The Development and Validation of a Scale Measuring Global Social Power Based on French and Raven's Power Taxonomy[1]

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A measure of global power was developed based on French and Raven's (1959) definition of social power as the potential of an agent to influence a target. A sample of 346 graduate students responded to a questionnaire assessing their perceptions of the power of their supervising professors in paid assistantship duties. Power was measured using established scales of the French and Raven 5 power bases in addition to the newly developed global power measure. Results indicate that the global power scale (a) has strong internal consistency, (b) is significantly related to each of the 5 individual power bases, and (c) significantly accounts for additional variance in compliance beyond the measures of the 5 power bases, beyond the sum of the bases, and beyond a measure of resistance and control.

Power has been defined in many ways, including as control over resources (Mechanic, 1962), as a personality trait (McClelland, 1975), as the ability to change the behavior of or overcome some level of resistance of a target (Dahl, 1957; Emerson, 1962), or, more simply, as authority (Benner, 1984) or as the ability to get things done (Salancik & Pfeffer, 1977).

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An influential paper on the topic of social power was written by French and Raven (1959), who suggested a five-factor taxonomy of power that has since been adopted by numerous psychology and management researchers (Hinkin & Schriesheim, 1989; Nesler, Aguinis, Quigley, & Tedeschi, 1993; Tedeschi, Bonoma, & Schlenker, 1972). The French and Raven power taxonomy is based on the concept that power refers to the ability or potential of an agent to influence a target. Inherent in the French and Raven definition of social power is the distinction between power and influence. French and Raven (1959, p. 150) specifically stated "we shall define power in terms of influence, and influence in terms of psychological change.... which includes changes in behavior, opinions, attitudes, goals, needs, values, and all other aspects of the person's psychological field." French and Raven discussed the ability of an agent (referred to as "O") to influence a target (referred to as "P"). They offered the following: "The *strength of power* of O/P . . . is defined as the maximum potential ability of O to influence P... By this definition, influence is kinetic power, just as power is potential influence" (p. 152).

The five specific power bases proposed by French and Raven (1959) consist of legitimate, reward, coercive, expert, and referent power. Legitimate power is based on the target's perception that a source has the right to influence the target and that the target ought to comply. Reward and coercive power are based on a target's perception that a source has the ability to provide rewards or punishments, respectively, for the target. Expert power is based on the perception that the agent has some specialized knowledge. Referent power is based on identification with or the desire to be associated with the agent. It has been suggests that the five power bases are qualitatively different. For instance, Bass (1960) suggests that expert and referent power are personal power bases because they are derived from the power holder, whereas legitimate, reward, and coercive power are position power bases because they typically stem from a position in some hierarchy.

There has been a great deal of research related to the French and Raven (1959) power bases in organizational settings. For instance, supervisory expert and referent power have been determined to be positively related to satisfaction with supervision in a nationwide sample of United States managers (Rahim, 1989), and supervising faculty expert and legitimate power have been determined to be positively related to educational outcomes in a sample of working graduate students (Aguinis, Nesler, Quigley, Lee, & Tedeschi, 1996). Other studies have gathered additional evidence regarding the relationship between power bases and consequential organizational outcomes, including job performance and stress (Sheridan & Vredenburgh, 1978) and organizational commitment (Rahim & Afza, 1993; see Carson, Carson, & Roe, 1993, for a selective review of outcomes associated with the power bases).

Regarding the measurement of the power bases, Podsakoff and Schriesheim (1985) reviewed 25 years of field research using the French and Raven (1959)

power taxonomy. Much of the early research they reviewed was judged to be problematic due to the operationalization and measurement of the constructs. Podsakoff and Schriesheim suggest that weaknesses of prior research included the use of scales of questionable content validity, the use of single-item measures employing inappropriate or incomplete operationalizations of the power bases, the practice of asking study participants to rank-order the single items thereby creating dependence (which may have forced negative relations among the power bases), and potential social desirability bias in responding to power question-naires. Podsakoff and Schriesheim suggest that better measures need to be developed utilizing Likert-type scales with multiple items to adequately represent the constructs of interest. Several attempts have since been made to develop scales to measure the French and Raven power bases using multi-item Likert-type scales (Frost & Stahelski, 1988; Hinkin & Schriesheim, 1989; Imai, 1989; Rahim, 1988; Shaffer, Percy, & Tepper, 1997; Yukl & Falbe, 1991).

