The Leadership Quarterly xxx (2014) xxx–xxx

Contents lists available at ScienceDirect

The Leadership Quarterly

journal homepage: www.elsevier.com/locate/leaqua

Facial appearance and leader choice in different contexts: Evidence for task contingent selection based on implicit and learned face-behaviour/face-ability associations

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ARTICLE INFO

Article history:
Received 4 April 2013
Received in revised form 31 March 2014
Accepted 8 April 2014
Available online xxxx

Editor: Panu Poutvaara

Keywords:
Faces
Leadership
War/peace
Facultative
Voting

ABSTRACT

Facial appearance plays a role in leader selection and some facial traits are more valued in certain contexts. Here, I examined associations between facial appearance and perceptions of leadership. In Study 1, male faces were rated for several traits and leadership ability under general, war-time, and peace-time scenarios. Masculinity was found to be favoured in war-time over peace-time, however, this association was diminished when controlling for dominance. In Study 2, cues to physical ability or cooperative personality were associated with different face traits. When subsequently asked to select the best leader for a physically competitive task, participants chose faces with the trait associated with physical ability. For a cooperative task, participants chose faces with the trait associated with cooperation. These data suggest that leaders may be chosen based on their visual characteristics because certain characteristics suggest that they possess abilities that make them well suited to lead in particular situations.

Introduction

Leaders are ubiquitous in human populations, enjoy high status within a group, and are generally chosen or elected as leaders. Previous research on status has distinguished between two forms of status: 1. prestige, which results in freely conferred status and 2. dominance, by which status is acquired forcefully (Henrich & Gil-White, 2001). In examining leadership selection behaviour and voting, the focus is explicitly on ideas of freely conferred status. One interesting facet of leadership choice that has emerged in recent years is the role that a prospective leader's visual appearance has on our choice of leaders. For example, physical appearance, as seen in video-taped mock election speeches, has been found to influence ratings of leadership ability (Cherulnik, 1995) and in US presidential elections post-1900 the taller candidate has won 81% of the time (e.g., Little & Roberts, 2012). Visual characteristics, including facial appearance, are thought to play an important role in a variety of judgments and decisions that have real occupational outcomes in many settings, including choice of our elected leaders (for review, see Little & Roberts, 2012). In the current paper, I test the notion that associations between face appearance and behaviour/physical ability underpin leadership perception using natural associations (Study 1) and experimentally created associations (Study 2) by examining variation across different voting contexts.

Focusing on faces and leadership choice, several recent studies have revealed the power that faces hold over our voting decisions. It has been demonstrated that ratings of competence in a large sample of head shot images of politicians are related to the outcome of actual US congressional elections (Todorov, Mandisodza, Goren, & Hall, 2005) and that such correlations are found based on only minimal exposure to faces (Ballew & Todorov, 2007). A similar finding based on 11 pairs of photographs from

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http://dx.doi.org/10.1016/j.leaqua.2014.04.002
1048-9843/

newspapers in Australia has also been reported (Martin, 1978). A further study has presented evidence that elections can be predicted by individuals voting based on facial shape alone using presidential and prime ministerial elections from several nations (Little, Burriss, Jones, & Roberts, 2007). Recent work has also shown that judgments from both American and Japanese raters predict real votes for American politicians, suggesting cross-cultural agreement on the power of faces in election (Rule et al., 2011). Further, it also appears that cues to election success based on facial appearance apply at a young age, even children prefer election winners over losers to be "captain of their boat" (Antonakis & Dalgas, 2009).

Taken together, there is increasing evidence that facial appearance is related to a candidate's success in real election to leadership roles. These findings then raise the question of why appearance might affect selection as a leader. People generally believe that facial appearance provides important guides to character (Hassin & Trope, 2000) and several researchers have highlighted expected behavioural and personality traits based on facial appearance as likely to underpin the link between facial appearance and leader choice (Little et al., 2007; Todorov et al., 2005). For example, perceived "competence" from facial photographs was found to be most closely associated with winning election in the study of US senators (Todorov et al., 2005). In terms of desiring particular traits in our leaders, competence is likely high on the list of essential characteristics as incompetent leaders will have detrimental effects on the group they lead. It can be expected that competence will be a trait valued in all leaders. In this way, possessing facial cues associated with perceived competence can lead individuals to be selected as leaders because observers infer competence based on those facial cues. A more recent study has suggested that other traits, specifically beauty, can have a greater impact on electoral outcomes than perceived competence (Berggren, Jordahl, & Poutvaara, 2010) and it is this trait I examine next.

