Personality and Individual Differences 94 (2016) 101–106

Contents lists available at ScienceDirect

Personality and Individual Differences

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

Moving speeches: Dominance, trustworthiness and competence in body motion

Markus Koppensteiner *, Pia Stephan, Johannes Paul Michael Jäschke

Department of Anthropology, University of Vienna, Althanstraße 14, 1090, Vienna, Austria

ARTICLE INFO

Article history:
Received 11 August 2015
Received in revised form 6 January 2016
Accepted 8 January 2016
Available online 18 January 2016

Keywords:
Nonverbal communication
Motion cues
Social cognition
Politics
Ethology
Impression formation

ABSTRACT

People read dominance, trustworthiness and competence into the faces of politicians but do they also perceive such social qualities in other nonverbal cues? We transferred the body movements of politicians giving a speech onto animated stick-figures and presented these stimuli to participants in a rating-experiment. Analyses revealed single body postures of maximal expansiveness as strong predictors of perceived dominance. Also, stick-figures producing expansive movements as well as a great number of movements throughout the encoded sequences were judged high on dominance and low on trustworthiness. In a second step we divided our sample into speakers from the opposition parties and speakers that were part of the government as well as into male and female speakers. Male speakers from the opposition were rated higher on dominance but lower on trustworthiness than speakers from all other groups. In conclusion, people use simple cues to make equally simple social categorizations. Moreover, the party status of male politicians seems to become visible in their body motion.

1. Introduction

Nonverbal cues affect impression formation (Ambady, Bernieri, & Richeson, 2000; Borkenau, Mauer, Riemann, Spinath, & Angleitner, 2004) and decision making in the public arena (Rule & Ambady, 2011; Zebrowitz & Montepare, 2008). For instance, attributions of dominance, trustworthiness, competence and other personality traits to specific facial features of political candidates can be reliable predictors of hypothetical and actual election outcomes (Antonakis & Dalgas, 2009; Chen, Jing, & Lee, 2014; Little, Roberts, Jones, & DeBruine, 2012; Olivola & Todorov, 2010; Oosterhof & Todorov, 2008; Poutvaara, Jordahl, & Berggren, 2009).

Apart from facial and other nonverbal cues people also read socially relevant information from and into body motion. They recognize emotions in arm movements (Pollick, Paterson, Bruderlin, & Sanford, 2001), in whole body gestures (Atkinson, Tunstall, & Dittrich, 2007), and in movements displayed during interpersonal dialog (Clarke, Bradshaw, Field, Hampson, & Rose, 2005). Moreover, they perceive personality traits in dance movements (Hugill, Fink, Neave, Besson, & Bunse, 2011) and in walking behaviors (Thoresen, Vuong, & Atkinson, 2012), and health related cues and personality in the body movements of politicians giving a speech (Koppensteiner, 2013; Koppensteiner & Grammer, 2010; Kramer, Arend, & Ward, 2010).

Humans and animals appear to use expansive body postures, expressive body movements, and broad gestures to display power and dominance (Carney, Hall, & LeBeau, 2005; De Waal, 2007; Eisenberg & Reichline, 1939; Mehrabian, 1972; Tiedens & Fragale, 2003). Also, people adopting open and expansive postures (i.e., power posing) have an enhanced sense of power (Carney, Cuddy, & Yap, 2010; Huang, Galinsky, Gruenfeld, & Guillory, 2011; Park, Streamer, Huang, & Galinsky, 2013). All this implies that there is a link between dominance and expansiveness in body postures and body movements.

Communicating dominance as well as building connections to followers are vital abilities for leaders and politicians. Skilled self-presenters communicate their dominance by reassuring followers in noncompetitive contexts while threatening those who would jeopardize group stability (Stewart, Salter, & Mehu, 2009; Stewart, Waller, & Schubert, 2009). Consequently, speakers may not only present themselves differently according to their personality and their rhetorical skills but also according to situational factors such as their role in parliament.

In the present study we selected brief video clips of politicians and mapped the body movements of the speakers onto animated stick-figures to control for appearance features. Then we asked people to judge these stimuli on dominance as well as on two additional basic social categories, namely trustworthiness and competence (Fiske, Cuddy, & Glick, 2007; Oosterhof & Todorov, 2008). In line with previous research we examined to what degree expansiveness in body postures and in body motion is related to judgments of dominance. To track down the relative contributions of body motion and expansiveness, we also investigated the influence of the quantity of motion. Analyses of the relationship of perceived trustworthiness and perceived competence with nonverbal cues were exploratory, because there is no research upon which to derive clear hypotheses. Our measures were

* Corresponding author.
E-mail address: markus-koppensteiner@gmx.net (M. Koppensteiner).

http://dx.doi.org/10.1016/j.paid.2016.01.013

simple because first impressions of speakers' body movements seem to be guided by simple and salient cues (Koppensteiner, 2013).

This study pursued several aims. In accordance with previous research we intended to show that people's impressions of a speaker's dominance are guided by expansive body postures and expansive body movements. In addition, we investigated whether the quantity of body motion also influences ratings of dominance. We also explored whether ratings of trustworthiness and competence, which have been shown to be important qualities in judgments of faces, are related to our "nonverbal measures". Males tend to challenge someone else's status by dominance contests (Mazur & Booth, 1998). Moreover, male speakers appear to display motion behaviors that lead to higher ratings of extraversion than the motion behaviors displayed by female speakers (Koppensteiner & Grammer, 2011) and perceived extraversion of speakers' motion behaviors is positively related to perceived dominance (Koppensteiner, Stephan, & Jäschke, 2015). Thus, we expected male speakers to show more dominance displays than female speakers. Finally, we examined whether speakers (i.e., their stick-figure animations) from the opposition and speakers from the government are judged differently on dominance, trustworthiness and competence and whether such differences show an interaction with gender.

