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The Many Faces of Leadership: An Evolutionary-Psychology Approach

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Abstract
Many psychological studies have shown that facial appearance matters in the people we select as leaders. An evolutionary-psychology approach suggests that facial cues serve as inputs into an adaptive, context-sensitive followership psychology. That is, leadership suitability may be contingent upon the match between facial cues (indicating, e.g., dominance, trust, competence, and attractiveness) and follower needs. There is much support for this evolutionary-contingency hypothesis in the psychological literature. People prefer leaders with dominant, masculine-looking faces in times of war and conflict, yet they prefer leaders with more trustworthy, feminine faces in peacetime. In addition, leaders with older-looking faces are preferred in traditional knowledge domains, whereas younger-looking leaders are preferred for new challenges. We speculate about whether such followership heuristics are evolved or culturally learned, currently adaptive or mismatched, and, finally, we address the implications of the evolutionary-contingency hypothesis for leadership theory and practice.

Keywords
facial appearance, leadership, followership, dominance, evolutionary psychology

Presidential elections in the United States, shareholder confidence in CEOs, and war and peace in the Middle East all point to the significance of leadership in human social affairs. An important adaptive challenge for individuals and groups is to choose the right kinds of leaders. An evolutionary approach suggests that our judgments of leadership have been shaped by cues conveying the ability of individuals to solve specific coordination challenges in human evolutionary history (Van Vugt, Hogan, & Kaiser, 2008). Many new studies have suggested that an individual's physical appearance in general, and facial traits in particular, are key inputs into an evolved followership psychology.

Faces and Leadership

People draw inferences about the traits, attributes, and competencies of individuals from their facial appearance (Todorov, Olivola, Dotsch, & Mende-Siedlecki, 2015). In the context of leadership, there appears to be considerable agreement about which faces look more, or less, leader-like. Facial cues are used to judge individuals' competence, dominance, trustworthiness, and attractiveness, and these judgments correlate with perceived leadership ability (Lawson, Lenz, Baker, & Myers, 2010). Surprisingly, people infer these attributes even after minimal exposure (100 ms) to facial images, and such instant judgments matter. Snapshot judgments of the attractiveness of politicians' faces predict their electoral success (Berggren, Jordahl, & Poutvaara, 2010), while dominance and competence judgments inferred from images of CEOs' faces correlate with company profits (Rule & Ambady, 2008).

Which facial cues do people use in their judgments of leadership? The literature suggests that people judge faces primarily on gender, age, and ethnicity (Zebrowitz & Montepare, 2008). In addition, people use various secondary facial cues, such as facial symmetry, baby-facedness, and height-to-width ratio, to infer leadership qualities (Re et al., 2013). In this review, we apply the logic of evolutionary psychology to understand why—and when—people infer specific leadership attributes

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from diverse facial characteristics. Our main argument is that because such cues were reliably associated with leadership success in ancestral human environments, they continue to affect people's attributions of leadership today. Thus, such judgments are manifestations of a deeper, domain-specific followership psychology (Van Vugt et al., 2008).

The Evolutionary-Contingency Hypothesis

An evolutionary perspective assumes that leadership and followership emerged to solve coordination challenges among social animals (Van Vugt et al., 2008). For early humans—our lineage appeared about 2.5 million years ago—group living produced many benefits but yielded various costs. Such costs entailed finding good locations to sleep and forage, finding reliable trading partners, fighting off predators and infectious diseases, and managing conflicts within and between groups. Leadership—in which one individual has a disproportionate influence on group activity—likely emerged to solve such coordination challenges (Van Vugt & Ahuja, 2011). Leadership is indeed common across all social species, from ants to elephants and birds to bees (King, Johnson, & Van Vugt, 2009) and from small-scale societies to large, complex modern societies (Price & Van Vugt, 2014).

Leadership poses an adaptive challenge for individuals and groups, as they must decide whom to follow. Evolution has likely crafted a followership psychology that includes, among others, psychological mechanisms to (a) assess situations in terms of the need for leadership, (b) compare individuals in terms of leadership qualities for different group challenges, (c) encourage these individuals to take the lead, and (d) monitor their effectiveness. Furthermore, this followership psychology is likely to be domain specific: The best person to follow in wartime may not necessarily be the best to follow for brokering peace (cf. Little, Burriss, Jones, & Roberts, 2007).