Alongside competence, there are other traits that might be expected to be generally valued in our leaders. There are several reasons why individuals may desire their leaders to be facially attractive. Facial attractiveness has been linked with longevity (Henderson & Anglin, 2003), strong immune responses (Mingroni, 2007), and with heterozygosity in immune function genes that are associated with healthier immune systems (Roberts et al., 2005). Additionally, attractiveness is associated with a variety of positive personality attributions (Eagly, Ashmore, Makhijani, & Longo, 1991), and the assumption of positive personality traits may lead individuals to value attractive leaders if such traits in leaders are perceived as being beneficial to the group. Attractiveness is then a trait that is likely to be valued in potential leaders because such leaders may be (1) fit and healthy and (2) seen to possess personality traits that would be beneficial to the group that they lead. In line with this suggestion, it has been demonstrated that voters favour attractive over less attractive candidates (Efran & Patterson, 1974); attractive candidates have greater electoral success than less attractive candidates (Berggren et al., 2010), attractive political candidates are evaluated more positively than unattractive individuals (Budesheim & Depaola, 1994), there are positive relationships between rated physical attractiveness and perception of leadership competence (Surawski & Ossoff, 2006), and, in hypothetical voting situations, individuals are more likely to select an attractive over a less attractive candidate (Little, Roberts, Jones, & DeBruine, 2012).

There are also several reasons to desire a leader to be trustworthy. Trustworthiness is an interesting variable as it subsumes trust in the ability and competence of an individual but also their integrity and benevolence. Followers are likely to generally desire their leaders to act in the best interest of the group and not to pursue their own selfish goals while acting in a leadership capacity. Followers are also likely to expect that their leaders can be trusted to perform their job adequately and hence possibly have the skills/intelligence for the task in hand. Trust then could be critical in judging candidate leaders. Being perceived as trustworthy is beneficial to leaders. An important aspect of a leader's effectiveness is related to the degree to which subordinates and co-workers trust them (Burke, Sims, Lazzara, & Salas, 2007) and indeed a leader's ability to retain leadership is linked to having trust from their followers (Gomibuchi, 2004). Leadership perception is also tied to traits that may be related to trustworthiness. One study, examining many previous studies of leadership, highlights the role of positive personality traits in leader choice, finding that leadership correlated with initiative taking, intelligence, specific task competencies, and indicators of generosity (Van Vugt, 2006). These factors seem directly related to being able to trust that leaders can perform their function and that they will put group interests over selfish interests. Other studies of leadership also highlight integrity; for example, if leaders are seen as unbiased then their judgements are considered more fair and generate more positive feelings than if leaders are thought to be biased (De Cremer, 2004). In an experimental task comparing hypothetical votes for trustworthy versus untrustworthy appearing faces, individuals were more likely to select the trustworthy face to lead their country (Little et al., 2012). Similar results are seen in rating studies where perceived trustworthiness is positively related to likelihood of voting for candidates (Little et al., 2012).

Task contingent selection and fit-to-task

Alongside competence, attractiveness, and trustworthiness, dominance may also relate to leader choice and this attribute has been studied in terms of facial masculinity being valued differently under different contexts. While some facial traits might be expected to be preferred in leaders generally, it is also possible that some face traits are differently valued according to the leadership situation. Different faces possess different traits that may be seen as more or less important according to current circumstances. Previous work has highlighted that competencies for specific tasks are important in evaluating leadership abilities (Van Vugt, 2006). Such context-dependent variability in choice is a common feature in other human preference research examining mate choice (e.g., Little, Jones, Penton-Voak, Burt, & Perrett, 2002).

One example of such facultative leader choice comes from studies demonstrating that masculine and feminine faces are favoured differently when voting under war-time and peace-time scenarios (e.g., Little et al., 2007). In the first demonstration of

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this effect, across two studies (one manipulating the face shape of real politicians George Bush and John Kerry and one directly manipulating masculinity using the shape difference between male and female faces), masculine faces were relatively more favoured when individuals are asked to vote for a war-time leader while feminine faces were relatively more favoured for a peace-time leader (Little et al., 2007). This finding has been replicated using images manipulated in shape and colour (Spisak, Homan, Grabo, & Van Vugt, 2012) and when rating individual unmanipulated images (Spisak, Dekker, Kruger, & van Vugt, 2012). The logic behind this contextual shift comes from the value of traits associated with masculine and feminine faced leaders under the different scenarios. Masculine faces appear dominant but also untrustworthy compared to feminine faces (Perrett et al., 1998). Dominant appearing masculine individuals may be valued under certain conditions, such as in times of intergroup conflict when their physical dominance may prove useful (Little et al., 2007). During a time of war, a dominant-appearing leader may inspire confidence and intimidate enemies. However, during peace-time, dominance is likely not to be such a useful trait; when negotiation and diplomacy are needed, the perceived interpersonal skills of feminine faced individuals may outweigh the value of a dominant masculine leader (Little et al., 2007). Indeed, in our evolutionary history, there are various pressures, such as intergroup conflict, in which traits linked to success in hostile interaction would be valuable, such as physical strength, or within or between group cooperation. In times when intergroup conflict was less relevant, traits linked to successful coordination would be valuable, such as interpersonal social skills that maintain cooperative relationships (Spisak, Nicholson, & van Vugt, 2011).