In addition to focusing on individual power bases, researchers have also been interested in assessing the global, or overall, power of a source. This interest is based on at least two sets of research questions. First, a global index of power would indicate the general ability of a source to influence a target in a given context. Research on attitudes and behavior has demonstrated that specific attitudes predict specific behaviors, and global attitudes are best for predicting global behaviors (Ajzen & Fishbein, 1977). When the level of specificity is confused, the link between attitudes and behavior is weak. Similarly, specific power bases may be used to predict specific types of compliance behavior and other specific outcomes of a power relationship. A measure of global power could provide a better barometer of a relationship overall. Second, researchers have been interested in identifying the various antecedents of power perceptions and their relative impact on a source's overall power (Brass & Burkhardt, 1993). For instance, which are the power bases that have the greatest impact on a source's overall power? Does the relative impact of the five power bases change across organizational settings (e.g., educational, military, nonprofit)? These are some of the questions that can only be answered if a scale that measures global power is available.

In the past, to measure the overall power of a source, researchers have simply summed ratings of the five individual power bases (e.g., Ragins, 1989, 1991; Ragins & Sundstrom, 1990; Stahelski & Patch, 1993). This process has been employed in order to determine who is perceived as more powerful, given the use of different influence strategies (Stahelski & Patch, 1993), and to assess if perceptions of overall leader power are related to perceptions of leader effectiveness (Ragins, 1991) or a leader's gender (Ragins & Sundstrom, 1990).

The practice of adding scores on individual power scales to obtain a score of global power assumes that the five different power bases behave in a simple, additive fashion. Summing power bases into a composite global power score

may be inappropriate for three reasons. First, it seems unlikely that all of the power bases are equally important within every dyadic relationship in every situation. In a given social context, any single power base or some combination of bases may be more likely to lead to influence than others. For example, coercive power may be the salient feature of a source in the moments just before a physical altercation (Tedeschi & Felson, 1994). In an organizational setting, legitimacy and the ability to provide rewards may be the most critical power bases, whereas legitimate and expert power are more relevant in an educational setting (Aguinis et al., 1996). Second, summing the power bases does not take into account possible detrimental effects of certain bases on an agent's ability to influence a target. In most instances, high power leads to more influence. However, there may be occasions in which low power will lead to more influence. For example, coercive power has been found to lead to less influence and even resistance by targets in work settings (Falbe & Yukl, 1992; Yukl & Falbe, 1991). Finally, people may have implicit power theories (IPTs) or cognitive representations and expectations for the use of power, such that the overall power of a source of social influence may be greater than the sum of the individual power components. Aguinis and his colleagues (Aguinis, Nesler, Hosoda, & Tedeschi, 1994; Aguinis, Nesler, Quigley, & Tedeschi, 1994) have gathered evidence supporting the notion that individuals make use of cognitive scripts when faced with influence situations, and have certain expectations for how and when the exercise of power should occur.

Given that the ability of a source to influence a target is the construct of interest in the French and Raven (1959) taxonomy, it is unlikely that summing scores on power bases will yield an accurate global index of the ability to influence for the reasons previously mentioned. If a measure of global power is consistent with the theoretical framework of French and Raven, it should account for more of a source's ability to influence a target than the sum of ratings on the five power bases alone. Compliance with a power holder would be one indicator of successful influence in the French and Raven taxonomy.

The present study is designed to examine subordinates' perceptions of their supervisors' power and the influence of these perceptions on a specific outcome of the power relationship: compliance with the requests of the supervisor. However, we wish to examine these relationships in terms of the global power a supervisor is perceived to possess. That is, we wish to examine subordinates' general perceptions of their supervisors' ability to influence them. Hence, the present study has three goals: (a) to develop a global power measure based on the French and Raven (1959) conceptual definition of power as the ability of a source to influence a target; (b) to assess the convergent validity of the global power scale by examining the degree to which established scales measuring the five power bases account for variance in the global power scale, and to assess the discriminant validity of the global power scale; and (c) to examine the

relationship between the global power scale and a critical outcome of the power process (i.e., compliance with a source of influence). If the newly developed global power scale measures more than the sum of the bases of social power, then it should account for more variance in compliance than do the five bases of power or the sum of the five power bases which has been used previously as a measure of global power.

