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Entrepreneurial leadership: An experimental approach investigating the influence of eye contact on motivation

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ABSTRACT

Small, new firms lack the resources of most larger, established firms, which makes effectively motivating employees challenging. Charismatic leadership is effective in increasing the performance of both groups and entire organizations. Specifically, the impact of charismatic leadership practices on followers stems from nonverbal communication and construed immediacy. The purpose of this study is to investigate the impact of an entrepreneurial leader's eye contact and smiling on followers' objective motivation in an experimental leadership situation. A sample of 129 young adults was tested in a 2×2 (nonverbal tactics: high eye contact/low eye contact × high smile/low smile) experimental design. Motivation was measured by objective performance in a motoric reaction time task. The conditions were operationalized by manipulating gaze behavior and facial expressions of the leader in a staged instructional video, showing a start-up entrepreneur attempting to enhance the performance of his employees as part of a competitive comparison. Regardless of whether the leader smiled or not, participants showed faster responses and therefore performed more effectively when the leader maintained high eye contact.These findings support the hypothesis that increased eye contact is a strong nonverbal signal, which in the immediate context of leader-follower interactions, stimulates an increase in performance. In fact, eye contact could induce an increased level of motivational arousal in followers, resulting in improved confidence and self-reference when taking instructions. This study advances the existing research on learnable skills that can be used to appear more charismatic and thus potentially increasing follower performance by adopting simple nonverbal rules in communication behavior. This offers an invaluable and low-cost tool for leaders founding a start-up business.

Introduction

Effective leadership is a core ingredient for entrepreneurial success (Banks et al., 2017), most of all in small and medium sized enterprises (Gonzales, Rodriguez, & Sossa, 2017; O'Regan, Ghobadian, & Sims, 2004). A key element of leadership is motivating followers, thereby achieving increased business performance (van Knippenberg, 2012). In this regard, certain leadership styles have proved more effective than others. For example, transformational leadership is often quoted as being the optimal approach to adopt (Bass, 1985). Closely related is the entrepreneurial leadership style, which takes the transformational concept, combines it with an entrepreneurial spirit and requires leaders to transport this spirit to their followers (Lajin & Zainol, 2015). Specifically, charismatic communication, which is characterized by a value-based, emotional, visionary and expressive style of delivery (Antonakis, Bastardoz, Jacquart, & Shamir, 2016), enables leaders to inspire and motivate followers (Antonakis, Fenley, & Liechti, 2011; Johnson & Dipboye, 2008; Towler, 2003). The simple circumstance that charismatic leadership is effective (Banks et al., 2017), while imposing no additional production cost for the benefits it promotes, makes it relevant for small and medium size enterprises, which often struggle with a lack of resources (Greene, Brush, & Brown, 1997). Some techniques from the repertoire of charismatic communication have already been proven to be effective for entrepreneurs, including emotion-laden communication, storytelling (Roundy, 2014) or vision communication (Hensel & Visser, 2019). However, there is minimal empirical investigation on which operative tactics and concrete behaviors should be employed in management practice to foster charismatic communication, in order to successfully persuade and moti-

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vate followers (Antonakis et al., 2016; van Knippenberg & Sitkin, 2013). This study evaluates communication between a start-up leader and followers, and aims to identify nonverbal signals that lead to increased employee motivation within simulated leader-follower interactions. The investigation selected an experimental design that operationalizes nonverbal leader-follower communication signals as independent variables, and motivation regarding objective performance as a dependent variable. Thereby, our design allows the examination of whether specific communicative behaviors that are associated with charismatic leadership (Antonakis et al., 2016) exert effects on followers' objective motivation (Wang, Oh, Courtright, & Colbert, 2011) at the moment of interaction, beyond the mere immediate construal of charisma ascriptions (Antonakis et al., 2011; Towler, 2003).

Literature Review and Hypotheses

The outstanding importance of charismatic leadership in organization science is clear considering convincing evidence, which proves its effectiveness in leading an organization. Meta-analytic evidence from 76 independent studies shows that charismatic leadership increases organizational effectiveness by improving objective performance on multiple levels (Banks et al., 2017). Specifically, charismatic leadership predicts supervisor-rated task performance, supervisor-rated citizenship behavior, and organization performance (Banks et al., 2017). Moreover, charismatic communication constitutes a crucial component of effective leadership in the early formation of an enterprise (McGrath & MacMillan, 2000; Podsakoff, MacKenzie, Moorman, & Fetter, 1990; Renko, El Tarabishy, Carsrud, & Brännback, 2015), as well as at subsequent higher management levels with more differentiated organizational structures (Jacquart & Antonakis, 2015). This means that alongside providing technical knowledge, leaders also need to adopt a visionary charismatic role in order to effectively sustain an organization (Thompson, 1999). Therefore, while some may show entrepreneurial talent and high levels of competence in a given field, they might lack the necessary charisma needed to increase the motivation of others, which is indispensable in order to join the leader in a risk-taking approach (Renko et al., 2015).