Beyond masculinity, other facial traits have been found to be associated with preferences for war-time versus peace-time leaders. For example, older faces are more likely to be selected as a leader during intergroup conflict in hypothetical voting decisions (Spisak, 2012), perhaps because older individuals are seen as more dominant than younger individuals. Additionally, while both attractiveness and trust are generally favored in leaders, these traits appear differently valued according to war-time and peace-time scenarios. Attractiveness appears to be favored in war-time over peace-time scenarios, potentially because physical fitness becomes more important during war-time, while trustworthiness appears favored on peace-time over war-time scenarios, potentially because behaving in a trustworthy manner is more important in fostering cooperation during a time of peace (Little et al., 2012). These ideas are in line with earlier ideas of a "contingency model of leadership effectiveness" in which a leader's effectiveness is based on two main factors: a leader's specific attributes and a leader's situational control (Fiedler, 1964). Previous authors have called these contextual effects "facultative leader choice" (Little et al., 2007), also called a "biosocial contingency model of leadership" by Spisak, Homan, et al. (2012), but, because fit-to-task is likely to be important across selection tasks, I adopt the term "task contingent selection" as suggested by Little and Roberts (2012).

The current studies

The current studies looked to expand on research on voting behaviour being influenced by facial appearance by examining the link between perceived personality/physical ability from faces and hypothetical voting under different conditions. Previous studies have variously suggested that attractiveness, competence, trustworthiness, and masculinity (associated with dominance) are related to voting decisions based on facial appearance. It has also been noted that perceived personality and physical abilities may underpin changing leadership choices under war-time and peace-time scenarios and this remains to be directly tested. In Study 1, I examined the influence of implicit associations between attractiveness, competence, trustworthiness, masculinity, and dominance and how these perceptions relate to ratings of leadership ability generally and in war-time and peace-time scenarios. It was predicted that certain traits would be generally valued in leaders (competence, trustworthiness, dominance) but that the relative importance of these traits would change between war-time (with dominance becoming more important) and peace time contexts (with trustworthiness becoming more important). Such data also allows the examination of which traits may explain why masculine faces are chosen more often as war-time leaders and it was predicted that perceptions of dominance and/or trustworthiness may account for this association. In Study 2, I examined how implicit face-behaviour relationships may come to impact on task contingent selection by pairing a face trait (wide versus narrow spaced eyes) with either physical prowess or cooperative behavioural traits and examining how this pairing influenced perceived leadership competence across physically competitive and cooperative tasks. It was predicted that, if individuals select leaders based on learned associations between faces and physical/behavioural traits, pairing a face trait with a trait would lead participants to perceive faces with those traits as better leaders if the trait associated with them was relevant to the task.

Study 1

In Study 1, male facial photographs were rated for a variety of traits including dominance, trustworthiness, and competence. Images were also rated for masculinity and how good a leader the rater thought the person would be in general, in a time of war, and in a time of peace. Using these ratings it was possible to relate attribution to perceptions of leadership ability and to examine which traits underlie preferences for masculine versus feminine faces as leaders under war-time and peace-time conditions.

Participants

Photographs

Thirty-three men (aged 18–25, mean = 20.9, SD = 1.8) were photographed.

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Ratings

Different groups of participants rated each trait. Only women rated the men's faces for attractiveness. Fifteen individuals (9 women, 6 men, aged 17–42, mean = 23.9, SD = 7.2) rated the faces for competence. Twenty individuals (9 women, 11 men, aged 17–40, mean = 26.4, SD = 4.3) rated the faces for dominance. Twenty-six individuals (20 women, 6 men, aged 17–56, mean = 32.4, SD = 11.2) rated the faces for trustworthiness. Twenty individuals (15 women, 5 men, aged 17–43, mean = 28.4, SD = 8.3) rated the faces for masculinity. Eighteen individuals (13 women, 5 men, aged 17–57, mean = 28.5, SD = 12.0) rated the faces for leadership ability. Seventeen individuals (11 women, 6 men, aged 17–47, mean = 28.7, SD = 9.3) rated the faces for leadership ability in a time of war. Sixteen individuals (10 women, 6 men, aged 17–40, mean = 24.9, SD = 6.4) rated the faces for leadership ability in a time of peace. Twenty seven women (aged 17–26, mean = 20.4, SD = 2.6) rated the faces for attractiveness.

Photography and stimuli

Full frontal colour facial photographs were taken of all participants under standardised diffuse lighting conditions and against a constant background. Participants were asked to pose with a neutral facial expression and were asked to pull their hair back from their face. Participants were also asked to remove any spectacles and participants with beards were excluded from the sample. The outline of the face was marked and this information was used to mask the image to exclude hair and other non-facial information from the image.

Procedure for ratings

Participants were asked to rate the 33 faces for one of eight traits: competence, masculinity, attractiveness, dominance, trustworthiness, leader, war-time leader and peace-time leader. Exact questions were: “How competent is this person?”, “How masculine is this person?”, “How attractive is this person?”, “How dominant is this person?”, “How trustworthy is this person?”, “Rate the person for how good a leader they would be.”, “Rate the person for how good a leader they would be in a time of war.” and “Rate the person for how good a leader they would be in a time of peace.” Ratings were made on a 7-point scale (1 = low, 7 = high, except for leader ratings the anchors were 1 = bad, 7 = good). Faces were presented to participants on a computer screen individually and in a random order. Rating the face from 1 to 7 brought up the next face. There was no time limit for the ratings.

