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Cuddy, Amy J.C., Caroline A. Wilmuth, and Dana R. Carney. "The Benefit of Power Posing Before a High-Stakes Social Evaluation." Harvard Business School Working Paper, No. 13-027, September 2012.

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Working Paper

13-027

August 31, 2012

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RUNNING HEAD: Preparatory Power Posing Affects Performance

The Benefit of Power Posing *Before* a High-Stakes Social Evaluation

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Key Words: Power, Power Posing, Social Evaluation, Nonverbal Behavior

Abstract

The current experiment tested whether changing one's nonverbal behavior prior to a high-stakes social evaluation could improve performance in the evaluated task. Participants adopted expansive, open (high-power) poses, or contractive, closed (low-power) poses, and then prepared and delivered a speech to two evaluators as part of a mock job interview, a prototypical social evaluation. All speeches were videotaped and coded for overall performance and hireability, and the potential mediators of speech quality (e.g., content, structure) and presentation quality (e.g., captivating, confident). As predicted, high power posers performed better and were more likely to be chosen for hire, and this relationship was mediated only by presentation quality, not speech quality. Power pose condition had no effect on body posture during the social evaluation, thus highlighting the relationship between *preparatory* nonverbal behavior and *subsequent* performance.

Word count as is: 133
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Although virtually every social interaction involves reciprocal evaluations, the stakes are often higher in one direction than the other. That is, one party often has more power to impact the future of the other, controlling access to coveted resources such as college admissions, jobs, and venture capital. For example, in a job interview, the interviewer has power over the job candidate's future, and consequently the importance of the interviewer's evaluations of the candidate dwarf the importance of the candidate's evaluations of the interviewer. However, in the moments before walking into high-stakes social evaluation many people shrink in their chairs and hunch over their phones, adopting nonverbal postures that can cause them to feel even more powerless (Carney, Cuddy, & Yap, 2010). But what if people did the opposite – stretching out and occupying more space, rather than slouching and taking up less?

In both human and non-human primates, expansive, open postures reflect high power, whereas contractive, closed postures reflect low power (Carney, Hall, & Smith LeBeau, 2005; Darwin, 1872/2009; de Waal, 1998; Hall, Coats, & Smith LeBeau, 2005). Not only do these postures reflect power, they also *produce* it; in contrast to adopting low power poses, adopting high power poses increases explicit and implicit feelings of power and dominance, risk-taking behavior, action orientation, pain tolerance, and testosterone (the dominance hormone), while reducing stress, anxiety, and cortisol (the stress hormone; Bohns & Wiltermuth, 2011; Carney, Cuddy, & Yap, 2010; Carney, Yap, Lucas, Mehta, Ferrero, McGee, & Wilmuth, under review; Huang, Galinsky, Gruenfeld, & Guillory, 2011). Moreover, compared to classic power manipulations that do not involve nonverbal behavior, such as role assignments and power recall primes, adopting high-power poses leads to stronger effects on thought abstraction and action orientation (Huang et al., 2011).

The acquisition of power causes individuals to feel more positive, in control, and optimistic about the future, and to become more goal-oriented and likely to take action (Anderson & Galinsky, 2006; Burgmer & Englich, 2012; Anderson & Berdahl, 2002; Galinsky et al., 2008; Guinote, 2007; Smith, Jostmann, Galinsky, & van Dijk, 2008). Thus, power could improve performance in high-stakes social evaluations by positively orienting people toward goals and by liberating them from the psychological constraints that could prevent them from performing to their full potential. Given that it is often difficult or risky to overtly change the power dynamics in such a situation, assuming a high-power pose represents a subtle way of making oneself feel more powerful.