Leaders' charisma exerts its strongest influence on followers' behavior in face-to-face communication. Hence, for small and medium size enterprises, where leaders and followers stay in close exchange and communicate directly with each other, enhancing a leader's charismatic communication should be particularly effective in meeting the challenge of motivating followers. In small scale businesses that are operated by either a manager or owner, the individual and the organizational level may be equivalent (Frese, van Gelderen, & Ombach, 2000), while leadership in small and medium size enterprises is more direct than in larger companies. An entrepreneur's decisions strongly shape the firm's strategy, culture, and actions, and hence their behavior is critical to the survival and development of small and medium size enterprises (Beaver & Jennings, 2001; Davies, Hides, & Powell, 2002; Puplampu, 2005). Since leaders in small and medium size enterprises are intensively involved in operations, their leadership is highly demanding (Baldegger & Gast, 2016; Gonzales et al., 2017; O'Regan et al., 2004). Additionally, when the firm and employee numbers grow, leaders increasingly have to manage formal leadership and micro-politics, which are constituted social and, in particular, interpersonal processes (Leitch, Mcmullan, & Harrison, 2013). Moreover, recent accounts describing leadership emphasize the crucial role of social influence and persuasion (Ruben & Gigliotti, 2016, 2017). Effectively understanding the way leaders communicate with their followers therefore offers a promising psychological approach towards an increased appreciation of a crucial component of successful entrepreneurial leadership (e.g. Roundy, 2014).

In the early developmental stages of a new venture the entrepreneur's leadership style tends to be mostly transformational, often changing as the venture is growing, and becoming more of a transactional style (Baldegger & Gast, 2016). However, early entrepreneurial leadership, which features certain combinations of leadership styles unique to this setting (Kempster & Cope, 2010), is not identical with transformational leadership, although many definitions recognize an ability to influence employees, strengthening their intrinsic motivation or commitment to increase business performance, as a key element (Gupta, MacMillan, & Surie, 2004; Ireland, Hitt, & Sirmon, 2003; Renko et al., 2015). A unique characteristic of entrepreneurial leadership is the additional focus on opportunities (Renko et al., 2015), particularly when recognizing and exploiting entrepreneurial opportunities (Shane & Venkataraman, 2000) that enable accessing markets through innovations (Renko et al., 2015; Tidd, 2014). They also face challenges in the early stages of their business development, making it necessary to motivate their followers to improve performance, in order to succeed in gaining market share (McGrath & MacMillan, 2000). At the same time, they must still know their companies, their own, and their followers' limits (Brazeal & Herbert, 1999), and operate with limited access to resources (Drucker, 1985; Greene et al., 1997; Leitch et al., 2013). However, there are also two aspects of charismatic leadership that seldom appear in the entrepreneurial leadership literature:

individualized consideration and, most notably, charisma (Podsakoff et al., 1990; Renko et al., 2015). Charismatic leaders are normally recognized as entrepreneurial (Conger, 1999), but it is not necessarily the other way around, with entrepreneurs often lacking the necessary charisma to motivate others in following their risk-taking approach (Renko et al., 2015).

Charismatic Signalling and Entrepreneurial Leadership

Thompson (1999) argues that entrepreneurial leaders are only able to sustain an effective organization if they adopt a visionary charismatic role underneath the architectural role (i.e. control) in their enterprise. Only a balance between those aspects qualifies a founder to be an "entrepreneur" or an "entrepreneurial manager" (Thompson, 1999). However, it is not only within their business that entrepreneurs need to demonstrate charisma. As being an entrepreneur means bringing novel and creative ideas to the market, it is necessary to positively influence others regarding idea validity (van Knippenberg & van Kleef, 2016). Persuasion as an outcome of charismatic leadership and communication (Niebuhr, Tegtmeier, & Brem, 2017; Tskhay, Zhu, Zou, & Rule, 2018) is required to acquire potential customers, but also to attract investors (Parhankangas & Ehrlich, 2014). Since newly founded businesses typically lack information regarding their market potential and cannot predict expected revenue, subjective factors like positive affect greatly influence the decision of investors (Davis, Hmieleski, Webb, & Coombs, 2017; Dimotakis, Conlon, & Ilies, 2012). As described previously, positive affect is associated with charisma and effective leadership (Bono & Ilies, 2006; van Knippenberg & van Kleef, 2016). The task of an entrepreneurial leader consists also of influencing their followers, which, as stated in the definitions of entrepreneurial leadership, is typically achievable by being charismatic and inspiring trust (Alvarez & Barney, 2005, 2007). The necessity to acquire trusting and committed followers is described in Gupta et al. (2004) as "cast enactment", being one of the two cross-cultural challenges entrepreneurial leaders have to face. In conclusion, it seems that being a charismatic person is a key factor for attaining entrepreneurial success. This may sound challenging for those seeking to undertake a business start-up but lacking in personal charisma. However, as research demonstrates, appearing more charismatic can actually be taught (Antonakis et al., 2011; Frese, Beimel, & Schoenborn, 2003; Towler, 2003). Therefore, a potential perceived lack of charisma in entrepreneurial leadership (Renko et al., 2015) could and should be overcome.

Signals of Leaders' Charisma

Even though convincing evidence exists on the effectiveness of transformational or charismatic leadership (Banks et al., 2017), its definition and measurement have been criticized due to the lack of a tight definition (van Knippenberg & Sitkin, 2013). First of all, it remains unclear which specific behavioral signals and tactics charismatic leaders use to persuade and motivate their followers (Antonakis, Day, & Schyns, 2012). Hence, opening the black box of charismatic communication represents a sparsely addressed approach in leadership research, but holds great promise in closing the gap between distal interpersonal perception of charisma and closely related transformational leadership, and proximal, measurable communicative signals. We feel that this is an important step in advancing effective leadership development.