Results

Mean score for each face image was calculated across raters for each of the rated traits. Interrelationships were examined using Pearson Product Moment correlations, with linear regression analysis, and with partial correlations. In order to compare faces that were selected more as a war-time than a peace-time leader a difference score was calculated by subtracting the rating as a peace-time leader from the rating as a war-time leader. For this score, labelled war-time vs. peace-time leader, higher scores reflect the person was seen more as a war-time than peace-time leader while lower scores reflect that the person was seen more as a peace-time than war-time leader.

General voting

Ratings of general leadership were significantly and positively related to ratings of war-time leadership ($r = .716$, $p < .001$) and peace-time leadership ($r = .547$, $p = .001$). Ratings of general leadership were also significantly and positively related to ratings of attractiveness ($r = .737$, $p < .001$), competence ($r = .764$, $p < .001$), dominance ($r = .552$, $p = .001$), and masculinity ($r = .363$, $p = .038$). The relationship for trustworthiness ($r = .341$, $p = .052$) was only close to significance.

In a linear regression using attractiveness, competence, dominance and trustworthiness to predict general leadership, the overall model was significant ($F(4,28) = 18.19$, $p < .001$, $r^2 = .72$) and competence ($\beta = .376$, $p = .037$), dominance ($\beta = .295$, $p = .015$), and trustworthiness ($\beta = .224$, $p = .042$) were all significant predictors. Attractiveness was not a significant predictor in this model ($\beta = .266$, $p = .134$). It should be noted that the β value is higher for attractiveness than trustworthiness but that a greater standard error prevents the former from reaching significance.

War-time and peace-time leadership

Ratings of war-time leadership were significantly and positively related to ratings of attractiveness ($r = .708$, $p < .001$), competence ($r = .611$, $p < .001$), dominance ($r = .737$, $p < .001$), and masculinity ($r = .519$, $p = .002$). The relationship for trustworthiness ($r = -.024$, $p = .895$) was not significant.

In a linear regression using attractiveness, competence, dominance and trustworthiness to predict war-time leadership, the overall model was significant ($F(4,28) = 18.40$, $p < .001$, $r^2 = .72$) and dominance ($\beta = .503$, $p < .001$) and attractiveness ($\beta = .408$, $p = .024$) were significant predictors. Competence ($\beta = .102$, $p = .553$) and trustworthiness ($\beta = -.079$, $p = .458$) were not significant predictors in this model.

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Ratings of peace-time leadership were significantly and positively related to ratings of attractiveness ($r = .392$, $p = .024$), competence ($r = .374$, $p = .032$), and trustworthiness ($r = .618$, $p < .001$). The relationships for dominance ($r = .320$, $p = .069$) and masculinity ($r = .163$, $p = .364$) were not significant.

In a linear regression using attractiveness, competence, dominance and trustworthiness to predict peace-time leadership, the overall model was significant ($F(4,28) = 8.13$, $p < .001$, $r^2 = .54$) and only trustworthiness ($\beta = .624$, $p < .001$) was a significant predictor. Competence ($\beta = -.082$, $p = .715$), attractiveness ($\beta = .224$, $p = .321$), and dominance ($\beta = .294$, $p = .056$) were not significant predictors in this model, although the latter was close to significance.

Finally, war-time leadership and peace-time leadership ratings were positively correlated ($r = .365$, $p = .037$).

War-time versus peace-time leadership

War-time vs. peace-time leader was significantly and positively related to ratings of attractiveness ($r = .412$, $p = .017$), dominance ($r = .494$, $p = .004$), and masculinity ($r = .394$, $p = .023$) and close to significantly related to ratings of competence ($r = .329$, $p = .062$). War-time vs. peace-time leader was significantly negatively related to ratings of trustworthiness ($r = -.483$, $p = .004$).

In a linear regression using attractiveness, competence, dominance and trustworthiness to predict war-time vs. peace-time leadership, the overall model was significant ($F(4,28) = 8.63$, $p < .001$, $r^2 = .55$) and only trustworthiness ($\beta = -.542$, $p < .001$) was a significant predictor. Competence ($\beta = .162$, $p = .462$), attractiveness ($\beta = .239$, $p = .283$), and dominance ($\beta = .281$, $p = .063$) were not significant predictors in this model, although the latter was close to significance.

Masculinity and war-time versus peace time leadership: Controlling for other traits

The above analysis demonstrated that masculinity was positively related to being seen as a war-time versus peace-time leader. To examine if this association was mediated by other traits associated with masculinity, two partial correlation analyses were conducted controlling for either trustworthiness or dominance, traits also found to co-vary with perception of war-time versus peace-time leadership abilities above. When controlling for trustworthiness, a partial correlation revealed a significant relationship remained between war-time vs. peace-time leader and ratings of masculinity ($r = .523$, $p = .002$). When controlling for dominance, a partial correlation revealed a non-significant relationship between war-time vs. peace-time leader and ratings of masculinity ($r = .133$, $p = .468$). This analysis suggests that facial masculinity is valued in war-time versus peace-time leaders via an association with perceived dominance.

