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Short Communication

From body motion to cheers: Speakers' body movements as predictors of applause

Markus Koppensteiner *, Pia Stephan, Johannes Paul Michael Jäschke

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

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ABSTRACT

Appearance cues and brief displays of behavior are related to people's personality, to their performance at work and to the outcomes of elections. Thus, people present themselves to others on different communication channels, while their interaction partners form first impressions on the basis of the displayed cues. In the current study we examined whether people are able to read information from politicians' body motion. For a rating experiment we translated short video clips of politicians giving a speech into animated stick-figures and had these animations rated on trustworthiness, dominance, competence and the Big Five personality dimensions. Afterwards we correlated the ratings with the applause and the hecklings that the speakers received throughout their entire speech. This revealed that speakers whose body movements were perceived as high on dominance, as high on extraversion and as low on agreeableness received more applause. Although the results obtained need support from additional studies they indicate that body motion is an informative cue in real life settings.

1. Introduction

Appearance cues and brief displays of behavior (so called "thin slices") are a sufficient source of information for forming quite accurate impressions of other people. To a certain degree, measures of such first impressions predict job performances, financial performances of companies, leadership effectiveness and a stranger's personality (Ambady, Bernieri, & Richeson, 2000; Borkenau, Mauer, Riemann, Spinath, & Angleitner, 2004; Harms, Han, & Chen, 2012; Hecht & LaFrance, 1995; Kenny, Horner, Kashy, & Chu, 1992; Olivola, Eubanks, & Lovelace, 2014; Rule & Ambady, 2008; Wong, Ormiston, & Haselhuhn, 2011). Consequently, people seem to verbally and nonverbally communicate their abilities and personality to their social environment while their social environment, in turn, uses this information to create an impression (Ambady et al., 2000).

Given such evidence it is not surprising that appearance and other nonverbal cues also play a role in the domain of politics. For instance, politicians or leaders that show facial microexpressions of facial affect or a heightened overall nonverbal expressiveness influence the emotional state of their audience as well as the impressions this audience forms of their leaders (Cherulnik, Donley, Wiewel, & Miller, 2001; Stewart, Waller, & Schubert, 2009). Moreover, people readily attribute trustworthiness, competence, dominance, and other personality traits to facial photographs of political candidates and some of these ratings are reliable predictors of actual and hypothetical voting decisions (Little, Roberts, Jones, & DeBruine, 2012; Olivola & Todorov, 2010; Oosterhof & Todorov, 2008; Poutvaara, Jordahl, & Berggren, 2009).

In the current study we extended the research on first impressions of politicians. We explored whether people's ratings of socially relevant traits can be predictors of the behavioral responses a politician might receive from the plenary in the parliament. Our focus was on dynamic cues such as gestures and body motion because people appear to be able to read affective states from motion or to attribute different personalities to different motion cues (Clarke, Bradshaw, Field, Hampson, & Rose, 2005; Hugill, Fink, Neave, Besson, & Bunse, 2011; Pollick, Paterson, Bruderlin, & Sanford, 2001; Thoresen, Vuong, & Atkinson, 2012). For this reason we translated short video clips of politicians into stick figure animations in order to create abstract representations of the speakers' body movements that diminish the influence of confounding variables such as appearance cues and the speakers' gender (see also Koppensteiner & Grammer, 2011). These animations were then rated on dominance, competence, trustworthiness and the Big Five personality dimensions.

* Corresponding author. Tel.: +43 (01) 4277 54713.
E-mail addresses: markus.koppensteiner@univie.ac.at (M. Koppensteiner), pia.stephan@univie.ac.at (P. Stephan), johannes.jaeschke@univie.ac.at (J.P.M. Jäschke).

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Previous studies have already found that people ascribe personality traits to the body movements of speakers (Koppensteiner, 2013; Koppensteiner & Grammer, 2010). The current study investigated whether trait ratings of the speakers' body movements are coupled to the amount of applause or hecklings the speakers received throughout their entire speech. We thus intended to demonstrate that people make sense of parsimonious nonverbal cues and that judgments based on such cues can serve as predictors of behavioral outcomes in a real life setting of high ecological validity. Other "thin slices" studies have already linked job performances or election results to certain behaviors or the appearance of a person. Such variables, however, provide no insight into the direct impact of nonverbal cues on human communication. In contrast to that our research not only focused on body motion but also examined its relationship to behavioral responses that occur in a direct interaction between an audience and a speaker. We provide evidence that motion cues, indeed, reflect socially relevant information that affects behavioral responses arising in interpersonal communication processes.