The aim of the current research was to test whether adopting high- vs. low-power poses before a high-stakes social evaluation can improve an individual's performance on the evaluated task. We also sought to identify the mechanism through which power posing could improve performance by considering two possible mediators: speech quality and presentation quality. Speech quality – the extent to which the content of the speech is intelligent, clear, and well structured – influences potential investors' evaluations of and level of interest in pursuing entrepreneurs' proposed investment opportunities, for example (Clark, 2008). Presentation quality – the extent to which the presentation of the speech is enthusiastic, confident, and captivating – significantly predicts interviewers' general evaluations of applicants and final hiring decisions (Young & Kacmar, 1998). Similarly, an examination of 185 videotaped two-minute VC pitches revealed that venture capitalists were far more likely to invest in entrepreneurs who displayed confidence, passion, and enthusiasm (Balachandra, under review). The enhanced cognitive functioning resulting from power (Smith et al., 2008) suggests that high-power poses may boost speech quality; however, considerably more research implies that high

power poses would impact presentation quality. Power reduces stress, anxiety, and negative affect, which would presumably make an individual more confident, captivating, and enthusiastic (Carney et al., under review; Anderson & Berdahl, 2002). Furthermore, high testosterone and low cortisol, a hormone profile that is characteristic of high-status and effective leaders and is induced by power posing, is associated with reduced stress, increased sense of personal control, and increased engagement and performance in competitive tasks – all of which underlie presentation quality (Carney, Cuddy, & Yap, 2010; Sherman, Lee, Cuddy, Renshon, Oveis, Gross, & Lerner, in press; Mehta, Jones, & Josephs, 2008; Mehta & Josephs, 2010).

Preparatory power posing might serve as a simple, free tool that has the potential to be adopted by and beneficial to almost anyone. Thus, the current experiment tested the hypotheses that (1) power posing before a high-stakes social evaluation improves performance in the evaluated task, and (2) this effect is mediated by presentation quality, not speech quality.

Methods

Participants and Procedure.

Sixty-six Columbia University students participated in a study called "Physical Motion and Performance," and were paid $15 for their participation. Five participants were excluded from analyses: four did not understand the instructions for the speech task and one did not maintain the power poses during speech preparation, reducing the total N to 61 (40 women and 21 men; 22 white, 12 black, 20 Asian, 5 Latino, 2 "other). Participants were randomly assigned to adopt either two (one standing, then one sitting) high-power (i.e., expansive and open) or two low-power (i.e., contractive and closed) postures for one minute each. While in the poses, participants engaged in an impression formation task, wherein they watched a slideshow of pictures on the computer and were asked to form opinions about the people in the pictures.

After completing the power manipulation, participants engaged in an adaptation of the Trier Social Stress Test (Kirschbaum, Pirke, & Hellhammer, 1993). They were asked to imagine that they are about to interview for their dream job and then to prepare and perform a five-minute speech detailing their strengths, qualifications, and why they should be chosen for the job to two "experienced evaluators". To reinforce the power manipulation, participants were instructed to maintain the second high- or low-power pose during the five-minute preparation phase, bringing the total time participants spent in the poses to 7 minutes. Speech preparation and performance were videotaped to verify that the poses were maintained in the preparation phase and to code for the performance measures in the performance phase. Immediately after giving their speeches, participants completed a three-item measure of self-reported feelings of power, answering how *dominant, in control,* and *powerful* they felt on a 5-point scale (1 = not at all, 5 = a lot), $\alpha = .82$.

Variable Coding & Inter-Rater Reliability.

Four trained, hypothesis- and condition-blind coders coded the videotaped speeches on two dependent and two mediator variables. The two main dependent variables were (1) *overall performance* ("Overall, how good was the interview?" 1 = awful, 7 = amazing), and (2) *hireability* ("Should this participant get the job?" 1 = no, 2 = maybe, 3 = yes). The two potential mediating variables were coded using 7-point Likert-style scales (1 = not at all, 7 = extremely); each was a composite of multiple individually-coded variables: (1) *speech quality* (qualifications, intelligent, structured, straightforward; $\alpha = .89$), and (2) *presentation quality* (captivating, confident, enthusiastic, awkward (reverse scored); $\alpha = .79$). As is typically done, two coders rated the same subset of 10% of the videos, and inter-rater reliability was calculated on that subset for each variable (Carney et al., 2005). After inter-rater reliability was determined to be substantially high (i.e., $\alpha > .70$), one of the coders went on to rate the remaining 90% of the

videos. The average inter-rater reliability for all of the variables was .90, with a range of .80 to .98. Table 1 presents inter-rater reliabilities for all variables.

Results

Manipulation Check.

As expected, high-power posers felt significantly more powerful (M = 2.56) than lower power posers (M = 2.07), $F(1)=4.021$, $p = .05$, $\eta_p^2 = .065$.