Study 2

Study 1 demonstrated several associations between attributions and perceived leadership ability as well as showing that perceived dominance was related to variation in the value of masculine faced leaders under war-time and peace-time conditions. In Study 1, these associations were implicit natural associations between face traits and certain other traits. In Study 2, I aimed to examine whether a learned association between a face trait and physical ability/behaviour could also generate task contingent selection based on facial appearance. This would provide direct empirical evidence that appearance-ability associations drive task contingent leadership selections. To do this, I adopted a "hidden covariation" paradigm (Lewicki, 1986), in which visual traits are consistently paired with certain types of descriptions. Firstly, wide or narrow spaced eyes were paired either with descriptions of physical prowess or cooperativeness. Participants were then asked to select leaders for a task involving physical competition or a task involving cooperation from images which had either wide or narrow spaced eyes. If associations between face and physical ability/behaviour drive task contingent selection then it would be expected that when the trait is paired with physical prowess it would be favoured in physical competition over cooperative tasks while if paired with cooperative behaviour it would be favoured in cooperative over physical competition tasks.

Participants

Participants were 103 individuals (74 female, 29 male, aged 17–50 years old, mean age = 24.8, SD = 7.5).

Stimuli

Faces

Original male faces were selected from a database collected by the author. All stimuli were constructed using established (Little, DeBruine, & Jones, 2005; Perrett et al., 1998) techniques for manipulating the appearance of face images in an objective, systematic manner (for technical details including mathematical algorithms see Rowland & Perrett, 1995; Tiddeman, Burt, & Perrett, 2001). Eye-spacing was manipulated by transforming all images relative to a pair of face images, one original image and one image where all the points delineating the eyes had been moved outwards (Fig. 1). The distance change in eye-spacing distance from original (measured from the centre of the eye) in the presented images was 21 pixels for each individual face, either wider or narrower. The same transform was applied to all starting images ensuring the wide and narrow eye-spacing images differed from the real starting images in an identical manner but in opposite directions. This procedure for manipulating eye spacing in face images is methodologically similar to that in previous studies (Little et al., 2005; Little, DeBruine, Jones, & Waitt, 2008).

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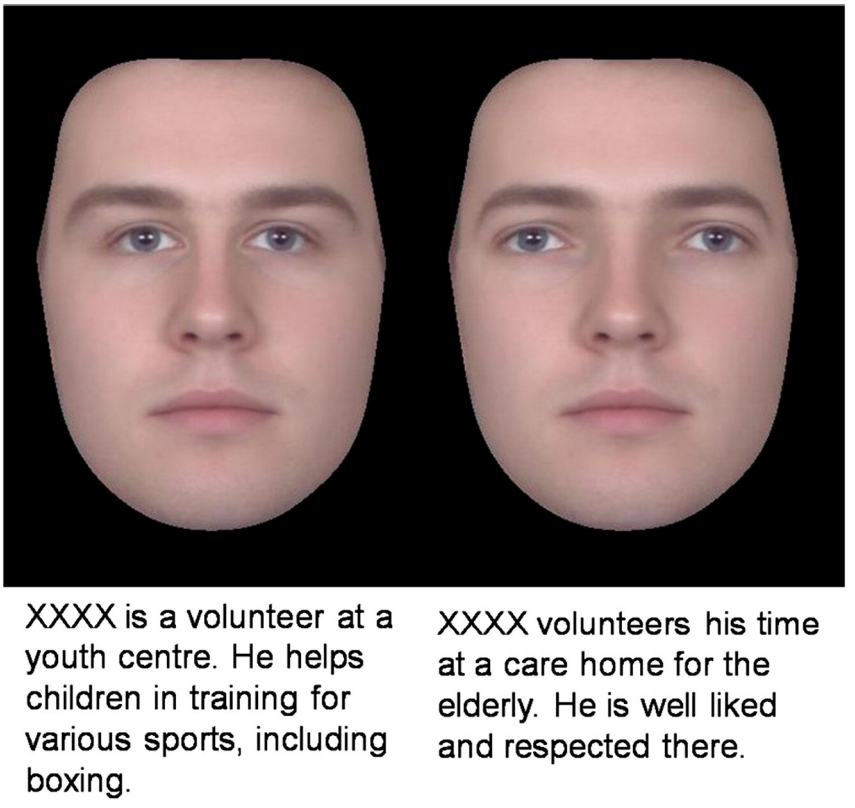

Fig. 1. Example pairs of transformed composite images representing narrow (left) and wide (right) spaced eyes and example descriptions representing physical (left) and cooperative (right) cues used in Study 2.

For the learning phase, 8 composite images (each made up from 2 images) were transformed plus and minus for eye-spacing. Composite images were created by marking 179 landmark points on each constituent face. The mean shape was calculated for each set of images and each image warped to the average shape. The images were then superimposed to create an image with the average shape and colour of the constituents (Rowland & Perrett, 1995; Tiddeman et al., 2001). For the post-test, 20 new composite images (each made up from 2 images) were also transformed plus and minus for eye-spacing, creating 20 pairs of images where one image had narrow-spaced eyes and wide-spaced eyes.

