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Beliefs About the Nonverbal Expression of Social Power

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Abstract

In two vignette studies we examined beliefs about the nonverbal behavior and communication skills associated with high and low social power. Power was defined as both a trait (personality dominance) and a role (rank within an organization). Seventy nonverbal behaviors and skills were examined. Both Study 1 (a within-participants design) and Study 2 (a between-participants design) yielded highly similar results. Significant differences emerged for 35 of the 70 behaviors. The gender of the target individuals did not moderate beliefs about the relation of nonverbal behavior and power.

Keywords: BELIEFS, EMOTION, NONVERBAL, POWER, STEREOTYPES

Beliefs About the Nonverbal Expression of Social Power

Because social power pervades every aspect of human social life and because the subtle communication of that power is likely to occur nonverbally, ordinary people undoubtedly have beliefs about the nonverbal behavior expressed by more and less powerful others. For example, Tiedens, Ellsworth, and Mesquita (2000), as well as Conway, DiFazio, and Mayman (1999) have shown that certain emotions are more likely to be inferred from descriptions of powerful and powerless others, implying expected differences in nonverbal behavior. However, almost no other research has examined ordinary people's expectations about the specific nonverbal behaviors displayed by low and high powered others.

The importance of beliefs about others' behavior cannot be underscored enough—for over 30 years, research has demonstrated repeatedly that people's expectations about others can guide others' behaviors in a manner consistent with the expectation (for a review, see Rosenthal & Rubin, 1978). Thus, documenting beliefs about the subtle and overt nonverbal behaviors used to convey social power may offer important insights into the nuances of how social power is maintained and lost. The documentation of beliefs about the nonverbal communication of powerful and powerless others is the focus of the current research.

Interest in social power in relation to nonverbal cues is not new. An early and highly influential book by Henley (1977) strongly asserted that social power was related to nonverbal behavior. According to Henley, nonverbal behavior can be related to the attainment as well as the expression and maintenance of different degrees of social power. Many studies have been conducted on nonverbal cues and skills in relation to the social power construct, which has been defined in many ways including personality dominance as well as ascribed, achieved, assigned, and interactional power (status, dominance, leadership, etc.) (e.g., Burgoon & Dunbar, 2000;

Burgoon, Johnson, & Koch, 1998; Ellyson & Dovidio, 1985; French & Raven, 1959; Hall & Halberstadt, 1997; Kalma, Visser, & Peeters, 1993; Kemper, 2000). Actual associations between social power and nonverbal behavior and communication skill have been reviewed most recently by Hall, Halberstadt, and O'Brien (1997) and Hall, Coats, and Smith LeBeau (2004). For simplicity in the present article we will use the term *social power* as a useful umbrella term for this "vertical dimension of relationship" (Hall & Friedman, 1999).

In considering possible relations of social power to nonverbal communication, it is crucial to distinguish between *actual associations*, *perceived associations*, and *beliefs about associations* between nonverbal behavior and social power. An actual relation can be uncovered when social power and nonverbal behavior are each independently measured, using an objective external definition of social power. For example, social power might be defined as rank in an organization, experimentally assigned roles, or a score on a self-reported dominance scale, and nonverbal behavior might be defined in terms of the ratings, counts, or timings of behavior provided by coders. In contrast, a perceived relation can be uncovered when perceivers' impressions of social power based on nonverbal behavior (such as in photos or videotape) are measured and correlated with the (objectively measured) behavior. Such a study reveals how nonverbal behavior covaries with the impression of social power. Finally, beliefs about the relation can be examined by asking people explicitly to report how they would expect people with varying social power to act. The distinction between perception studies and belief studies is more than semantic, for it represents an important methodological difference that may produce different patterns of results (see Zuckerman, Kernis, Driver, & Koestner, 1984, for a parallel discussion with regard to cues to deception). Perception studies present interpretational difficulties because several nonverbal behaviors are likely to covary in the stimuli being rated,

making it hard to know exactly which cue or cues produced a given impression of power. Furthermore, perception studies typically gather global ratings of power (dominance, status) that do not permit a more fine-grained understanding of the moderating role of situations or definitions of social power. There is value, therefore, in providing convergent evidence through asking people explicitly to state their beliefs about nonverbal behavior in relation to specific definitions of social power.