Overall Performance and Hireability

One-way analyses of variance (ANOVA) examined the effect of power poses on performance and hireability. As hypothesized, coders rated high-power posers significantly higher on performance (M = 4.63) than low-power posers (M = 3.81), $F(1)=8.33$, $p =.005$, partial $\eta_p^2 = .124$; and rated high-power posers significantly higher on hireability (M = 2.43) than low-power posers (M = 2.00), $F(1)=7.22$, $p=.009$, $\eta_p^2 = .109$.

Mediation

To better understand *why* high-power posers experienced better job interview outcomes on the critical DVs, performance and hireability, both possible mediators were regressed onto the dependent variables. Presentation quality predicted both performance ($\beta = .772$, $t(60) = 6.24$ $p = .000$) and hireability ($\beta =.405$, $t(60) = 2.238$, $p = .029$). Speech quality predicted neither performance ($\beta = .049$, $t(60) = .398$ $p = .692$) nor hireability ($\beta = .139$, $t(60) = .766$ $p = .447$).

Our next set of analyses tested mediation. Two separate series of analyses – one for performance and one for hireability -- regressed (a) performance/hireability (the criterion) onto power pose (the predictor); (b) presentation quality (the mediator) onto power pose; and (c) simultaneously performance/hireability onto both power pose and presentation quality. Figures 1 and 2 present the results of those analyses. As predicted, presentation quality fully mediated the

effects of power pose on both overall performance (Sobel Z=2.21, p = .027) and hireability (Sobel Z = 2.03, p = .042).

Body Expansiveness DURING the Speech

To rule out the possibility that body expansiveness *during* the interview was inflating performance ratings, by signaling high vs. low power, we also coded the videos for body expansiveness during the speeches on a 7-point scale (1=very contractive, 7=very expansive). A one-way ANOVA revealed no significant difference between high- (M = 0.48) and low-power posers (M = 0.47) on body expansiveness during the interview $F(1,59)=.001$, $p=.97$, partial $\eta_p^2 = .000$.

Discussion

The current experiment demonstrated that preparatory power posing affects participants' presentation quality during a job interview, which influences judges' evaluations and hiring decisions. The high-power posers, in contrast to low-power posers, appeared to better maintain their composure, project more confidence, and present more captivating and enthusiastic speeches, in turn leading to higher overall performance evaluations. Power posing did not affect speech quality.

Previous research has focused on how nonverbals that are enacted *during* interactions affect how a perceiver evaluates and responds to the actor. For example, smiling, hand gesturing, nodding, and leaning forward during an interview increase a person's chance of being selected (Gifford, Ng, & Wilkinson, 1985; Parsons & Liden, 1984; Word, Zanna, & Cooper, 1973). The experiment presented here goes a step further, demonstrating how nonverbal behavior that is enacted *before* an interaction can also influence how a perceiver evaluates and responds to the actor, even when the perceiver has not observed the actual nonverbal display. As reported, high-

and low-power posers did not differ in the extent to which they adopted expansive vs. contractive postures *during* the interview; it was *preparatory* power posing that impacted perceivers' evaluations of and responses to the actor.

It is possible that power posing boosted participants' performance during the preparation phase, which then improved performance during the actual interview. As previous research has shown, psychological power enhances executive function (Smith et al., 2008), which is critical to the ability to effectively plan and prepare for challenging situations. If power posing caused participants to better prepare, it may have improved interview performance via one or both of the following routes: by improving the quality of the speech itself, or by boosting confidence as a result feeling more prepared. The results of this study do not support the former given that speech quality was not affected by power pose condition. Future research could explore whether and how power posing impacts preparation for social evaluations.

High-stakes social evaluations are characterized by a power asymmetry in the sense that the evaluator has control over the future of the individual being evaluated. By nonverbally manipulating power, the high-power posers were effectively imbued with the psychological and physiological perks typically associated with high power, despite being low-power in relation to the evaluators. This suggests that preparatory power posing can serve as a simple, free, nonverbal tool that has the potential to be adopted by and beneficial to almost anyone, including those who are chronically powerless due to lack of physical resources or hierarchical status.