These followership mechanisms can be thought of as stimulus-response systems—or psychological heuristics—that utilize particular inputs from the environment to produce specific outputs pertaining to leadership emergence (Laustsen & Petersen, 2015). Inputs into this adaptive followership psychology likely consist of a mixture of external environmental cues (e.g., peace, conflict), leadership cues (e.g., faces, bodies, expertise), and followers' individual differences (e.g., in age, personality, political orientation). The evolutionary-contingency approach hypothesizes that leadership judgments will vary as a function of the match between environmental demands and the needs of followers. Facial cues may serve as inputs into this system as they are predictive—or probably were, in ancestral times—of the physical and psychological attributes of leaders. We now evaluate this evolutionary-contingency hypothesis by examining the main leadership attributes that humans infer from faces—dominance, trustworthiness, competence, and attractiveness/health—as well as their likely adaptive function (for a summary, see Table 1). Subsequently, we address several challenges and opportunities suggested by this evolutionary-contingency hypothesis for research on faces and leadership.

Dominance

People quickly infer dominance from faces, and one of its best predictors is facial masculinity (Todorov et al., 2015). More masculine faces—characterized by features such as a squared face, strong jawline, pronounced eyebrows, and thin eyes and lips—are judged as more dominant. Dominant-looking individuals are more likely to be judged as leaders (Spisak, Homan, et al., 2012). The association of dominance, facial masculinity, and perceptions of leadership ability may reflect a deeper evolutionary logic. Throughout human evolutionary history, various leadership tasks such as defending the group or resolving internal conflicts involved an aggressive component, and physical formidability would have been a reliable indicator of one's ability to resolve such conflicts (Von Rueden, Gurven, & Kaplan, 2008), as it does in nonhuman primates (Blaker & Van Vugt, 2014).

The evolutionary-contingency approach hypothesizes that facial cues of dominance are particularly relevant for leadership in domains of conflict and war. In accordance with this hypothesis, the faces of soldiers are rated as more dominant than the faces of politicians and businessmen (Mazur, Mazur, & Keating, 1984), and military cadets with more dominant-looking faces attain higher future ranks (Mueller & Mazur, 1996; but see Loehr & O'Hara, 2013). An experimental study in which the face shapes of George W. Bush and John Kerry were manipulated found that the masculine faces were favored when people were asked to vote for a wartime leader (Little et al., 2007). This finding has been replicated in studies using both morphed faces (Spisak, Homan, Grabo, & Van Vugt, 2012) and real faces in both Western and Asian samples (Spisak, Dekker, Krüger, & Van Vugt, 2012). When people imagined choosing a president when their country was at war, significantly more people voted for the candidate with the masculine-looking face. Such preferences for masculine-looking leaders appear to be particularly strong among conservative voters, presumably because they perceive intergroup relations as inherently more antagonistic than do liberal voters (Laustsen & Petersen, 2015).

Table 1. Facial Appearance and Leadership: An Evolutionary Framework

Leader attribute	Facial cues	Adaptive domains	Follower heuristic	Examples
Dominance	Masculinity, height-to-width ratio	Conflict, war	Follow dominant individual	Military leader, CEO of major company
Trustworthiness	Femininity, ethnicity	Cooperation, peace	Follow prosocial individual	Politician, NGO leader, hospital director
Competence	Age, baby-facedness	Knowledge (social, physical)	Follow informed individual	Scientist, statesperson, entrepreneur
Attractiveness, health	Facial symmetry/asymmetry, skin coloration	Physical challenge	Follow healthy individual	Sports captain, explorer

Trustworthiness

Masculine faces are rated as more dominant yet less trustworthy (Penton-Voak et al., 1999). The evolutionary-contingency hypothesis asserts that a trustworthy face will be particularly important for leadership judgments in settings requiring peace and diplomacy. The adaptive logic is that a trustworthy leader is better able to promote cooperation and avoid conflict, both within and between groups. Facial femininity—characterized by features such as a round face, big eyes, small eyebrows, and full lips—is a cue to trustworthiness, and various studies have shown that people vote for more feminine-looking leaders when seeking to maintain peace (Little et al., 2007). In a scenario in which people voted for a president when their country needed to broker and maintain a peaceful relationship with its neighbors, the feminine-looking candidate received more votes (Spisak, Dekker, et al., 2012). This particular study also showed that facial femininity (vs. masculinity) was a more important leadership cue than the biological sex of the face: People preferred a masculine-looking female leader over a feminine-looking male leader in wartime and the reverse in peacetime.