To address the above criticism, charisma has been more recently conceptualized as "values-based, symbolic and emotion-laden leader signaling" (Antonakis et al., 2016, p. 304). This conceptualization refers to signalling theory (Connelly, Certo, Ireland, & Reutzel, 2011), which is widely applied in research on management (Bergh, Connelly, Ketchen, & Shannon, 2014) and entrepreneurship (Moss, Neubaum, & Meyskens, 2015) and puts a clear focus on charisma as a repertoire of leader signals. Signalling approaches state that a sender provides signals to give credible information about his quality (Connelly et al., 2011). Such signals should be perceived by a receiver, and they should act upon the signal (Connelly et al., 2011). The effect of charisma in the context of leadership relies on the communication signals of leaders (de Vries, Bakker-Pieper, & Oostenveld, 2010), through both verbal and nonverbal channels (Connelly, Gaddis, & Helton-Fauth, 2013; Tskhay, Zhu, & Rule, 2017).

Nonverbal signals are not merely an expression of an inner state, but at the same time act as a social signal, and therefore have an effect on the receiver. The expressive and communicative function of nonverbal cues either signals to the partner one's own state, or the kind of behavior one would like to see from the other person (Jack & Schyns, 2015; van Kleef, 2009, 2014; van Kleef, van den Berg, & Heerdink, 2015). Thus, smiling while praising someone would first and foremost indicate an inner state ("I am happy"). But from an interactive point of view, different messages are being sent on a relational level (e.g. "I am happy because you achieved something!"), which also communicates to the other person that smiling is likely if such behavior is being shown ("I like what you are doing, please keep on doing that!"; Chartrand & Lakin, 2013; Goldin-Meadow & Alibali, 2013). Hence, in the workplace, nonverbal be-

havior also plays a vital role, even beyond leadership processes (Reh, van Quaquebeke, & Giessner, 2017). In fact, it can promote affective and inferential reactions in organizations (van Kleef, 2014; van Kleef, Homan, & Cheshin, 2012; van Knippenberg & van Kleef, 2016). In summary, it is clear that social influence is required for successful leadership (e.g. Côté & Hideg, 2011; Schultheiss & Brunstein, 2002; van Kleef, van Doorn, Heerdink, & Koning, 2011), and that nonverbal displays form crucial communicative skills for persuasion (Kopelman, Rosette, & Thompson, 2006; Overbeck, Neale, & Govan, 2010; van Kleef et al., 2015). However, research is scarce on which exact nonverbal signals increase followers' motivation.

Hypotheses Development

The transfer of emotional arousal is a crucial mechanism in leadership communication (van Knippenberg & van Kleef, 2016), and is one of the most significant interpersonal effects of emotions within the social and organizational contexts (Erez, Misangyi, Johnson, LePine, & Halverson, 2008; Grabo, Spisak, & van Vugt, 2017; van Kleef, 2009, 2014). Nonverbal communication, especially when conveyed through emotional expressions and social gaze, can lead to affective and inferential reactions, depending on the adequacy of the nonverbal signal (van Kleef, 2014; van Kleef et al., 2012, 2015). Expressing energetic positive emotions such as enthusiasm, and showing more directed eye gaze, increases both the charisma attributed to a person (Bono & Ilies, 2006; Erez et al., 2008; Tskhay et al., 2017) and the arousal level of the social encounter (Krumhuber, Likowski, & Weyers, 2014; Myllyneva & Hietanen, 2015). Moreover, frequent and prolonged eye contact and smiling make a sender appear to be more effective, confident, powerful, dominant, and charismatic (Awamleh & Gardner, 1999; Brooks, Church, & Fraser, 1986; Damen, Van Knippenberg, & Van Knippenberg, 2008; Gardner, 2003; Hall, Coats, & LeBeau, 2005; Holladay & Coombs, 1993; Howell & Frost, 1989; Strongman & Champness, 1968; Trichas, Schyns, Lord, & Hall, 2017; Tskhay et al., 2017) which in concert indicates leadership ability (Grabo et al., 2017). Since arousal reflects motivational activation (Calderon, Kilinc, Maritan, Banavar, & Pfaff, 2016; Gable & Harmon-Jones, 2010; Lang, 2010), a behavioral willingness on the part of the observer occurs (Damen et al., 2008). Hence, the transfer of arousal through nonverbal signalling might represent an essential mechanism by which charismatic leaders effectively motivate their followers. In fact, motivational arousal not only alters cognitive functioning (Maran et al., 2017), but also modulates the processing of social signals (Maran, Sachse, & Furtner, 2015). Arousal refers to the activation of motivational systems (Calderon et al., 2016; Lang, 2010). More vividly, if emotional behavior were understood as a vector, the associated arousal would be the vector magnitude and reflect behavior invigoration (Calderon et al., 2016). This induction of a state of increased motivational willingness could have an immediate effect on followers' behavior and performance (e.g. Koning & van Kleef, 2015). Thus, of primary interest is how nonverbal signals can act as a motivating tool in managerial practice in small and medium sized enterprises.