Together, perception and belief studies are important for they increase our knowledge of how people think about each other and about nonverbal behavior in particular. In similar vein, such studies have uncovered perceived and/or believed nonverbal cue correlates of gender (Briton & Hall, 1995), personality (Borkenau & Liebler, 1995), intelligence (Borkenau & Liebler, 1995; Murphy, Hall, & Colvin, 2003; Reynolds & Gifford, 2001), and deception (Zuckerman, Koestner, & Driver, 1981).

A meta-analytic review (Hall, Coats, & Smith LeBeau, 2004) revealed that many studies have looked at perceived power-nonverbal behavior relations. On the other hand, we located no studies that asked people explicitly to state their beliefs about how nonverbal behavior would be associated with power, and only one that asked people to state how they thought they themselves would behave in different imagined power scenarios (and that study included only one behavior, smiling; Nagashima & Schellenberg, 1997). We undertook the present research to help fill this gap. In so doing, we included many more nonverbal behaviors and skills than covered in existing perception studies. In addition, we included two different definitions of social power.

Overview of the Current Research

We asked participants to imagine hypothetical persons of high or low personality dominance, or high or low rank in an organization, and to rate how much such persons would

display 70 different nonverbal behaviors and skills. Our goal was to access people's explicitly held overall beliefs and thereby document stereotypic thinking about nonverbal behavior and social power. We also tested the generality of these beliefs by asking whether the effects are the same across two studies in which social power was a between- or within-participant effect, across the two definitions of social power, and across both perceiver and target gender.

Hypotheses

We predicted that, for many behaviors, participants would expect different behaviors to be associated with low versus high social power, based on the previous literature on perceptions of social power based on nonverbal cues. As examples, higher social power has been attributed to people who speak faster (Harrigan, Gramata, Lucic, & Margolis, 1989), interrupt more (LaFrance, 1992), have more vocal pitch variation and more relaxed voice (Burgoon & Le Poire, 1999), make more eye contact (Kleck & Nuessle, 1968), have lowered brows (Keating et al., 1981), nod more (Burgoon & Le Poire, 1999), and use more hand gestures (Burgoon & Le Poire, 1999). We also included behaviors for which we had no prediction, either because the literature was contradictory (e.g., for smiling, Burgoon & Le Poire, 1999 contrasted with Keating et al., 1981; for direct body orientation, Street & Buller, 1987 contrasted with Burgoon & Le Poire, 1999), or because we were not aware of any relevant previous research. We did not make specific predictions about whether power definition or gender of the target would moderate participants' beliefs about the nonverbal behavior and skills associated with social power.

Method

Because both Study 1 and Study 2 were examining the same questions but using different designs, we will first describe their methodologies and then present results in an integrated format as explained in detail later.

Study 1

Purpose. The goal of Study 1 was to use a within-participants design to document people's beliefs about the nonverbal behaviors and communication skills associated with social power.

Design. Participants were randomly assigned to imagine either two individuals who differed in organizational rank or two individuals who differed in personality dominance. They were also randomly assigned to imagine one of the following six power/gender combinations: low power female/low power male, low power female/high power female, low power female/high power male, low power male/high power female, low power male/high power male, and high power female/high power male. Because participants made ratings about each of the two individuals they were asked to imagine, we call this a within-participants design.

Participants. One-hundred twenty-four introductory psychology students (74 female and 50 male) participated in this experiment for partial course credit. Participants were primarily Caucasian (82%; African-American, Asian, Hispanic, and Middle-Eastern participants approximately equally comprised the remaining 18%).

Materials and procedure. Participants were run in groups ranging from 1 to 20 and were randomly assigned individually to one of the 12 conditions described above. Each condition contained a written vignette describing an interaction between two individuals. The vignette defining social power as rank described the high power person as a boss, and the low power person as a subordinate, at an advertising firm. The vignette defining social power as personality dominance described a person who was likely to take charge and dominate others in social situations (or not). In order to make the scene vivid for them, participants were asked to write a short description of the imagined interaction.

Participants were then instructed to rate each of the two individuals in the vignette on 70 nonverbal behaviors which were grouped, for convenience, into nine categories: detection, distance, facial expression, hands and arms, head, legs and feet, posture, qualities of behavior, and vocal behavior (see Appendix for the full list). Behaviors were chosen to represent a broad range of nonverbal and communicative behaviors. The list was developed by determining categories and specific behaviors for which there are believed gender differences (Briton & Hall, 1995), and actual and perceived power differences (summarized in Hall et al., 2004). Additionally, we added behaviors to the developed categories which had been shown to predict other person qualities (e.g., emotion, personality) in past research. Participants made a rating for each individual on each of the behaviors using a scale from 1 (*never*) to 10 (*always*).