Table 1. *Variable Descriptions and Inter-Rater Reliabilities*

Variable	Description / Coder Instructions	Inter-rater reliability (*r*)
Expansiveness	How expansive was the speaker's body?	.96
Performance:		
Overall performance	How good was the interview?	.97
Hireability	Should this person get the job?	.80
Presentation Quality:		
Enthusiastic	How enthusiastic was the speaker?	.88
Captivating	Extent to which the speaker captured your attention.	.81
Confident	Extent to which the speaker seemed confident.	.95
Awkwardness (reverse-scored)	Extent to which the speaker seemed awkward.	.92
Speech Quality:		
Structured	How structured and organized was the speech?	.89
Straightforward	How straightforward was the speech?	.93
Intelligent	How smart and intelligent did the speaker come across?	.94
Qualifications	How impressive were the qualifications that the speaker mentioned in the speech?	.87

Figure 1

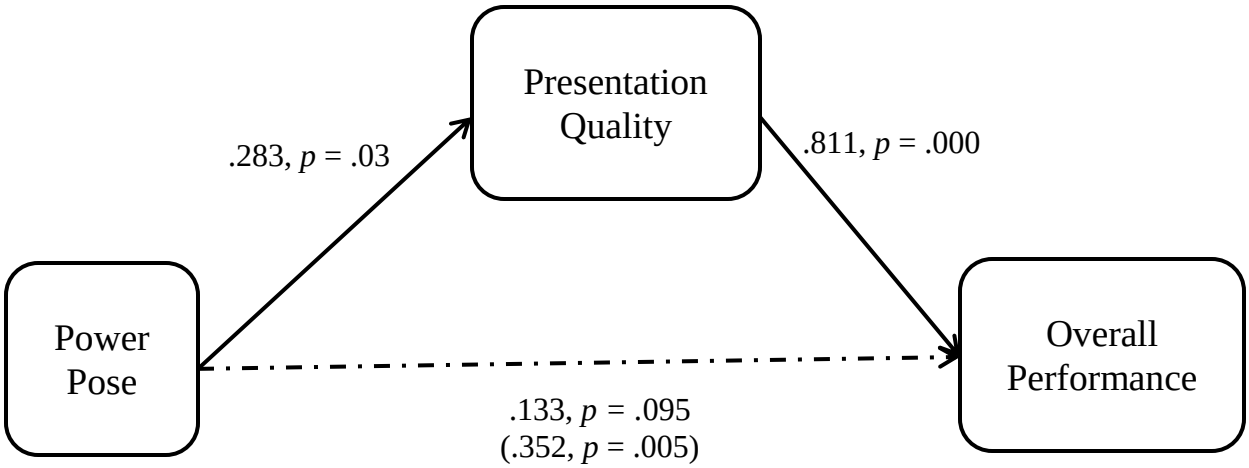

Presentation Quality
.283, p = .03
.811, p = .000
Power Pose
Overall Performance
.133, p = .095
(.352, p = .005)