Interestingly, even though eye signalling and smiling have been mentioned in all existing dramaturgical operationalization of charismatic leadership in research (e.g. Johnson & Dipboye, 2008) research has so far paid little attention to how these signals affect followers' performance. The importance of eye gaze is likely based on the fact that humans are hardwired to shift their attention towards faces, especially pairs of eyes (Johnson, Dziurawiec, Ellis, & Morton, 1991). Once mutual eye contact is established, this also increases arousal levels (Helminen, Kaasinen, & Hietanen, 2011; Myllyneva & Hietanen, 2015). In addition, directed eye gaze increases self-awareness and self-referential information processing (Baltazar et al., 2014; Conty, George, & Hietanen, 2016). Thus, offering eye contact might be particularly effective in hijacking a group's attention and gaining trust with a captivating message. In a next step, followers can then be persuaded to join the pursuit of a leader's entrepreneurial vision. Thus, we hypothesize that:

Hypothesis 1. While offering task instructions, a leader's increased and prolonged eye gaze leads to higher follower performance.

Similarly, facial happiness regulates conversational dynamics (Kaukomaa, Peräkylä, & Ruusuvuori, 2015), supports human cooperation (Centorrino, Djemai, Hopfensitz, Milinski, & Seabright, 2015; Danvers & Shiota, 2018; Mussel, Göritz, & Hewig, 2013), and affects social perception (Chanes, Wormwood, Betz, & Barrett, 2018), for example promoting positive impressions in marketing communication (Söderlund & Sagfossen, 2017). Most importantly, happy facial expressions increase ascriptions of leadership, sympathy and charisma (Damen et al., 2008; Rychlowska et al., 2017; Trichas et al., 2017), and vice versa charismatic leaders generally display more positive emotions, which positively influence their followers (Bono & Ilies, 2006; Erez et al., 2008). Finally, like directed eye gaze, smiling induces a state of heightened arousal in the observer (Krumhuber et al., 2014). Thus, we hypothesize that:

Hypothesis 2. While offering task instructions, a leader's

facial happiness leads to higher follower performance.

Taken together, the goal of this study is to investigate whether the deliberate use of directed eye gaze and facial happiness is effective in motivating followers using an experimental design. Following Hisrich, Langan-Fox, and Grant (2007), we developed an experimental design simulating an entrepreneurial context to examine the causal role of nonverbal signals in invigorating performance (Kraus, Meier, & Niemand, 2016). Considering psychological methods and experimental designs in entrepreneurship research is a valuable approach, which offers insight into novel facets of entrepreneurial success at the behavioral level (Frese & Gielnik, 2014; Frese et al., 2000; Kraus et al., 2016).

To test our hypotheses, we developed a 2 × 2 between-subject design with four experimental conditions. Participants received video-based task instructions from an entrepreneurial leader either displaying shortened or prolonged directed eye gaze and a low or high amount of smiling. Thereafter, participants performed the instructed motoric response task, where motivation was objectively measured by assessing response latencies. Although motivation is a multi-layered construct (Deci, Koestner, & Ryan, 1999), findings reveal that during a tapping task, motivated participants make significantly more taps than less motivated participants (Eysenck, 1964). Thus, when information is gathered that extends beyond basic introspective surveys (Wilson, Tunstall, & Eysenck, 1972), the time required to achieve a specific reaction to a set target stimulus can be viewed as an objective measurement of motivation (Chiew & Braver, 2016; Zedelius, Veling, Bijleveld, Aarts, & Mattes, 2012). Moreover, leaders' nonverbal signals might exert their effect on followers through the transfer of arousal (van Kleef, 2009, 2014; van Knippenberg & van Kleef, 2016), which reflects the magnitude of behavior invigoration (Calderon et al., 2016; Lang, 2010). Hence, the readiness to react, as reflected by response latencies, represents a reliable indicator of motivation. In fact, a plethora of evidence shows response latencies to be susceptible to systematic variations in immediate and future monetary reward, hence reflecting fluctuations in motivation (Bijleveld, Custers, & Aarts, 2012; Zedelius et al., 2012, 2014).

Evidence supporting our hypotheses would be an increase in objective performance, as measured by the reaction time, when the leader maintains directed eye gaze (hypothesis one) or shows more smiling (hypothesis two) as compared to the respective control condition. Furthermore, since evidence on the cumulative use of nonverbal displays is sparse, we performed exploratory analyses to test for an interaction between nonverbal signals.

Method

A staged face-to-face situation was used to test the conditions of both high and low amounts of directed eye gaze as well as high and low amounts of smiling. In this experiment, participants played the role of followers and watched one of four instructional videos. Each video corresponded to one of the four 2 × 2 factorial conditions (high directed eye gaze vs. low directed eye gaze × high smile vs. low smile). Consistent with the experimental conditions there were four different versions of the video, which, aside from the manipulated variables, were completely identical in terms of their content and presentation. The simulated leader in the video first presented himself as a successful entrepreneur who explained to the participants the importance of cooperation in the experiment towards optimizing business success and provided instructions on the following experimental task (see visual stimulus material).

Participants were randomized into four groups (high-directed eye gaze and low directed eye gaze and/or high smile and low smile). They then completed a motoric reaction time task as soon as the video had finished. The measured task performance, namely reaction time, was operationalized as the dependent variable reflecting an objective indicator of participants' motivation.

Participants

All participants were volunteers and had normal or corrected-to-normal visual ability. They were not under the influence of psychoactive substances or psychopharmacologic treatment, nor had they suffered major head injuries at any time in their lives (self-report). Overall, 129 participants (67 females, 62 males; (M_{age} = 21.58, SD = 2.40; age range: 18-32 years) were randomly assigned to one of the four conditions and performed the motoric reaction time task. Informed consent was obtained according to the guidelines of the Ethics Committee of the Department of Psychology, University of Innsbruck.