In order to achieve these goals, a passive observational field study was conducted using graduate students in paid assistantship positions as participants. We were interested in assessing graduate-student perceptions of the power of their academic supervisors, as supervisors in this setting could vary in the amount of perceived power they have in relation to graduate students (Aguinis et al., 1996). The relationship between graduate students and their faculty advisors is associated with different types of important outcomes, such as student satisfaction with and ability to complete a graduate program (Bargar & Mayo-Chamberlain, 1983; Katz & Hartnett, 1976), and student future career success (Heinrich, 1991; Rouse, 1983).

Scale Development

Global Power

Items were developed using standard scale-development procedures (Spector, 1992). The definition of the power construct proposed by French and Raven (1959) was carefully reviewed by the authors. Items were generated independently and then discussed in a group session until consensus was reached. The entire questionnaire was then pilot-tested using a small number of graduate students who were not resampled in the main study. Interviews were conducted with the pilot-test graduate students to assess the appropriateness of the items for an academic context and to assess if the items were clear. This process led to the four-item global power scale that appears in the Appendix (referred to as Global Power scale).

Resistance and Control Definition of Power

In the interest of establishing discriminant validity for the global power measure, we reviewed other definitions of power in anticipation of developing an alternative measure of global social power. While the French and Raven (1959) taxonomy has been extremely influential, other definitions of power have been offered. Many of these definitions seem to have common themes. For example, Emerson (1962) and Weber (1947) have both suggested that social power involves some form of resistance from the target. According to Emerson, power is directly related to how much resistance from a target can be overcome by a

source. Schur (1969) and Dahl (1957) have suggested that power implies control by the source over the target. Schur suggests that power refers to the ability of a source to get a target to behave in accordance with the source's desires. Dahl proposes that if a source can cause a target to do something the target would not normally do, then power has been exercised.

In reviewing these alternative definitions of global power, two themes consistently emerge. These themes are *resistance* from the target to the source and *control* over the target by the source. Both resistance and control imply a process of overpowering (Tedeschi & Nesler, 1994). Overpowering implies a negative social relationship between interacting persons or entities and suggests a Machiavellian approach to the study of social power and influence. Thus, power is viewed as a negative aspect of social relationships by some social scientists. This viewpoint seems inconsistent with the French and Raven (1959) proposition that referent power and expertise serve as bases of social power.

To provide discriminant-validity evidence for the global power measure based on the French and Raven (1959) power definition, a six-item resistance—control scale was developed to measure the resistance and control aspects of power using the same procedures described for the development of the global power scale. It was anticipated that the measure of resistance and control would capture a narrower aspect of the ability to influence, given its focus on only the negative aspects of social power.

Compliance

In the interest of assessing the relationship between perceptions of power and compliance, a measure of self-reported compliance with the academic supervisor's directives was also developed. All of the new and modified scales were pilot-tested and developed based on reviewing the appropriate conceptual definitions (Spector, 1992).

Method

Participants and Procedure

Graduate students who held paid assistantships at a large northeastern university were solicited for participation through an on-campus mail service. Students whose primary assistantship duties involved reporting to an academic supervisor were included. A list of 967 people who fit this criterion was provided by the university's administration. This sample was solicited because graduate advisors typically hold a variety of types of power over graduate students (Aguinis et al., 1996). Of those initially contacted to participate, 346 returned questionnaires,

yielding a response rate of 35.8%, which is a typical response rate for studies conducted in university settings (cf. Goodwin & Stevens, 1993; McCabe & Trevino, 1993; Nesler, Hanner, Lettus, & Melburg, 1995; Nesler, Sopczyk, Cummings, & Fortunato, 1998).

Instruments

In addition to the four-item global power scale, the six-item resistance–control scale, and the two-item compliance-scale, Hinkin and Schriesheim's (1989) measures of the five French and Raven (1959) bases of power were used. Each individual power-base scale consists of four items measuring a particular power base, for a total of 20 items. While most of the Hinkin and Schriesheim items were relevant to our sample, only two of the reward power items could be used. Three new items were generated that were suitable for an academic context and were based on the definition of reward power originally advanced by French and Raven. The order of all items was randomized, and each item was measured using a 19-point Likert-type scale ranging from -9 (*strongly disagree*) to 9 (*strongly agree*).