Study 2

Purpose. Because having participants in Study 1 make ratings about both imagined individuals might be a reactive methodology, Study 2 was designed to replicate Study 1 using a completely between-participants design in which participants made only one rating.

Design. The 8 conditions of Study 2 comprise a 2 (power) x 2 (gender) x 2 (power definition) between-participants factorial design in which each vignette described an interaction between 2 individuals who were identical in power and gender (e.g., two high power females interacting). Because the imagined individuals were the same, participants made only one rating.

Participants. Eighty-two introductory psychology students (49 female and 32 male; 1 participant did not report gender) participated for partial course credit. Participants were almost all Caucasian (95%; African-American and Asian participants comprised the remaining 5%).

Materials and procedure. Participants were randomly assigned to one of the 8 conditions and run in groups of 1 – 20. In exactly the same manner as Study 1, participants read the vignette

and wrote a short description of the imagined interaction. They then made one rating about the type of individual depicted in the interaction on the same 70 nonverbal behaviors and skills used in Study 1 on a scale from 1 (*never*) to 10 (*always*).

Overview of Analyses

In Study 1, depending on the condition participants were assigned to, the two imagined individuals were different on both power and gender, were the same on gender and different on power, or were different on gender and the same on power. For Study 1, one completely within-participants and 2 mixed-model ANOVAs were used to correspond to these three statistical models. In Study 2, one completely between-participants ANOVA was used. In both Studies 1 and 2, power definition (rank vs. personality) was a between-participants factor. These four ANOVAs used completely independent groups of participants.

With several analytical models to choose from and a large number of dependent variables, we faced the prospect of an unmanageable number of results and a substantial likelihood of capitalizing on chance findings. Because there were 20 experimental conditions in all (12 in Study 1, and 8 in Study 2) and 70 behavioral ratings, the traditional use of an alpha adjustment would have dramatically inflated the likelihood of a type II error in exchange for minimizing the risk of a type I error. In addition, almost all of the findings from Study 1 were replicated in Study 2; therefore, we opted for what we refer to as a "robustness approach" in order to optimally summarize the findings and strike a balance between the two types of error. Specifically, we accepted as persuasive only those results for each behavior that were (a) consistent in direction, and (b) reached conventional levels of statistical significance ($p \leq .05$) in both Studies 1 and 2.

In order to examine the main effects of both power level (low vs. high) and power definition (trait dominance vs. rank), and the Power Level x Power Definition interactions, comparable analyses from Study 1 and 2 were conducted and compared. Two sets of analyses were conducted for Study 1: (1) power level was treated as a within-participants factor and power definition was a between-participants factor, and (2) power level and power definition were both between-participants variables. In Study 2, both factors were between-participants. The effects we report were significant at $p < .05$ (and went in the same direction) in the power-level-as-within-participants analysis from Study 1 and in the power-level-as-between-participants analysis from Study 2.

In order to examine whether there were any interactions involving target gender, four sets of analyses were conducted. Depending on the experimental condition in Study 1, the gender and power level of the imagined interactants could both vary (e.g., high power female with low power male), or power could vary and gender could be constant (e.g., high power female with low power female), or gender could vary and power could be constant (e.g., low power male with low power female). Because of the structure of our experimental design, Study 1 was divided into three separate analyses corresponding to the above. Study 2 contained only one analysis, which was completely between. The robustness criterion for reporting a result as significant was that at least one between and one within-participants finding were significant at $p < .05$ and showed effects going in the same direction.

When displaying the means and significance tests for effects that met the robustness criterion, we chose to present the within-participant analyses. The effect sizes reported for each corresponding within-participant analysis are expressed as the Pearson *r* and were estimated by

taking the square root of the η^2 effect size estimate provided with each corresponding analysis (Rosenthal, 1991).

There were some target gender main effects, and virtually no participant gender effects; however, gender main effects were not the focus of this research and will not, therefore, be addressed here (see Briton & Hall, 1995, for research on target gender effects).