Visual Stimulus Material

The video sequences lasted for five minutes. The content and delivery (i.e. prosody, speech tempo) were identical and showed an individual elaborating their career as the founder of a successful business start-up. The individual went on to explain the importance of ongoing employee tests, then revealing to the participants their participation in the subsequent task. For the sake of comparability, they should participate as part of their team. The video informed test participants that work precision, perception, and re-

action time would be measured and that the requirements were accuracy and efficiency in task completion. Thereafter, participants were informed regarding the task they had to complete following the video. Depending on the testing condition, the participants viewed one of four videos where the entrepreneur either made high level or limited degree of directed eye gaze, and correspondingly smiled significantly or only to a limited extent (high directed eye gaze vs. low directed eye gaze × high smile vs. low smile). Notably, regarding directed eye gaze, it has been demonstrated that increased contact is equally as effective regardless of whether it is viewed as a video or through face-to-face interaction (Fry & Smith, 1975).

Motoric Reaction Time Task

In order to measure participants' performance, a reaction time task was used. Participants initially did one test round and received the instruction to press the space key as fast as possible as soon as they would see the letter "X" on the computer screen. Ten other white letters appeared during the test on a black background in one-second intervals as distractions between the target stimuli. The task lasted seven minutes and thirty seconds and was presented in one of three conditions with five blocks each. The participants' motoric reaction time was measured as the time difference between the target letter appearing on the display and pressing the space key (Orosz, Cattapan-Ludewig, Gal, & Feldon, 2008; Orosz, Feldon, Gal, Simon, & Cattapan-Ludewig, 2007). The task results were evaluated with the goal of the investigation in mind, i.e. objectively understanding the motoric reaction time, since it proves to be a valid measurement for the participant's motivational level (Eysenck, 1964).

Data Analysis

A two-factor analysis of variance was performed to examine the interaction and primary effects of the 2 × 2 (high directed eye gaze vs. low directed eye gaze × high smile vs. low smile) investigation design. In addition, in order to test the hypotheses described above, a *t*-test for independent random samples (separated for each factor) was computed to allow a comparison of the participants' performance under the varying conditions. Degrees of freedom were corrected in case of deviance from sphericity (Greenhouse-Geisser). Effect sizes are reported by partial eta squared η_{Part}^2 [0.01 = small; 0.06 = medium; 0.14 = large] for analyses of variance and as Cohen's *d* [0.3 = small; 0.5 = medium; 0.8 = large] for *t*-tests (Elis, 2010). Bayesian factors were calculated according to the guidelines of Marsman and Wagenmakers (2017) and Wagenmakers et al. (2018). Bayes factors were reported as BF_{10} [1 to 3 = anecdotal evidence; 3 to 10 = moderate evidence; 10 to 30 = strong evidence; 30 to 100 = very strong evidence; > 100 = extreme evidence; (Lee & Wagenmakers, 2014)]. Data analyses were conducted using SPSS (Version 24) and JASP (Version 0.8.6; JASP Team 2018).

Results

Effects of Directed Eye Gaze and Smiling

A 2 × 2 (high directed eye gaze vs. low directed eye gaze × high smile vs. low smile) factorial univariate analysis of variance (ANOVA) was conducted to investigate the interaction between eye contact and smiling. The results are presented in Table 1 and Figure 1. There was a main effect for directed eye gaze $F(1,125) = 10.117$, $MSE = 7082.266$, $p = 0.002$, $\eta_{Part}^2 = 0.075$, $BF_{10} = 14.51$, with neither an interaction between factors, $F(1,125) = 0.927$, $MSE = 641.603$, $p = 0.340$, $BF_{10} = 0.39$ nor a main effect for smiling $F(1,125) = 1.386$, $MSE = 970.578$, $p = 0.241$, $BF_{10} = 0.31$. In support of our first prediction, results indicate that maintained eye contact during the leadership situation alters performance, as reflected by faster reaction times. On the other hand, no effect was found for smiling as stated in hypothesis two, or for an interplay between both directed eye gaze and smiling.

Table 1
Effects of alterations in eye contact and affective displays on the participants' motivational level, as indicated by their average reaction times

Eye Contact	Affective Display				Total	
	Low		High			
	M **[ms]**	***SE*** **[ms]**	***M*** **[ms]**	***SE*** **[ms]**	***M*** **[ms]**	***SE*** **[ms]**
Low	394.16	4.53	404.12	4.11	398.90	3.12
High	383.79	4.99	384.82	4.85	384.31	3.45
Total	**388.98**	**3.41**	**394.01**	**3.41**		

Effects of Directed Eye Gaze on Performance

T-tests for independent samples of the cross-subject variables of directed eye gaze and smiling were conducted to analyse performance differences. Compared to the low

directed eye gaze group [M = 398.90; SE = 3.12], the participants from the high directed eye gaze group [M = 384.31; SE = 3.45] displayed faster reaction times, $t(127) = 3.13$, $p = 0.002$, $d = 0.551$, $BF_{10} = 14.51$. These results highlight a difference in the reaction time between both groups, supporting our first hypothesis, that a leader keeping eye contact within the simulated organizational context does in fact enhance objective performance.