Results

Means, standard deviations, and sample sizes for the power base ratings, the sum of the power bases, the global power measure, the measure of compliance, and the resistance–control scale are presented in Table 1. Sample sizes varied slightly due to missing data. As can be seen from Table 1, ratings of legitimate power were highest, followed closely by expert power, referent power, and reward power, respectively. Coercive power received a negative mean rating indicating that, on average, participants' responses fell slightly on the "disagree" end of the scale.

Scale reliabilities and intercorrelations are presented in Table 2. Internal consistency estimates ranged from .72 to .92. The global power scale had an alpha of .77, the resistance-control power scale had an alpha of .75, the modified reward power scale had an alpha of .72, and the compliance scale had an alpha of .81. Thus, the scales developed for this study had acceptable reliability estimates (Nunnally, 1978). There were significant correlations among the power bases, which replicates the findings of other studies (e.g., Aguinis, Simonsen, & Pierce, 1998; Frost & Stahelski, 1988; Hinkin & Schriesheim, 1989; Littlepage, Van Hein, Cohen, & Janiec, 1993; Nesler et al., 1993). Global power correlated significantly with all five power bases and also had a strong positive correlation with self-reported compliance ($r = .70, p < .01$).

In order to assess the discriminant-validity evidence for the global power scale, forward multiple-regression analyses were used to regress the global

Table 1

Means, Standard Deviations, and Sample Sizes for the Five Power Bases and New Scales

Variable	M	SD	N
Power bases			
Legitimate	5.38	3.04	321
Expert	5.12	4.00	328
Referent	4.80	3.89	328
Reward	4.12	3.17	318
Coercive	-1.16	5.02	323
Sum of bases	18.08	11.09	300
New scales			
Global power	4.57	3.29	331
Resistance–control	0.79	3.30	319
Compliance	5.22	3.34	326

Note. All items were measured on 19-point Likert-type scales ranging from -9 (*strongly disagree*) to 9 (*strongly agree*). Resistance–control: 6-item resistance–control power scale.

power scale and the resistance–control scale on the five power bases.[3] We first used the four-item global power scale as the criterion variable. Results of this first regression analysis are presented in Table 3.

Table 3 reveals that all five French and Raven (1959) power base scales entered into this regression equation. Legitimate power was the first to enter into the equation, followed by expert power, reward power, coercive power, and referent power, respectively. The standardized regression coefficients and changes in the multiple correlation squared at each step reveal that legitimate and expert power accounted for the most variance in the global power measure. The total proportion of variance (R^2) in the global measure which was explained by this equation was .57. Thus, a substantial amount of variance in the global measure of power was accounted for by the five power bases, all of which entered into this equation, providing convergent-validity evidence for the global power scale based on the "ability to influence" conceptualization of power.

In order to assess the convergent- and discriminant-validity evidence for the global power scale, forward multiple-regression analyses were conducted to regress the global power measure and the resistance–control power scale on the

[3]Ten outliers were eliminated using Mahalanobi's distance as the criterion.

Table 2

Scale Reliabilities and Intercorrelations

	Legitimate power	Expert power	Reward power	Coercive power	Referent power	Global power	Resistance-control power	Compliance
Legitimate power	(.87)							
Expert power	.48**	(.90)						
Reward power	.49**	.61**	(.72)					
Coercive power	-.17**	-.38**	-.24**	(.84)				
Referent power	.58**	.66**	.68**	-.42**	(.92)			
Global power	.64**	.62**	.56**	-.15**	.59**	(.77)		
Resistance–control power	.28**	.08	.17**	.32**	.11*	.38**	(.75)	
Compliance	.62**	.57**	.54**	-.17**	.55**	.70**	.34**	(.81)

Note. Numbers in parentheses reflect Cronbach's alpha for that scale.
*$p < .05$, two-tailed. **$p < .01$, two-tailed.