All images were standardised for size on interpupillary distance prior to transformation and masked around the outline of the face. The magnitude of the deviation from average for the wide-set version was identical to the magnitude of deviation from average for the close-set version for each identity used in all parts of the experiment. Example face images transformed in this way are shown in Fig. 1.

Descriptions

Eight matched pairs of descriptions were written emphasising either physical prowess (e.g., cycles to work everyday, training for various sports) or cooperation tendencies (e.g., always ready to help people, well liked). The descriptions were matched in terms of variables such as volunteering or job descriptions but varied in other text. Example descriptions are shown in Fig. 1.

Procedure

Participants were randomly allocated to rate either suitability for a cooperative or a physical task (see below). Participants were then further randomly allocated to condition (A or B). The conditions were identical except that in condition A narrow eye spacing was paired with cooperative descriptions and wide eye spacing with physical descriptions. This pairing was reversed in condition B. For rating the cooperative task, 26 participants were in condition A and 27 in condition B. For rating the physical task, 24 participants were in condition A and 26 in condition B.

The learning phase consisted of rating the 16 faces presented alongside the paired descriptions using the question "Rate the person for how good a leader you think they would be." Ratings were made on a 7-point scale (1 = low, 7 = high). Faces were presented to participants on a computer screen individually and in a random order. Rating the face from 1 to 7 brought up the next face. There was no time limit for the ratings.

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In the test phase, participants were shown 20 different novel pairs of faces transformed on eye spacing. Participants rating for the cooperative task were asked to choose "Which person would make a better leader in a task that involved physical competition?". Participants rating for the physical task were asked to choose "Which person would make a better leader in a task that involved cooperation with others?". Pairs were of the same identity, one transformed to have wide eye-spacing and one transformed to have narrow eye-spacing. The twenty pairs were presented in a random order with side of presentation also randomised and were presented on screen until participants made their choice.

As part of an experimental check, after completing the study participants were asked to guess what the experiment was about: "What did you think the study was about? Please answer in the box below:".

Experimental check

Only 33 participants attempted to guess the purpose of the study. Of the responses, 9 stated equivalents to "do not know" and 18 stated that the study was about faces and voting for features but did not mention eyes or eye-spacing (e.g., "People with beards seem to be better leaders", "Symmetry"). Only 6 participants mentioned eyes or eye-spacing and, importantly, no participant mentioned the learning phase. Responses focused on an eye manipulation being inherently associated with different leadership styles (e.g., "Physical changes in the positions of the eyes can make different perceptions of the ability to lead in some different tasks.").

Results

The average number of "votes" cast for wide or narrow spaced eyes as a better leader was calculated for each participant as a percentage.

A univariate ANOVA with leader type (cooperative/physical), condition (A/B), and sex (male/female) as between-participant factors revealed a significant interaction between leader type and condition ($F(1,95) = 5.38$, $p = .023$, $\eta_p^2 = .054$, Fig. 2). No other main effects or interactions were significant (all $F(1, 95) < 2.35$, $p > .129$, $\eta_p^2 < .024$).

Choice of eye spacing in the faces was further analyzed with independent-samples *t*-tests comparing differences in choice according to condition A or B separately for participants rating for the physical leader or cooperative leader. These revealed that participants were significantly more likely to choose faces with traits associated with physical ability when choosing the best leader for a physically competitive task as seen in a significant difference between participants in the two conditions ($t(48) = 2.11$, $p = .039$). Participants were also significantly more likely to choose faces with traits associated with cooperate traits when choosing the best leader for a cooperative task as seen in a significant difference between participants in the two conditions ($t(51) = 2.41$, $p = .020$). See Fig. 2 for mean scores.

Discussion

The two studies presented here investigated how facial appearance can influence leader choices and the perception of leadership ability in different contexts. Study 1 highlighted that competence, dominance, and trustworthiness all related to general leadership perceptions and were valued in potential leaders. In Study 1, examining the difference score for war vs. peace-time leadership, in line with previous studies, masculinity in male faces was positively related to rated suitability as a leader in times of war while faces relatively lower in masculinity were seen as more suitable leaders in times of peace compared

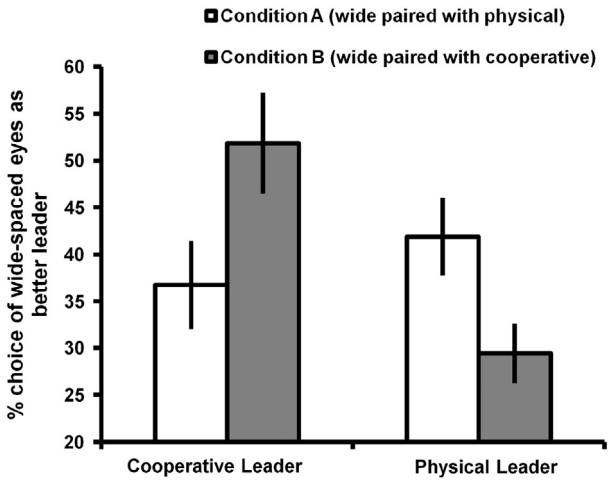

Fig. 2. Study 2: Percentage choice of faces with wide spaced eyes as better leaders according to type of leader and condition in Study 2 (±1SEM). In condition A narrow eye spacing was paired with cooperative descriptions and wide eye spacing with physical descriptions. This pairing was reversed in condition B.