Effects of Smiling on Performance

A t-test for independent samples was also conducted as part of diversity tests of the independent variables high smile and low smile. Compared to the low smile group [M = 388.98; SE = 3.41], test participants from the high smile group [M = 394.01; SE = 3.41], $t(127) = -1.04$, $p = 0.299$, $BF_{10} = 0.309$, did not display faster reaction time. Contrary to our second prediction, results showed that increased smiling on the part of the entrepreneur during the leader-follower interaction does not alter participants' performance.

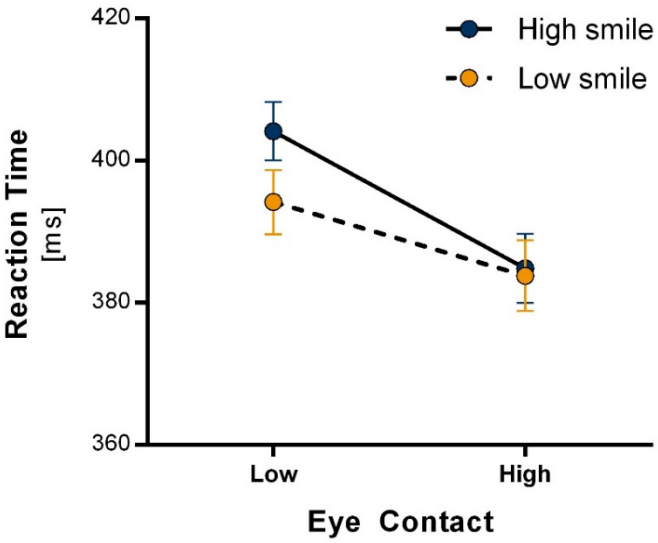

Figure 1. Mean reaction times in the motoric reaction time paradigm across the four experimental conditions (low/high directed eye gaze × low/high smile). Error bars denote *SE*.

Discussion

The objective of this investigation was to determine whether the simple, deliberate use of a leaders' directed eye gaze and smiling, two nonverbal signals, could increase objective performance in human subjects within an experimentally staged leader-follower situation. Indeed, our findings show enhanced performance when an entrepreneurial leader displayed high amounts of directed eye gaze as compared to low amounts of directed eye gaze while giving instructions. Participants who received eye contact from the leader reacted faster to the target stimulus than participants receiving low eye contact. Hence, directed eye gaze led to an increased behavioral readiness to act. This indicates that directed eye gaze acts on immediate motivational channels, as we determined it through an objective behavioral performance measurement. Manipulating directed eye gaze might represent a simple communication strategy to highlight the importance of any given task and potentially improve its execution through subtle persuasive signals, without having to use costly resources. Hence, a start-up leader's use of nonverbal signals might be effective in motivating followers to show increased performance, and thereby represent a simple and effective tool in managerial practice. Our findings thus support the notion that a charismatic communication style characterized by increased directed eye gaze is beneficial for performance (Boies, Fiset, & Gill, 2015; Koning & van Kleef, 2015). But surprisingly and contrary to our expectations, alterations in the leader's smiling behavior did not impact followers' performance. Based on our findings, two questions require further explanation. First, why does a leader's directed eye gaze increase follower performance and second, why does smiling show no such effect?

First, a plausible explanation for the performance enhancing effect of prolonged eye gaze is due to the fact that directed eye gaze increases arousal (Helminen et al., 2011; Jarick, Laidlaw, Nasiopoulos, & Kingstone, 2016). Arousal represents the driving force behind motivated behavior and indicates the intensity of a performed action (Calderon et al., 2016; Pfaff & Banavar, 2007). Thus, enhanced arousal leads to an increased behavioral preparedness, as measured by our motoric performance paradigm (Calderon et al., 2016; Lang, 2010; Lang & Bradley, 2010). Moreover, current theoretical models trying to explain the effect of leadership on followers' motivation postulate the transfer of arousal to be a key component (Damen et al., 2008; van Kleef, 2014). Therefore, increased arousal might enhance the motivational value of a represented task instruction (Zedelius et al., 2012) or simply increase action readiness (Calderon et al., 2016; Maran, Sachse, & Furtner, 2018).

The notion of arousal being a crucial phenomenon underlying the motivation-enhancing effects of leadership is supported by existing models that identify arousal as the central mode of action in organizational communication processes (van Kleef, 2014), focusing first and foremost on the effects of emotional facial expressions. Moreover, interpersonal transfer of arousal represents one crucial psychological mechanism behind the attribution of charisma

and persuasion to leaders through their nonverbal emotional displays (Côté & Hideg, 2011; Damen et al., 2008). Beyond having merely an arousing effect, being gazed upon by others has also been demonstrated to promote comparable psychological effects to hearing our own name being called (Kampe, Frith, & Frith, 2003), as well as increasing self-focus (Conty et al., 2016). Hence, perceiving a leader's gaze might enhance the self-referential nature of a leader's instruction by signalling to followers that the leader's message is directed to oneself.