Results

Manipulation Check

A representative sample of approximately 20% of the short descriptions that participants wrote of the imagined interactions were coded for evidence that concepts associated with social power had been activated in a manner consistent with our manipulations. As previously discussed, the goal of the writing exercise was to make social power a salient concept; thus, using power-relevant concepts would indicate that participants were attending to the intended feature (i.e., social power). Words and phrases associated with social power (e.g., "dominant," "powerful," "had the power," etc.) were used 87% of the time. A 2 x 3 Chi-Square indicated that the type of social power described (personality vs. rank vs. no power described) matched the experimental manipulation (personality vs. rank) more than expected by chance (81% of the time for personality dominance and 90% of the time for rank); in only 2 cases (5%) was type of social power not discernible, $\chi^2(2, N = 39) = 19.38, p < .001$.

What Were People's Beliefs About Low and High Power Individuals' Nonverbal Behavior?

The purpose of these analyses was to examine main effects of power level and interactions between power level and power definition (which would indicate whether beliefs about power differences were the same for both trait dominance and rank). The mixed-model ANOVA from Study 1 in which power level was a within factor and power definition was a

between factor was compared to the analogous analysis (completely between) from Study 2, and each finding that met the robustness criterion is reported in terms of the Study 1 result.

Main effects of power level. Main effects of power level were significant for 35 of the 70 behaviors, as shown in Table 1. The behaviors are abbreviated in the table but the full wording can be found in the Appendix.

Within the detection category, high power individuals (averaging across power definitions) were believed to pay less attention to their partner than low power individuals. Within the distance category, high power individuals were believed to initiate more hand shaking, engage in more invasive behavior, touch, and remain at close distances. Within the facial behavior category, high power individuals were believed to have less gaze aversion, less facial fear, and less facial sadness. Conversely, they were expected to display more facial disgust, more skill at using facial expression, more facial anger, more glaring, more mutual gaze, longer gazing, and more looking while speaking. Within the hand and arm behavior category, high power individuals were seen as less likely to engage in self-touch and more likely to gesture. Within the head movement category, high power individuals were expected to engage in more upward tilting of the head, orienting head toward other, and shaking head. Within postural behavior, high power individuals were believed to have more erect posture, lean forward more, have open body position, and orient their body towards the other. Within behavioral qualities, high power individuals were seen as more likely to have self-assured expressions, use broad gestures, act animated, and express intimacy in greeting. Within vocal behavior, high power individuals were believed to have fewer “um”s and “ah”s, fewer dysfluencies, less halting speech, fewer unsuccessful interruptions, and fewer pauses. Conversely they were thought to

have more successful interruptions. Table 1 shows means, standard deviations, *F*, *p*, and effect size *r* for each statistically significant main effect.

Power Level x Power Definition interactions. Of the 35 behaviors that showed significant main effects of power level, 8 showed significant interactions between power level and power definition, and 3 additional statistically significant interactions were found for behaviors that did not show power level main effects. All of the Power Level x Power Definition interactions showed that the difference between high and low trait-dominant individuals was believed to be larger than the difference between the high and low rank individuals. Table 2 displays the four cell means, standard deviations, *F*, and *p* for each significant interaction effect.

Does Target Gender Moderate the Social Power Effects?

There were no statistically significant Power Level x Gender, or any Power Level x Gender x Power Definition interactions that met the robustness criterion, defined as 2 or more analyses revealing directionally equivalent and statistically significant effects. Even lowering the robustness criterion to $p < .05$ in one analysis and $p < .10$ in another revealed no statistically significant gender interactions.

Discussion

Participants endorsed many beliefs about the nonverbal behaviors and skills of individuals who are low and high in social power. It is possible that some of those "beliefs" may have never been previously considered and such endorsement may reflect knowledge of stereotypes more than personal beliefs. Thus, the strong effects still indicate consensual endorsement of stereotypes about how low and high power individuals behave nonverbally. Using a conservative "robustness" analysis, which required a given result to show up in more than one statistically independent analysis, we found that half of the behaviors (35 of 70) showed

power differences. These differences were, moreover, often large in magnitude, and largely consistent with previous research on perceived power differences in nonverbal behavior (Hall et al., 2004).