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to times of war. Study 1 additionally highlighted that traits such as dominance and trustworthiness were also related to suitability to lead under different conditions. From the difference score, attractiveness and dominance were seen as relatively more important traits in war-time than in peace-time leaders, whereas trustworthiness was valued relatively more in peace-time than war-time leaders. While previous authors have suggested that these traits may underpin why masculine faces are differently valued according to condition, Study 1 provides the first direct evidence for this idea. When controlling for dominance, associated with masculinity, no significant relationship was found between perceived masculinity and relative suitability as a war-time or peace-time leader. Examining the difference score between war-time and peace-time leadership, Study 1 also replicated other effects seen in previous studies, such as attractiveness being relatively more valued in a war-time than peace time leader (Little et al., 2012).

Study 1 addressed the implicit associations that people hold about men's faces and how good they will be as leaders. Study 2 demonstrated that learnt face-behaviour or face-ability associations can be responsible for driving task contingent section based on facial appearance. In Study 2, individuals learned that wide eye spacing was associated with either physical ability or cooperative tendencies, with narrow eye spacing associated with the other trait. When subsequently asked to choose a leader for a physically competitive task, participants chose face images with the trait which was paired with physical ability and when asked to choose a leader for a cooperative task they chose face images with the trait which was paired with cooperative tendencies. Study 2 then demonstrated how certain face traits may come to be associated with perceived traits that are likely tied to success at particular tasks and hence then impact on leader choice for those tasks.

While the focus of this paper is on task contingent selection, Study 1 highlighted that some traits are seen to be positive assets in ratings of leadership in general, irrespective of context. This can be seen in the positive correlation between ratings of ability as a war-time and peace-time leader as well as in the fact that in the original ratings some traits were positively associated with perception of leader quality for both war-time and peace-time ratings (e.g., attractiveness). The ratings of general leadership ability perhaps show the traits that are seen as useful in leaders independent of context. For example, when not controlling for other traits, competence was positively related to perceived leadership ability in all contexts, in line with studies showing competence predicts real election outcome (Todorov et al., 2005). Masculinity was also positively related to perceived leadership ability in all contexts, although not significantly so for peace-time judgements. This does contrast with one study showing that babyfacedness, possessing facial traits similar to infants and sharing commonalities with feminine face traits, is unrelated, or in some cases, positively related to election success (Poutvaara, Jordahl, & Berggren, 2009).

The results here complement previous findings demonstrating that aspects of facial appearance are related to real election outcomes (Berggren et al., 2010; Little et al., 2007; Todorov et al., 2005). As the individual traits of politicians become increasingly important (Caprara & Zimbardo, 2004), and with politicians' increasing use of visual media, the appearance of candidates' faces is likely to play an important role in voter choice. Indeed, it has long been suggested that facial appearance may influence voting decisions, particularly since the famous televised debates between Kennedy and Nixon. In one debate, those with visual information (from television) thought that Kennedy had won the debate, while those with only auditory information (from radio) thought that Nixon had won (Kraus, 1988).

Given the impact of facial appearance on decisions about leader ability, it is important to examine why individuals might rely on facial information in making such judgements. Decision-making is often considered a complicated cognitive process (Schall, 2005). While much information underlies each important decision we make, it is also possible that we are influenced by simpler cognitive mechanisms, such as stereotyping, when making decisions under high cognitive load (Macrae, Milne, & Bodenhausen, 1994), relevant to real world election decisions. A reliance on stereotypes may also be enhanced when there is no other information on which the decisions can be based, as was the case in the studies reported here. Voting decisions are dependent on many other factors than just the candidates' faces, not least of which must be the candidates' policies. It has, however, been suggested that voters may often use a simplifying cognitive strategy to code the large amount of data available to them about politicians and their personalities, as well as their policies (Caprara, Barbaranelli, & Zimbardo, 1997). As stereotypes can also represent a cognitive shortcut (Macrae et al., 1994), attributions to faces may be another way that voters discriminate between candidates when presented with an overload of information or if they lack other relevant information. Indeed, one study has shown that television exposure is positively related to voting intent for politicians whose appearance is appealing and that this effect is particularly true for individuals who have lower levels of political knowledge (Lenz & Lawson, 2011). Of course, in the studies here no information other than visual information was available and so the role of social perception is likely to be emphasised. Some studies have shown that individuals can be somewhat accurate in inferring another's personality from just their facial appearance (Little & Perrett, 2007; Penton-Voak, Pound, Little, & Perrett, 2006). Limited accuracy may help explain why individuals use facial cues such as these to help guide important decisions in the absence of other cues.