Our findings indicate that directed eye gaze is effective in motivating followers. This fits well with existing findings, showing social gazing having strong impact on receivers' behaviors. Interestingly, these behaviors, like the effects found in the current study, are highly relevant for effective leadership of followers. Experiencing directed eye gaze can increase self-awareness (Myllyneva & Hietanen, 2016), self-focus (Conty et al., 2016) and even alter cognitive functioning (Conty, Gimmig, Belletier, George, & Huguet, 2010; Hietanen, Myllyneva, Helminen, & Lyyra, 2016), for example by activating mind reading abilities (Senju & Johnson, 2009). Since humans are biologically hard-wired to orient towards faces (Johnson et al., 1991), and particularly the eye region, from birth (Farroni, Csibra, Simion, & Johnson, 2002), the eyes essentially shape our social behavior by offering social information to others (i.e. social referencing; Striano & Rochat, 2000), enhancing cooperative behaviors (Bateson, Nettle, & Roberts, 2006; Ekström, 2012) and reducing dishonesty (Nettle, Nott, & Bateson, 2012). Thus, offering eye contact might be especially effective in grabbing the attention of a follower or a whole group, to create a mutual bond, stimulate followers' social cognition supporting group interaction (Grossmann, 2017) and cooperation between them (Bateson et al., 2006; Ernest-Jones, Nettle, & Bateson, 2011; Grabo & van Vugt, 2016). Summarizing, establishing mutual eye contact represents a strong social signal that allows leaders to grab their followers' attention and influence them towards joining the organizational vision.

Second, in contrast, even though smiling is considered a crucial cue eliciting arousal in followers (Damen et al., 2008), contrary to our expectations, we found an increased amount of smiling had no influence on subjects' performance. There are several reasons, which could explain why smiling failed to enhance performance in our study. First, when looking at the hierarchy dividing leaders and followers within an organization, our findings contribute to the contradictions found in the current literature on verticality and positive emotional expressions (Hall, Halberstadt, & O'Brien, 1997; Hall, Horgan, & Carter, 2002). Although facial happiness shapes leadership perception (Trichas et al., 2017), promotes ascriptions of charisma (Damen et al., 2008) and represents a potent tool for persuasion (Crivelli & Fridlund, 2018) in the workplace, the social message sent by a smile is highly dependent on context (e.g. culture or adequacy; Krys et al., 2016, van Kleef, 2014) and reaches from affiliative to aggressive intentions ascribed (Rychlowska et al., 2017). Second, although smiling has been considered to promote a transfer of arousal in organizational communication (Damen et al., 2008), psychological evidence suggests that happiness represents a state of low arousal, hence low in motivational intensity (Gable & Harmon-Jones, 2010, 2011; Nesse & Ellsworth, 2009). Third, in our study, nonverbal tactics were experimentally varied in a way that the entrepreneurial leader motivates and directs instructions towards his followers. Directed eye gaze acts as a personal cue (Kampe et al., 2003) signals dominance (Strongman & Champness, 1968) and promotes both increased self-focus (Hietanen et al., 2016) and self-referencing (Conty et al., 2016). Hence, social gazing supports a more self-referential processing of a leader's instructions and increases the affordance of a leader's message by signalling status. By contrast, facial happiness signals affiliative intent (Danvers & Shiota, 2018; Marsh, Ambady, & Kleck, 2005), is linked to less dominant traits (Deska, Lloyd, & Hugenberg, 2018; Hess, Adams, & Kleck, 2009) and reliably indicates decreased physical dominance in competitive challenges (Kraus & Chen, 2013). Although smiling represents a strong nonverbal signal in organizational communication (van Knippenberg & van Kleef, 2016), presumably acting as a social reward signal (Lin, Adolphs, & Rangel, 2012), facial happiness alone might fail to increase the affordance of a leader's message.

In eye contact, our findings were able to unlock at least one piece of the puzzle of how entrepreneurial leaders are able to increase their followers' performance. Leaders' eye contact can exert influence on a company's chance to succeed via three pathways. First, because of the common lack of time and money in new and small businesses (Greene et al., 1997), leaders are dependent on motivating their employees to performance that exceeds their competitors, without being able to provide monetary incentives (Renko, 2018). Therefore, the ability to employ simple communicative tools to motivate your followers, like eye contact, is of great use for entrepreneurial leaders. Second, entrepreneurial leaders are often characterized by their passion, an affective state high in arousal, when pursuing their company's goals (Cardon, Wincent, Singh, & Drnovsek, 2009, Renko, 2018). Existing findings show that directing your gaze towards your followers' eyes allows for the transfer of emotion and arousal onto followers (Helminen et al., 2011; Myllyneva & Hietanen, 2015). While other research finds

that the successful transfer of arousal facilitates goal setting (Locke & Latham, 1990), and increases, in a second step, followers' own affective commitment to these goals (Breugst, Domurath, Patzelt, & Klaukien, 2012). Third, eye contact increases self-referential processing in perceivers (Conty et al., 2016), enabling a spoken vision accompanied by eye-directed gaze to become deeply rooted within followers and thus being accepted as their own. Motivated employees who show passion for achieving their company's goals, and are internally convinced of their leader's vision, will show exceptional performance, and are therefore the key in compensating small and medium businesses' limited resources, making the company able to compete and succeed on the market (Renko, 2018; Renko et al., 2015).