Table 3

Results of Forward Multiple-Regression Analysis With Global Power Scale as Criterion

Power base	B	SE B	β
Step 1			
Legitimate	.70	.05	.64**
Step 2			
Legitimate	.49	.05	.45***
Expert	.33	.04	.40***
Step 3			
Legitimate	.44	.05	.41***
Expert	.26	.04	.32***
Reward	.17	.05	.17***
Step 4			
Legitimate	.44	.05	.41***
Expert	.29	.04	.36***
Reward	.17	.05	.17***
Coercive	.06	.03	.09*
Step 5			
Legitimate	.41	.05	.37***
Expert	.27	.04	.33***
Reward	.13	.06	.12*
Coercive	.08	.03	.12*
Referent	.11	.05	.12*

Note. $R^2 = .41$ for Step 1; $\Delta R^2 = .12$ for Step 2; $\Delta R^2 = .02$ for Step 3; $\Delta R^2 = .01$ for Step 4; $\Delta R^2 = .01$ for Step 5 ($ps < .05$).
*$p < .05$. ***$p < .001$.

five power bases. Results of this analysis are presented in Table 4. As can be seen from this table, only two of the five power bases entered into this equation. Coercive power entered first, followed by legitimate power. The multiple correlation squared for this equation indicated that the power bases accounted for only 22% of the variance in the resistance–control scale, compared with 57% of the variance in the global power scale.

Table 4

Results of Forward Multiple Regression Analysis With Resistance–Control Scale as Criterion

Power base	B	$SE\ B$	β
Step 1			
Coercive	.21	.04	.32***
Step 2			
Coercive	.25	.03	.38***
Legitimate	.38	.06	.35***

Note. $R^2 = .10$ for Step 1; $\Delta R^2 = .12$ for Step 2 ($ps < .001$).
***$p < .001$.

The correlation between the resistance–control scale and the global power scale was .38 (cf. Table 2), indicating a moderate, positive relationship between the perceptions of a supervisor's global power and his or her ability to overcome resistance and to control the graduate assistant.

Taken together, these results provide convergent- and discriminant-validity evidence for the global power scale. The five power base scales accounted for more variance in the global power scale than did the resistance–control scale, and the global power scale correlated moderately with the resistance–control scale, indicating these two conceptualizations of power are related but distinct.

As noted previously, researchers in the past have attempted to quantify global power by summing ratings on individual power bases. We tested the predictive utility of the new global power scale in comparison to the sum of the power base ratings. A hierarchical multiple-regression analysis was conducted with self-reported compliance as the criterion variable and the five power base scales, the sum of the power bases, and the global power scale as predictor variables. Results of this analysis are presented in Table 5.

Table 5 shows the three steps of the hierarchical regression analysis with compliance as the criterion variable. At the first step, the five power bases were forced into the regression equation. The multiple correlation squared at this step equaled .50 ($p < .001$) and legitimate, expert, and reward power had statistically significant regression coefficients. At the second step, a new variable was forced into the equation and is referred to as the "sum of the bases." This traditional index of overall power, consisting of a sum of the ratings on the five power bases, explained no additional variance at Step 2 ($\Delta R^2 = .00$). Because there is multicollinearity between the sum of the power bases variable and the individual power bases, the regression coefficients are most likely unstable at the second step, which may

account for the statistical nonsignificance of the betas.[4] At the third step, the newly developed global power scale was forced into the equation. The multiple correlation squared change was .07 ($p < .001$). Thus, the global power scale accounted for variance in self-reported compliance behavior above and beyond the five power bases, suggesting that the global power measure has more predictive utility than do the individual power bases or a simple summed composite of the bases.[5] The overall index of power that has traditionally been used is the sum of the power bases. This index accounted for no additional variance in compliance behavior.[6]

In a final hierarchical multiple-regression analysis, global power predicted compliance better than did the resistance–control measure (Table 6). Although the resistance–control measure did predict compliance on its own ($R^2 = .11$), when global power was added as a predictor, the resistance–control measure was no longer significant and global power significantly accounted for additional variance (R^2 change = .38).

[4]Adding the composite variable at Step 2 after its components were entered at Step 1 produces multicollinearity. Multicollinearity occurs when the predictors in a regression equation are highly intercorrelated, as is the case here where one variable is the composite of the other five. The most notable consequence of multicollinearity is that regression coefficients become highly unstable. Therefore, in situations of high multicollinearity, the regression coefficients cannot be trusted as good estimates of population parameters. One way to alleviate multicollinearity is to center the predictors before they are entered into the equation. The most common centering approach is to subtract the mean from each score (Aguinis, 1995; Tate, 1984). Regression analysis using centered predictors yielded results comparable to those described in the main text. Thus, we show results based on uncentered predictors.

