely to react to quasi-nonverbal emotional displays of varying valence in a digital workplace and adapt their affective signalling depending on their communication context to ensure it will get processed as intended. Concretely, our studies indicate that leaders should be cautious when employing negative emoji, as such expressions could severely compromise their standing with their followers, should they not be justified. Conversely, while the use of positive emoji generally does not necessarily enhance the leader's image, it is unlikely to be detrimental. Given the right context, positive emoji might even lead to desirable outcomes for the leader. In a more formal, control-oriented and hierarchical context, positive emoji can stimulate more favourable attributions, leader approval, and the transfer of positive affect. In contrast, in flexibility-oriented and start-up-like contexts, emoji appear to have less impact in both the positive and negative direction, indicating them to be a rather safe choice, especially if they are already established as part of everyday communication.

A final incidental finding of our studies was, that receivers' age appears to be a predictor for generally less positive impressions of the sender. While our samples were overall rather young with mean ages between the mid-twenties and early thirties, respectively, and we can't attribute these effects solely to older individuals being less accepting of emoji, we would advise some caution when interacting with an older demographic.

In summary, our study reinforces the notion that emoji can frame messages emotionally (e.g., Boutet et al., 2021; Erle et al., 2021; Garcia, Turcan, Howman, & Filik, 2022; Riordan, 2017a, 2017b) and shift the tone of ambivalent messages, making them appear either more positive or negative. This function serves to reduce message ambiguity, a key role of emoji (e.g., Riordan, 2017a, 2017b; Riordan & Kreuz, 2010; Walther & D'Addario, 2001). As a result, leaders might be well-advised to employ positive emoji when aiming to ensure that their positive and encouraging messages are perceived as such, especially when dealing with a younger audience and operating in control-oriented contexts.

4.4. Limitations and future research directions

These recommendations must, however, be viewed in light of the limitations our investigation faces. Firstly, emotions can be classified by their valence and arousal (Russell, 1980), as well as their target (Silard & Dasborough, 2021). In our research, we focused on reactions to emoji of varying valence while maintaining consistent levels of arousal (at least between the negative and positive emoji conditions) and consistent targets for the affect. Yet, the other two dimensions of affect and the interactions of all three must not be neglected, as they fundamentally shape the perceptions and outcomes of affective displays. Negative affect might result in more benevolent reactions if directed at different targets (Silard & Dasborough, 2021), even more so when it is characterized by high arousal (Tiedens, 2001). Furthermore, attributions of charisma appear to depend not only on emotional contagion but also on the transfer of arousal (Damen et al., 2008). Future research could include variations in emotional arousal, drawing from arousal ratings presented in the Lisbon Emoji and Emoticon Database (Rodrigues et al., 2018), and systematically vary the target of the affect to comprehensively capture the complexity of affective displays.

Secondly, as demonstrated in our second study, context

fundamentally shapes the processing of affective displays. This is a well-documented influencing factor, emphasized by the multiple moderators incorporated in the EASI model (van Kleef, 2009; 2014; van Knippenberg & van Kleef, 2016). Since we deliberately placed our leader's communication in a relatively austere media environment and manipulated the organisational culture the message was framed within, our study operated in a standardized context that ensured internal validity. Nonetheless, this came at the expense of not being able to establish a personal connection between the sender and receiver, resulting in a lower level of personal relevance for the recipient regarding the displayed emotions. Consequently, we were unable to inspect further important moderators, such as sender characteristics, e.g., their age and personality (Cavalheiro, Rodrigues, & Prada, 2023), gender (e.g., Aretz & Mierke, 2019; Jones et al., 2020), and trait affect (e.g., Joseph et al., 2015), as well as social-relational factors between sender and receiver (van Kleef, 2009) and the appropriateness of the affect (Koning & van Kleef, 2015). The latter aspect is an especially important influencing factor, given that in our study, affective displays accompanied an evaluative message unrelated to actual performance.

Relatedly, our studies relied on a convenience sample based on the authors' and study assistants' personal networks. And while these networks were rather diverse in terms of age and sector of employment, they might share unobserved characteristics that could limit the generalizability of our results.

Ultimately, after thorough experimental investigations to eliminate endogenous influencing factors, it becomes necessary to observe leaders' utilization of emoji and their followers' reactions in the field. Only then can emoji be recognized as actually costly signals within established leader-follower relationships.

Thirdly and lastly, apart from these additional predictors and moderators, future research should also explore further outcomes. Our studies focused on the effects of quasi-nonverbal affective displays on factors contributing to leader emergence and simulated indicators of leadership effectiveness. To fully capture the effects of emoji on leader success, future study designs should be extended to encompass objective behavioural outcomes, which allow for more robust insights into the potential effects of emoji usage on job performance. Recent studies have ventured into this territory, assessing creativity-related tasks (Choi, Shim, & Kim, 2023), but numerous other outcomes warrant further investigation. Yet, this stream of research should also not solely focus on beneficial outcomes for leaders or organisations but also consider the impact on followers' job satisfaction and well-being through means of decreasing the psychological distance digital communication introduced in leader-follower interactions.

4.5. Conclusion

Two experimental investigations on the role of emoji as a potential tool to re-enrich written leader communication with affective displays revealed that positive emoji possess the potential to increase ascriptions of desirable leader attributes, heighten leader approval, and promote a greater willingness to cooperate among recipients. These beneficial outcomes appear to be context-dependent and were primarily observed within a more hierarchical and control-oriented cultural setting, possibly because emoji are still an uncommon sight in this context. Importantly, using positive emoji does not appear to engender any adverse consequences for leaders, opposing prior concerning findings on reactions to emoji use in the organisational context. However, negative emoji were detrimental to the leader across both of our studies. Although this effect was lessened in an innovative and flexibility-oriented culture condition, leaders should be cautious when utilizing these depictions of negative valence, especially when targeting them at the receiver.

In a broader context, both positive and negative emoji serve as tools for emotionally framing messages, thereby imbuing ambivalent messages with a more positive or negative connotation. Consequently, emoji

present themselves as viable substitutes for nonverbal cues in digital written communication and a promising tool for leaders to re-enrich their workplace correspondence with affective displays.

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Data deposition

The data is available at the Open Science Framework website, <https://osf.io/k9ubn/>.

CRediT authorship contribution statement

Simon Liegl: Writing – review & editing, Writing – original draft, Visualization, Validation, Project administration, Methodology, Investigation, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Marco R. Furtner:** Writing – review & editing, Writing – original draft, Validation, Supervision, Resources, Project administration, Funding acquisition.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data is available at the Open Science Framework (OSF), the link is included in the article.

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Appendix A. Supplementary data

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