Limitations and Future Research

Despite the application of a reliable experimental paradigm (e.g. Koning & van Kleef, 2015) and results providing strong evidence (Lee & Wagenmakers, 2014) for the derived predictions, the present study has some limitations. First, although we refer to entrepreneurial leadership, our design was not performed in an organizational context, hence ecological validity represents one important limitation. To ensure the transfer of our findings to organizational performance and to prove their importance for actual leadership practice, there is a need to design field studies using a similar experimental approach. One possible approach might be to train leaders to show increased or decreased eye contact in motivational employee meetings, and to then assess their followers' motivation, or even to later measure performance directed towards achieving goals set in the meeting. Second, in contrast to some evidence, our findings show that positive nonverbal displays are not effective in increasing follower motivation. The social message conveyed by smiling does in fact seem ambiguous and strongly context dependent (Rychlowska et al., 2017), but existing evidence shows smiling to increase charisma ascriptions (Bono & Ilies, 2006; Erez et al., 2008) and leadership effectiveness (van Knippenberg & van Kleef, 2016). Therefore, further research is needed to address the question under which conditions smiling affects follower motivation. For example, since smiling acts as a reward signal, it seems plausible that facial happiness increases motivation in followers when a leader's expression is shown after any given performance, acting as social reinforcement. In fact, recent approaches highlight the crucial role of adequacy when displaying facial expressions in the workplace (van Kleef, 2014; van Kleef et al., 2012), indicating that facial emotion exerts its effects when displayed as an evaluative response to a given situation. Nevertheless, our study provides support for the notion that communicating tactics are an effective instrument for start-up leaders to motivate their followers. Thus, measures of entrepreneurial leadership (e.g. Renko et al., 2015) should consider assessing it from a signalling point of view by measuring objective leader behaviors and including the style of communication employed (Antonakis et al., 2016).

Practical Implications

This study offers important lessons for business practice, however its topics would profit from additional investigation. For one, our study provides further evidence for the impact of nonverbal signals on business communication effectiveness (van Kleef, 2014; van Kleef et al., 2012). Our findings show that eye contact invigorates followers' motivation in a simulated start-up context, increasing their task performance. However, examining the signals underlying efficient motivational communication remains an under-researched endeavour, emphasizing the need for further research into individual constituent behaviors (Yukl, 1999). Our findings add to existing knowledge, which supports the importance of nonverbal communication tactics in the performance of entrepreneurial leadership, and thereby offer insights that might be addressed by effective leadership training. Previously, the effectiveness of business training, even in terms of financial outcomes, has been queried by existing studies (Barling, Weber, & Kelloway, 1996; Jones, Beynon, Pickernell, & Packham, 2013). However, leaders can indeed be trained to appear charismatic (Antonakis et al., 2011; Frese et al., 2003; Towler, 2003).

Specifically, in business start-ups, survival is only possible if leaders are able to motivate their employees to deliver optimum performance (Renko et al., 2015), while possessing limited resources (Drucker, 1985; Leitch et al., 2013). Therefore, it is essential to use business resources as advantageously as possible. This research provides evidence for an easy way to achieve a state of motivational preparation for interactions with employees. Finally, the opportunity to increase followers' performance by employing simple behavioral tactics like maintaining directed eye gaze while delivering important messages would increase business performance. This study recognizes the need for future experimental research examining teachable, business-relevant behaviors for leaders to appear more charismatic, enabling them to adopt a more efficient and charismatic leadership communication style.

Conclusion

Motivating employees to commit to their company's

goals is an essential element of transformational leadership, and especially of entrepreneurial leadership, caused by the necessity to efficiently exploit opportunities (Hensel & Visser, 2019; McGrath & MacMillan, 2000; Shane & Venkataraman, 2000). The goal of this study was to investigate how an entrepreneurial leader's charismatic communication can exert influence on followers' motivation to act. Our findings demonstrate that increased leader eye contact promotes enhanced performance of followers in a simulated start-up context. This supports the hypothesis that an increased strategic use of specific nonverbal signals such as directed eye gaze is effective for motivating followers. By contrast, this effect was not found with increased amounts of smiling by the leader. In managerial practice leader's eye contact might act like a pointer, tagging followers with the spoken content, as reflected by increased self-referential processing (Lamer, Reeves, & Weisbuch, 2015), along with increased self-focus (Conty et al., 2016) and even altered attention (Böckler, van der Wel, & Welsh, 2014). Indeed, the effects of directed eye gaze stretch across multiple aspects. Not only can the eyes of others increase self-awareness (Myllyneva & Hietanen, 2016) and arousal (Helminen et al., 2011; Myllyneva & Hietanen, 2015), but eye gaze can affect cooperation (Bateson et al., 2006; Ekström, 2012), prosocial behavior (Shotland & Johnson, 1978), honesty (Nettle et al., 2012) and even facilitates behavioral synchronization (Prinsen et al., 2017), hence creating the antecedents of successful group coordination, the main function of leadership (Grabo & van Vugt, 2016). We conclude that a leader's deliberative use of directed eye gaze might be effective in motivating followers to show increased performance, hence representing a simple and effective tool in leadership communication to enhance managerial practice.

Although charismatic leadership represents the most effective form of leadership (Banks et al., 2017; Barling et al., 1996; Dvir, Eden, Avolio, & Shamir, 2002), it has recently been criticized for its conceptual definition and operationalization (Antonakis et al., 2016; van Knippenberg & Sitkin, 2013). Since our study examines the effect of observable and measurable behavior on follower motivation, it advances the quest to link the distal construal of leaders' charisma and proximal behavior (Antonakis et al., 2016).

Finally, this study supports the value of experimental approaches for research on leadership behavior, extending beyond survey data and cross-sectional designs to identify and examine causal factors (Bommer, Pesta, & Storrud-Barnes, 2011; Fodor, Curşeu, & Fleştea, 2016; Kraus et al., 2016; Rico & Cohen, 2005).

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