Other facial cues such as baby-facedness and ethnicity—which reflects group membership—could also affect perceptions of trustworthiness. People have an own-race bias when judging faces, and we suspect in-group bias occurs in judgments of leaders. The evolutionary-contingency approach suggests that followers prefer leaders from a different ethnic background only if they have particularly trustworthy faces. One study found that whereas White CEOs are less successful when they have a baby face, Black CEOs with baby faces perform better (Livingston & Pearce, 2009). A baby-faced leader may be perceived as less competent yet warmer and more trustworthy, and this could be an important asset for leaders who are out-group members (cf. Zebrowitz & Montepare, 2008).

Competence

People make quick judgments of the competence of leaders based on facial cues, and perceived competence predicts electoral success (Olivola, Eubanks, & Lovelace, 2014). A prominent cue to competence is the age of a face. Generally, older-looking individuals are judged to be more competent and leader-like (Spisak, Grabo, Arvey, & Van Vugt, 2014). This reflects an evolutionary logic: Age correlates with wisdom in the animal world, so one would expect there to be an (older) age bias in leadership emergence. In elephants, the oldest female—the matriarch—takes the lead in moving the troop to a waterhole that only she can remember exists (King et al., 2009). The evolutionary-contingency hypothesis argues that age may be a particularly relevant cue for inferring leadership in knowledge domains. Yet an important distinction should be made between traditional knowledge problems (e.g., which rituals to follow in case of the birth or death of a child) and new knowledge challenges (e.g., finding new hunting grounds or a medicine against a novel disease threat). This reflects a more general distinction between crystallized and fluid intelligence; the first correlates positively with age, and the latter negatively (Horn & Cattell, 1967). Is this distinction relevant to age-face preferences for leaders?

In two experiments involving morphed faces, we asked people to vote for a president in a fictitious election when the country required either stability (in economic and cultural practices) or change and innovation (Spisak, Grabo, et al., 2014). We then presented them with an older-looking face and a younger-looking face and examined their leader preferences (see Fig. 1). In line with the evolutionary-contingency hypothesis, in stable times there was a strong preference for the older-looking leader—regardless of his or her sex—yet during times of change, the younger-looking leader was preferred. This age effect was replicated in a business scenario involving the selection of a new CEO for a company involved in the exploitation of fossil energy resources (stability) or the transition to renewable energy resources (change). An implication is that when societies change more rapidly, younger leaders will be endorsed. Indeed, the average age of CEOs of the Fortune 500 companies is 55, whereas for the Internet companies in Silicon Valley, it is just 31 (Korunka, Frank, Lueger, & Mugler, 2003).

Fig. 1. Examples of prototypical faces created using facial-composite software to study age cues of leadership (Spisak, Grabo, Arvey, & Van Vugt, 2014; Experiment 1; $N = 60$). Results showed that participants preferred an older-looking face over a younger-looking face when choosing a political leader to "maintain stability during financially difficult times." Conversely, they preferred a younger-looking over an older-looking face when choosing a political leader "during times of technological change." Reprinted from "The Age of Exploration and Exploitation: Younger Looking Leaders Endorsed for Change and Older Looking Leaders Endorsed for Stability," by B. R. Spisak, A. Grabo, R. Arvey, and M. Van Vugt, 2014, *The Leadership Quarterly*, *25*, p. 809. Copyright 2014 by the authors.

Health and attractiveness

Leaders with attractive faces are generally more likely to do well in politics and business. In a study of Finnish politicians, researchers found that an increase in facial attractiveness by 1 standard deviation increased both male and female politicians' vote share by 20% (Berggren et al., 2010). An analysis of a famous U.S. presidential election debate between Nixon versus Kennedy supported this: Voters who listened to the debate on the radio saw Nixon as the winner, whereas those who watched the debate on television thought the better-looking Kennedy appeared as the winner (Druckman, 2003). The attractiveness premium in leadership has been attributed to a generic halo effect, whereby people ascribe a range of positive characteristics to attractive-looking individuals. Yet an evolutionary approach suggests that attractiveness may serve as a specific cue to a leader's physical health. Choosing healthy leaders may be particularly important in environments in which there are common disease threats. As in small-scale societies today (Von Rueden et al., 2008), leadership in early human societies was often physical, and thus it was important to choose leaders with no obvious signs of illness, especially for physical tasks (e.g., group movement).