High power individuals were believed to lack motivation to attend to their partners, compared to low power individuals. We do not know of any previous research documenting such beliefs or perceptions, though such a belief was stated by Fiske (1993). Interestingly, our participants did not believe there was a difference in the *accuracy* of interpersonal judgment (see Appendix for these items), though some writers have endorsed such a belief (e.g., Henley, 1977).

High power individuals were believed to behave freely with respect to touching and invading the other's space. Both of these concur with previous studies of perceivers' impressions of power based on viewing videotaped or photographed instances of these behaviors (e.g., Burgoon, 1991; Burgoon, Buller, Hale, & deTurck, 1984; Major & Heslin, 1982; Summerhayes & Suchner, 1978). Participants thought that high power individuals engaged in more gaze overall, more gaze while speaking, and more negative gaze (glare). Previous research on impressions of viewed behavior suggests that more gazing is perceived as indicating more power (e.g., Brooks, Church, & Fraser, 1986; Burgoon et al., 1984; Burgoon & Le Poire, 1999). Research has also found that perceived dominance varies as a function of whether one is gazing while listening versus speaking. Exline and Messick (1967) found that individuals who gazed less while listening were rated as more dominant. Participants thought that high power individuals showed more anger and disgust, and less fear and sadness, than low power individuals, consistent with prior research on beliefs about the emotional expression of low and high status individuals (Tiedens et al., 2000) and a study of impressions of the personality dominance of faces showing various emotions (Knutson, 1996). High power individuals were

believed to be more skilled in facial expression (we are not aware of any previous impression studies on this). Participants did not see smiling or happy expressions as the hallmark of either low or high power individuals, as one might expect from the inconsistent literature on impressions of power based on coded or manipulated smiling, alluded to earlier in this article. Self-touching was believed to be more frequent in the lower power individual, consistent with Harrigan, Lucic, Kay, McLaney, and Rosenthal (1991). Overall, the high power individual was seen as more forthcoming, open, and expressive in body movement, as well as having more erect posture and more forward lean. Gifford (1994) found that perceivers' impressions of dominance were stronger when targets were more open and gesturally expressive; studies that have looked at impressions have generally found more erectness to be associated with higher dominance or power (e.g., Weisfeld & Linkey, 1985). Finally, the category containing vocal behaviors revealed that high power individuals were believed to have more success in interrupting, and more smooth and confident speech, all of which appear in previous studies of perceivers' impressions based on listening to voices (e.g., Aronovitch, 1976; Burgoon & Le Poire, 1999; Harrigan et al., 1989; LaFrance, 1992; Norton-Ford & Hogan, 1980).

We found that the power differences were sometimes believed to be more pronounced when the imagined individuals differed in trait dominance than when they differed in rank. These larger power effects for trait dominance are hard to interpret, as we are limited by the particular vignettes we used. We do not know the absolute levels of trait dominance imagined by our participants; perhaps they imagined more extreme differences in trait dominance than in rank. Although we cannot give a confident explanation for these interactions, it remains that the means pattern for 10 of the 11 significant interactions showed that participants thought that low and high power targets' behavior went in parallel for both power definitions, differing only in degree.

Thus, there is evidence that participants' beliefs are the same in their general form for both definitions of power.

Surprisingly, target gender did not interact with target power level, or power definition, or both. This indicates that participants' beliefs about the nonverbal behaviors and skills associated with social power were the same for male and female targets.[1]

In conclusion, the present study documented a wide array of beliefs about the nonverbal behaviors and skills of people who differ either in trait dominance or organizational rank. Obviously, these represent only two of many possible definitions of the power construct, and of course we are limited by the specific operational definitions that we devised for each. Nevertheless, our results reveal some of the stereotypes that people seem to carry around with them, stereotypes that might become influential in real-life interactions as well as in experiments in which participants are asked to play low or high power roles.

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Footnote

[1] It is possible that these results suggest that our manipulations did not make gender salient enough to trigger power-gender stereotypes. However, the fact that we did obtain numerous gender main effects (not discussed here) suggests that gender was salient. Gender main effects found were almost entirely consistent with Briton and Hall, 1995, except our list was much larger. For a table of the gender main effects, please contact the authors. The fact that we found many gender effects suggests that participants were indeed thinking about gender when making their ratings. We believe that the reason no power x gender interactions were found is because explicitly held beliefs about the nonverbal expression of social power does not systematically differ for male versus female targets. However, if participants' minds were probed with a different method (e.g., open-ended descriptions of all behaviors associated with low and high power females and males), perhaps gender by power interactions would emerge.