Figure 2

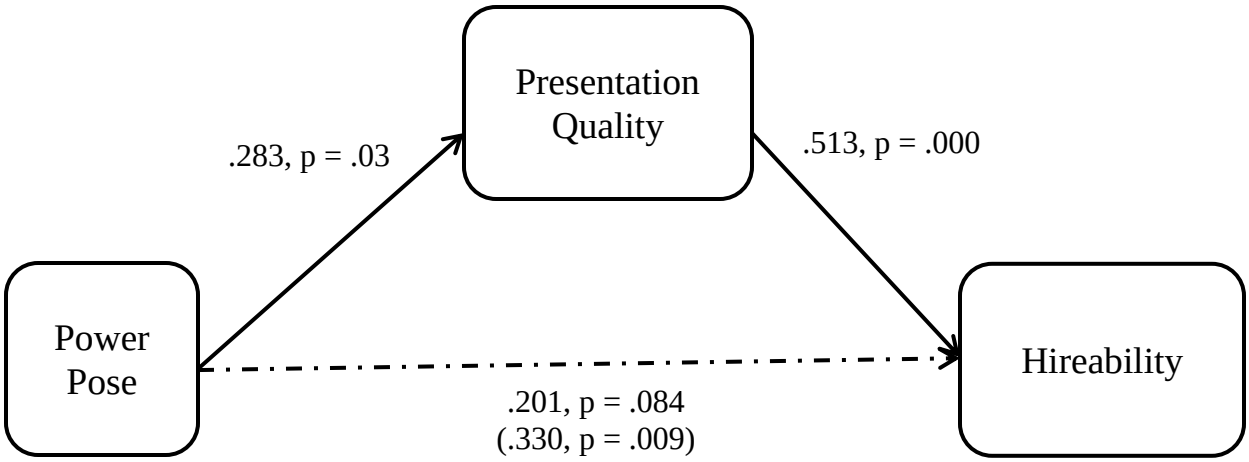

Presentation Quality
.283, p = .03
.513, p = .000
Power Pose
Hireability
.201, p = .084
(.330, p = .009)

Figure Captions

Figure 1. Regression analyses showing that presentation quality mediated the effect of power pose on overall job interview performance. The coefficient in parentheses represents the direct effect of power pose on performance, whereas the adjacent coefficient was observed when presentation quality was added to the model. Broken lines indicate nonsignificant effects. Sobel test: $Z = 2.21$, $p = .027$.

Figure 2. Regression analyses showing that presentation quality mediated the effect of power pose on ratings of whether or not the person should be hired. The coefficient in parentheses represents the direct effect of power pose on hireability, whereas the adjacent coefficient was observed when presentation quality was added to the model. Broken lines indicate nonsignificant effects. Sobel test: $Z = 2.03$, $p = .042$.

Acknowledgments

The authors enthusiastically thank Madeline Bernstein, Christina Leonelli, Emily Rutter, and Vera Sundström for their contributions to this research, and Pam Smith for her very helpful feedback on a draft of this paper

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Supplementary Online Materials

Power Posing Instructions:

High-power Condition

"This study is about physical motion and performance and so there is a physical position we'd like you to try out. Please stand up and stand with your two feet apart and hands on your hips like this [experimenter demonstrates for participant]. You will maintain this pose for one minute and then after one minute is up, I notify you to get into a second pose. The second pose involves you sitting in the chair with your hands behind your head and your feet up on the table like this [experimenter demonstrates for participant]. While you are maintaining these positions, you will be viewing pictures on the computer screen. Please form an opinion or impression of the people in the pictures."

Low-power Condition

"This study is about physical motion and performance and so there is a physical position we'd like you to try out. Please stand up and stand with your two feet crossed over one another and your hands crossed over your hips like this [experimenter demonstrates for participant]. You will maintain this pose for one minute and then after one minute is up, I notify you to get into a second pose. The second pose involves you sitting in the chair with your hands crossed over your knees and your feet crossed at the ankles [experimenter demonstrates for participant]. While you are maintaining these positions, you will be viewing pictures on the computer screen. Please form an opinion or impression of the people in the pictures."

Trier Social Stress Test Instructions:

"Now what we are going to do is to have you prepare a speech. Imagine that you are about to interview for your dream job. We'd like you to stay in this position and think about what you will say. You will have 5 minutes to prepare then you will deliver your speech for 5 minutes to 2 evaluators. The other experimenter and I will evaluate your performance on the speech task. We will be evaluating your nonverbal behavior and what you say and how you say it. Remember, (It was written in the incorrect way because Dana thought it was more impactful even though it was grammatically incorrect. Should we just put it as the correct way as you corrected because otherwise people who read it will think we don't know the correct phrasing?) you really want this job. You should be honest and straightforward and talk about your experiences, strengths, and why YOU should be chosen for this job. You should keep this physical position while you are preparing the speech. To prepare just think through what you want to say and you may practice. I am going to turn on this video camera while you prepare. The camera is so that we can later verify that you maintained this physical position. Remember, you are preparing for 5 minutes then you will deliver a five-minute speech to two evaluators. Do you have any questions? I am turning on the video camera now and I will leave the room while you prepare. I will be back in 5 minutes."

Additional Instructions Given After Speech Preparation Phase

"You can now stand however you like. I am X and this is Y. We are both experienced evaluators. We will be evaluating how you perform on your speech on a number of different

dimensions. We will be observing your nonverbal behavior, listening to what you say, and how you say it. We will be taking some notes while you are giving your five-minute speech. The camera is rolling and you may begin whenever you are ready. Please begin by stating what your ideal job is."