Researchers have conducted several experiments to test this version of the evolutionary-contingency hypothesis (White, Kenrick, & Neuberg, 2013). Attractive-looking candidates in U.S. congressional districts where disease threats are higher (as measured by life expectancy and childhood mortality) were shown to receive a greater share of the votes. In a subsequent experiment, people were primed with either a disease threat (involving exposure to disgusting events in a hospital), a physical-safety threat (involving having an intruder in the house), or no threat at all and were then asked to rate the importance of various leader attributes. People in the disease-threat condition, compared with the other two conditions, considered physical attractiveness a more important characteristic of leaders, whereas there was no difference across conditions on such leader attributes as trustworthiness or competence. A set of recent studies showed that facial cues of health (skin coloration) are more important than cues of intelligence for people selecting leaders in hypothetical business scenarios (Spisak, Blaker, Lefevre, Moore, & Krebbers, 2014). The attractive-face premium may thus be a legacy of an evolutionary past in which leadership was primarily a physical matter. An implication is that for in-group challenges that require much physical effort—such as in team sports or wilderness expeditions—health cues may be particularly important in the choice of leadership.

Conclusions and Implications

There are several remaining questions concerning this novel evolutionary-contingency approach to inferring leadership from faces. First, while we have focused here on four primary leader attributes—dominance, trustworthiness, competence, and health/attractiveness—people may also infer leadership from whether faces seem intelligent, extraverted, agreeable, or charismatic. A recent study showed that charismatic leaders have less symmetrical facial features—presumably, these faces "stand out" (Senior et al., 2012). The evolutionary-contingency hypothesis suggests that charismatic qualities are particularly important when groups face novel challenges and followers are uncertain of what to do (Van Vugt et al.,

2008). Second, are these attributions as domain specific as an evolutionary-contingency perspective implies? Research suggests that in conflict situations, people prefer individuals with more dominant-looking faces as leaders yet not as friends (Laustsen & Petersen, 2015). Third, are these contingent preferences evolved or culturally learned? Hunter-gatherer societies, which resemble early human groups, have different types of leaders with different physiologies and psychologies. For instance, the Cheyenne (a native American tribe) had younger, aggressive, and more masculine leaders during warfare and older, politically skilled leaders during peace, suggesting that this is not a phenomenon restricted to modern, rich, educated Western populations (Price & Van Vugt, 2014). Leadership attributions made by young children closely match those made by adults when looking at the same faces (Antonakis & Dalgas, 2009), and children as young as 3 years old already infer dominance, trustworthiness, and competence from adult faces (Cogsdill, Todorov, Spelke, & Banaji, 2014). These findings hint at the possibility that inferring leadership from facial cues is not culturally sensitive and may not require prolonged social experience.

A final question to consider is whether these leader attributions have any basis in reality: Do they actually predict the behavior of leaders? There is mixed evidence. Naive people can accurately infer from facial images whether a political candidate is a Republican or Democrat, and competent-looking CEOs lead more profitable organizations (Rule & Ambady, 2008). Yet this latter effect may actually be reversed as more profitable companies hire CEOS with more competent-looking faces, and once past profit has been controlled for, the competent-face-advantage disappears (Graham, Harvey, & Puri, 2014). As Todorov et al. (2015) remarked, "When making social attributions of faces, people are making too much out of too little information" (p. 27). Adopting an evolutionary-psychology approach, we suggest that these leader perceptions may have had some predictive ability in the past, otherwise they could not have evolved. Perhaps people pay too much attention to facial cues in the modern world, as this is often the only information available about our leaders (Stewart, Salter, & Mehu, 2009). In the small-scale societies in which humans evolved, people had access to many relevant cues to infer leadership, including information about potential leaders' personalities and actual behaviors (Von Rueden et al., 2008). This presumably led to better inferences and fewer mistakes about whom to follow. Corroborating this, politically informed voters rely less on facial cues than uninformed voters in choosing political leaders (Riggio & Riggio, 2010). This suggests that we should not take leader judgments from faces at face value.

Recommended Reading

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Author Contributions

M. Van Vugt wrote the manuscript, and A. E. Grabo commented on the manuscript, compiled the references, and created the table and figure.

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