These data presented here suggest that individuals are selecting and rating the ability of leaders based on how well their perceived abilities or proclivities fit the current task, an example of task contingent selection. Changing context, for example, from war-time to peace-time, can change the type of face that is selected as the best leader. While previous studies have suggested that behaviour and/or physical traits associated with certain face traits may underpin such facultative leader choices (Little et al., 2007; Spisak, Homan, et al., 2012), the two studies here directly assess this proposition. In Study 1, controlling for rated dominance removed the effect of facial masculinity being more associated with ability as war-time relative to a peace-time leader. This strongly indicates this perceived trait associated with masculinity drives such effects. In Study 2, eye spacing was artificially associated with different behavioural traits and physical abilities. This suggests that individuals can quickly learn associations between face traits and other traits (Lewicki, 1986), and these learned associations can come to drive task contingent leader selection.

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Changes in associations were evident across context and this may relate to some inconsistencies seen between previous studies. For example, while some studies have found that competence ratings predict real world elections better than attractiveness or trustworthiness ratings (Todorov et al., 2005), other studies have found the opposite, that attractiveness ratings are better predictors than competence or trustworthiness ratings (Berggren et al., 2010). While apparently conflicting, the leadership ratings in the current study support both patterns of data, depending on which context is examined. In the general leadership ratings, competence was a better predictor than attractiveness, as predicted by Todorov et al.'s (2005) findings. However, for the war-time leadership ratings, attractiveness was a better predictor than competence, as predicted by Berggren et al.'s (2010) findings. Potentially, the discrepancy could lie in the perception of the raters of the current state of world affairs or the current political climate within a country. Several years separate the two studies and Todorov et al.'s (2005) sample is drawn from the US while Berggren et al.'s (2010) sample is drawn from Finland and so either time or country could potentially explain why the patterns follow either a war-time or general voting strategy. In fact, ratings of general leader ability may track a person's current opinion of their country or the state of world affairs. For example, the current study shows a stronger relationship between general and war-time leadership ratings than peace-time, but if the rater believed their country more in a time of peace, perhaps general leadership judgements would become more aligned to peace-time leadership. It is of course also possible that other contextual or historical factors that differ between the two time points/countries influence the relative balance of the importance of voting for competent or attractive candidates, which could account for the different findings. Indeed, it is likely that factors beyond war-time and peace-time conditions impact on who is perceived to be the best leader at a particular place or time. For example, different traits in leaders may be preferred during hard economic times or if individuals/groups value certain traits for cultural reasons.

Task contingent selection of leaders is particularly interesting as it shows that individuals are making adaptive choices of leader: a strong dominant leader may signal to the enemy that the nation is capable of fighting during war-time and a pro-social leader will share the benefits of the country fairly when times are more peaceful. The manipulation of war-time and peace-time context in Study 1 was relatively simple. It seems likely that participants would assume that peace-time leaders would need skills and abilities relevant to cooperation and negotiation while war-time leaders would need skills relevant to conflict and aggression. In Study 2, the questions were more specific and related to smaller scale leadership judgement rather than running of countries. It is interesting to note that the same face effects appear for both types of judgement.

The change in perception of leader based on facial shape according to context (Study 1, Study 2) suggests that an individual's perception of current events and the exact situation faced might strongly influence his or her choice of leader. Individuals appear to take into account environmental or situational cues, such as the current situational threat to their country or task at hand, and select the best candidate accordingly. Such flexibility in leadership choice could be regarded as adaptive. Of course, in some cases, modern combat removes some of the benefit to having a physically competitive leader in times of war, if that leader is not present on the battlefield. Following Henrich and Gil-White (2001), leader choice may be based on heuristics that were of use in ancestral environments. The results in Study 1 here could then reflect the perceived best choices for small groups and small scale intergroup conflict rather than the best choices to lead nations during times of war or peace. One issue with the studies here is that the images used were of young adult men and therefore might not necessarily represent the sort of individuals that are usually voted for to run a country. There is no strong reason to believe that different face traits would be valued in older faces, although older faces themselves may be be seen to make more suitable leaders. Additionally, in Study 2, the physical versus cooperative descriptions were relatively short and it is possible that they contained cues to other traits. The descriptions did, however, contain relative cues to the relevant traits. In the example presented in Fig. 1, both individuals are described as volunteers, a cooperative cue, but one version emphasises physical ability by cueing a sporting activity and the alternate version cooperation by cuing the word “care” and noting the individual was liked in this capacity.

In summary, the two studies here highlight the role of facial appearance in leadership choice and the role of physical and behavioural attributions in face perception. While there are shared traits in faces that may indicate a person will be a good leader, other traits are more or less valued according to the task or leadership situation: task contingent selection. The studies here demonstrated that the reason that the faces of certain individuals are valued in different situations is because they are cues to relevant behavioural traits and physical inclinations. These associations between face traits and behaviour and/or ability are likely learned across the lifespan but new associations appear to be formed quickly. Overall, these data suggest that leaders may be chosen based on their visual characteristics because these traits suggest they possess a personality or physical ability that make them well suited to lead in particular situations.

Acknowledgments

Anthony Little was supported by a Royal Society University Research Fellowship.

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