Table 1

Statistically Significant Main Effects of Power Level

Behavior	Low power		High power				
	M	*SD*	*M*	*SD*	*F*	*p*	*r*
Detection							
Pays attention to other	7.55	2.30	4.73	2.35	53.12	.000[a]	-0.63
Distance							
Initiates hand shaking	4.53	2.44	8.00	1.93	104.11	.000[b]	0.75
Engages in "invasive" behaviors	3.71	2.31	6.67	2.65	71.17	.001[b]	0.69
Touches other	3.58	2.15	6.33	2.59	50.27	.000[b]	0.62
Remains at a close distance	5.37	2.21	6.55	2.35	12.37	.001[a]	0.37
Face and facial expressions							
Has facial disgust	3.67	1.94	6.29	2.52	68.62	.000[b]	0.68
Is skilled at expressing face	5.14	2.15	7.87	1.96	59.88	.000[b]	0.66
Has facial anger	3.86	1.89	6.41	2.45	56.77	.000[b]	0.65
Glares	4.17	2.02	6.35	2.46	37.64	.000[b]	0.57
Engages in mutual gaze	5.48	2.53	7.11	2.19	14.47	.000[b]	0.39
Gazes for a long time	4.90	2.52	6.04	2.45	7.55	.007[b]	0.30
Looks while speaking	6.49	2.39	7.42	2.10	6.13	.015[b]	0.27
Has facial fear	6.27	2.40	3.06	1.90	87.81	.000[b]	-0.73
Has facial sadness	5.45	2.06	4.09	1.82	18.26	.000[a]	-0.44
Averts gaze	6.57	2.56	4.76	2.48	14.43	.000[b]	-0.39
Hands and arms							

Gestures	5.34	2.18	7.69	2.07	36.99	.000[b]	0.56
Self-touches (hands)	6.38	2.03	5.06	2.37	10.37	.002[a]	-0.34
Self-touches (face and head)	6.20	2.37	5.25	2.47	4.34	.041[a]	-0.23
Head							
Tilts head up	4.92	2.17	7.36	1.92	41.51	.000[b]	0.59
Orients head toward other	6.08	2.28	6.99	2.03	7.18	.009[b]	0.29
Shakes head	5.40	2.32	6.31	2.35	6.04	.016[a]	0.27
Posture							
Has erect posture	5.34	2.15	7.29	1.20	28.12	.000[b]	0.51
Leans forward toward other	5.07	2.33	6.92	2.04	20.31	.000[b]	0.45
Open body position	5.27	2.22	6.45	2.10	10.66	.002[a]	0.34
Orients body towards other	6.22	2.29	7.07	2.11	4.21	.044[b]	0.23
Qualities of behavior							
Has self assured expressions	4.01	1.84	8.77	1.48	313.41	.000[b]	0.90
Has broad gestures	4.16	2.00	7.36	2.09	87.14	.000[b]	0.72
Acts animated	4.93	2.16	7.43	2.22	49.42	.000[b]	0.62
Greets with intimacy	5.30	2.39	6.51	2.47	8.37	.005[a]	0.31
Vocal behavior							
Interrupts successfully	3.95	2.35	8.13	1.74	114.64	.000[b]	0.77
Intersperses speech with “um/ah”	7.54	1.90	3.78	2.08	93.06	.000[b]	-0.74
Speaks with dysfluencies	6.76	2.07	3.80	2.10	70.05	.000[b]	-0.69
Has halting speech	6.94	2.18	4.04	2.25	59.33	.000[b]	-0.65
Interrupts unsuccessfully	6.94	2.48	3.78	2.51	44.15	.000[a]	-0.60

Pauses often	7.65	2.08	4.51	2.20	32.41	$.000_b$	-0.53

Note: Results reported are from the within-participants power level x power definition analysis from Study 1. Entries are means on a scale from 1 (*never*) to 10 (*always*). A positive *r* indicates that the mean for high power was higher than the mean for low power. Asterisks after the p-value for Study 1 denote the level of significance found in Study 2: subscript "a" $p < .05$; subscript "b" $p < .001$. Calculation of the effect size index, *r*, was: $\sqrt{\eta^2}$ (Rosenthal, 1991). *M* = mean, *SD* = standard deviation.