2. Method

2.1. Participants

At locations throughout the University we recruited 60 participants (33 females and 27 males; age $M = 24.2$ years, $SD = 4.1$) to take part in our rating experiment (see also Koppensteiner et al., 2015). Participants received a financial compensation of €5.

2.2. Stimulus preparation

Using a random number generator we selected 60 speeches from parliamentary sessions (29.11.2012, 30.11.2012, 14.12.2012) of the German Parliament. Deviations from random selection were necessary to reach equal numbers of male and female speakers (i.e., 30 different males and females) and nearly equally sized groups representing the parties. From each of the selected speeches we extracted brief, randomly chosen video segments with an average length of 15 s. Thirty-two speakers belonged to opposition parties (i.e., SPD, Bündnis 90/Die Grünen, Die Linke) and 28 speakers belonged to the government (i.e., CDU, FDP).

To encode behavior we used the program SpeechAnalyzer, which runs through a movie frame by frame. In the first frame of each video clip, so called landmarks were positioned on the speaker's forehead, the hollow of the throat between the collar bones, ears, shoulders, elbows, hands, a spot in the middle of the body near the navel, and at the corners of the lectern (see also Koppensteiner, 2013; Koppensteiner & Grammer, 2010). Shifts in the positions of these body regions were automatically tracked by software routines based on optical flow (e.g., landmark of left shoulder in frame one was moved to position of left shoulder in frame two). As these software routines are prone to error, landmark positions often had to be corrected doing drag and drop operations with the computer mouse. This procedure of behavior encoding on the basis of landmark shifts yielded a time series of two dimensional marker positions that were used to create stick-figure animations (Fig. 1) representing the speakers' body movements. We only used every third frame in the encoding process; linear interpolation was used to fill in missing frames.

2.3. Procedure

Participants were brought to our laboratory and asked to rate stick-figure animations of speakers. They received instructions on how to use the rating program and performed the rating tasks on their own (i.e., no experimenter present) using a computer-controlled interface. Stick-figure video clips were presented on the left-hand side of the user interface; rating scales that were named dominant, trustworthy, and competent were displayed on the right hand side. Participants completed their ratings by dragging a track bar control to the right pole (i.e. named strongly disagree) or the left pole (i.e., named strongly agree) of the rating scales using a computer mouse. The scales were divided into 200 subunits, with −100 being the minimum value and +100 being the maximum value (i.e., similar to a visual analog scale). Time to complete the ratings was unrestricted. Each participant rated a subset of 20 randomly selected stick-figure animations (i.e., each participant rated her/his own set of stimuli, which were presented in randomized order). All video clips were presented without sound.

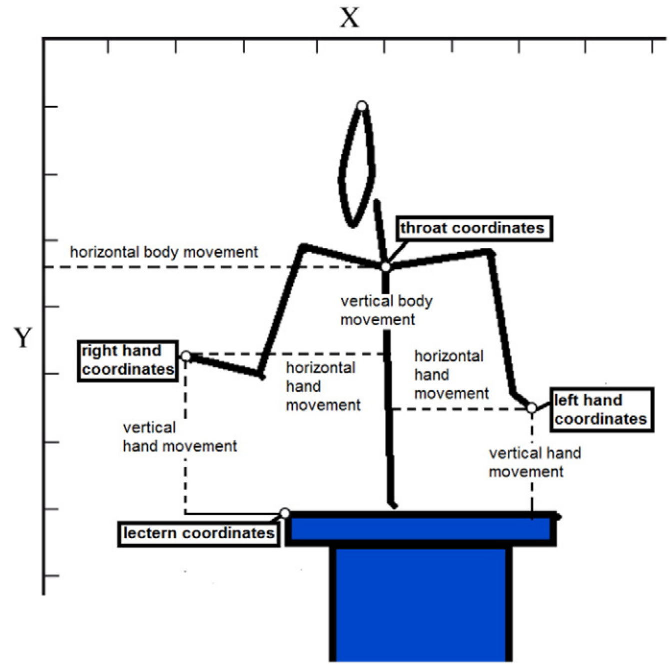

Fig. 1. Landmarks that have been used to extract horizontal and vertical movements of different body parts. Variation in distances between landmarks yields time series of amplitudes that were used to create measures of expansiveness.

2.4. Analysis

Coordinate data obtained during the behavior encoding was used for analyses of body motion. Previous studies have shown that the horizontal and vertical components of body motion affect impression formation differently (Koppensteiner, 2013; Koppensteiner & Grammer, 2010). For this reason we decomposed the speakers' body movements into horizontal (x) and vertical (y) components by calculating distances between the coordinates of different landmarks. We determined the magnitude of vertical hand movements: the sum of lectern(y) – right hand(y) and lectern(y) – left hand(y), and vertical body movements: throat(y) – lectern(y). In a second step we determined horizontal hand movements: throat(x) – right hand(x) and left hand(x) – throat(x) and horizontal body movements: throat(x) – origin(x). This gave four time series of changing landmark distances from which we extracted the amplitudes between successive local maxima and local minima. The sum of all vertical amplitudes served as an estimate of the overall vertical distances a moving body produced (i.e., overall vertical expansiveness in motion) while the sum of all horizontal amplitudes served as an estimate of the overall horizontal distances a body produced (i.e., overall horizontal expansiveness in motion). The sum of the number of local minima and maxima, on the other hand, served as an estimate of the vertical quantity of motion and as an estimate of