To sum up, by using trait ratings as predictors of real life outcomes (i.e., audience reactions) we show that people not only read meaning into body motion but also infer relevant social information from it.

2. Method

2.1. Stimuli

We randomly selected 60 speeches (30 male and 30 female) from three parliamentary sessions of the German parliament. From these speeches, we extracted brief, randomly chosen video segments with an average length of 15 s.

To create stick-figure movies of the speakers' performances, we used the computer program SpeechAnalyzer that enabled us to run through a movie frame by frame and to position landmarks on the speakers' major joints and their heads (Koppensteiner, 2013; Koppensteiner & Grammer, 2010). To capture body movements these landmarks were repositioned according to the position shifts of a speaker's body. Thus, landmark positions were translated into time series of two dimensional coordinates on which basis we created stick figure movies we used for our rating experiments.

2.2. Procedure

At locations throughout the University of Vienna we recruited 60 persons (33 females and 27 males; age $M = 22.5$ years, $SD = 3.7$) for the stick figure rating experiment. Participants performed the rating task on their own using a computer-controlled interface. Stimuli were presented on the left-hand side of the user interface; rating scales with the items dominant, trustworthy, and competent and items from a German version of a brief questionnaire measuring the Big Five personality domains (i.e., Ten-Item Personality Inventory, TIPI) were presented on the right hand side (Gosling, Rentfrow, & Swann Jr., 2003; Muck, Hell, & Gosling, 2007). The scales were divided into 200 subunits with 0 indicating strongly disagree and 200 strongly agree. Each participant rated a subset of 20 randomly selected stick figure animations. Participants received financial compensation of €5.

2.3. Analyses

The German parliament provides transcripts of the parliamentary sessions. These transcripts contain the original wording of given speeches and how often speakers received applause or were heckled. For statistical analysis applause per speech length (in seconds) and heckling per speech length were correlated with stick figure ratings.

3. Results and discussion

The number of trait ratings for the stick figure clips ranged from 18 to 22. Each personality dimension of the Big Five questionnaire (i.e., TIPI) consisted of two items. For this reason we used simple bivariate correlations to measure the reliability of the scales (Table 1). Analyses revealed high reliabilities for extraversion and agreeableness, a moderate reliability for conscientiousness and a relatively low one for openness. Reliability for emotional stability was unacceptably low. For this reason we did separate analyses for both items of emotional stability.

Trait ratings were averaged for each speaker. Correlations between ratings revealed a wide range of interdependencies (Table 2). The prominent intercorrelations between dominance, agreeableness, and extraversion were of special importance, because ratings in these categories were noteworthy predictors of the applause the speakers received throughout their speeches (Table 3). More precisely, speakers whose stick-figures were perceived as being high on dominance and high on extraversion but low on agreeableness received more applause from their colleagues in the plenum.

Less pronounced but still non-negligible relationships were found between both items of emotional stability (i.e., calm, emotionally stable and anxious, easily upset) and applause and between trustworthiness and applause. Thus, to a certain degree speakers who received more applause were perceived as less calm

Table 1
Bivariate correlations between corresponding items of the Big Five.

Reversed scored items	Extraversion Reserved, quiet	Conscientiousness Disorganized, careless	Openness Conventional, uncreative	Agreeableness Critical, quarrelsome	Emotional stability Anxious, easily upset
Extraverted, enthusiastic	.89*** [.83, .93]				
Dependable, self-disciplined		.70*** [.54, .81]			
Open to new experiences, complex			.53*** [.32, .70]		
Sympathetic, warm				.85*** [.76, .90]	
Calm, emotionally stable					.03 [−.22, .28]

Notes: Algebraic signs of the reversed scored items' scores were inverted before correlation analysis. Numbers are Pearson correlation coefficients, numbers in brackets are 95% confidence intervals; $N = 60$.
*** $p \leqslant .001$.