[5]The global power and the compliance constructs (and their measures) are distinct. Global power is ability (or potential) to influence, whereas compliance is an outcome (or a consequence) of global power. Given the French and Raven (1959) power taxonomy, there should be a strong relationship between these two variables. Indeed, as is shown in Table 2, the correlation between them is .70. On the other hand, the measures assessing these constructs should be distinct. There are two types of evidence in this regard. First, the items included in the Appendix indicate that global power refers to potential to influence, whereas compliance refers to outcomes. Second, we conducted a t test comparing the mean score for global power and the mean score for compliance. Given the high reliability for these scales (.77 and .81, respectively), we would expect differences only if these scales measure different constructs. As predicted, and providing empirical evidence regarding the distinctiveness of the power and compliance scales, the result was $t(330) = 4.41$, $p < .001$.

[6]In order to further examine the variance accounted for in compliance by global power above and beyond both the five power bases and the sum of the bases individually, two additional regression analyses were conducted. Compliance was regressed on the five power bases. Expert, legitimate, and referent power each significantly entered into the equation, $F(5, 325) = 62.80$, $p < .001$ ($R^2 = 49$). At Step 2, global power was entered and significantly accounted for more variance in compliance above and beyond the five bases, $F(6, 324) = 64.24$, $p < .0001$ ($R^2 = .54$). A second analysis regressed compliance onto the sum of the bases. The sum of the bases significantly predicted compliance, $F(1, 329) = 233.26$, $p < .0001$ ($R^2 = .42$). At Step 2, global power was entered and significantly accounted for more variance in compliance above and beyond the sum of the power bases, $F(2, 328) = 171.08$, $p < .0001$ ($R^2 = .51$). Thus, global power added significant variance above and beyond the sum of the power bases, demonstrating its value over the summed measure.

Table 5

Results of Hierarchical Multiple Regression With Self-Reported Compliance Regressed on the Five Power Bases, Sum of the Power Bases, and Global Power

Power base	B	$SE\ B$	β
Step 1			
Legitimate	.43	.06	.39***
Expert	.21	.05	.26***
Reward	.16	.06	.15*
Coercive	.04	.03	.06
Referent	.07	.06	.08
Step 2			
Legitimate	.19	.36	.17
Expert	-.03	.37	-.04
Reward	-.09	.37	-.08
Coercive	-.20	.35	-.29
Referent	-.17	.36	-.19
Sum of bases	.24	.35	.79
Step 3			
Legitimate	-.03	.34	-.03
Expert	-.20	.35	-.24
Reward	-.20	.34	-.19
Coercive	-.28	.33	-.43
Referent	-.27	.33	-.31
Sum of bases	.30	.33	.98
Global power	.40	.06	.39***

Note. $R^2 = .50$ for Step 1 ($p < .0001$); $\Delta R^2 = .00$ for Step 2 (*ns*); $\Delta R^2 = .07$ for Step 3 ($p < .001$).
*$p < .05$. ***$p < .001$.

Discussion

The main goal of the present study was to generate a reliable and valid measure of subordinates' perceptions of their supervisors' global or overall power based on the French and Raven (1959) power taxonomy. The measure demonstrated acceptable reliability in terms of its internal consistency estimate. Cronbach's alpha coefficient for the global power scale was .77, which is greater

Table 6

Results of Hierarchical Multiple Regression With Self-Reported Compliance Scale as Criterion

Power base	B	SE B	β
Step 1			
Resistance–control	.34	.05	.34***
Step 2			
Resistance–control	.09	.04	.08
Global power	.68	.04	.67***

Note. $R^2 = .11$ for Step 1; $\Delta R^2 = .38$ for Step 2 ($ps < .001$).
***$p < .001$.

than the .70 reliability estimate recommended for new scales (Nunnally, 1978). In addition, we were able to provide evidence regarding the scale's convergent and discriminant validity. Moreover, the scale was found to have greater predictive utility than the traditional index of overall power (i.e., sum of the power bases).

Our results also indicate that established measures of the five French and Raven (1959) power bases accounted for a significant amount of variance in the global power measure. The five power base scales accounted for 57% of the variance in the global power scale, with all five power bases entering into the regression equation. The global power scale had significant positive correlations with legitimate, expert, reward, and referent power, and a significant negative correlation with coercive power, supporting the notion that coercive power leads to less influence in some contexts. These strong relationships of the five bases with the global power measure demonstrate the measure's convergent validity. Our measure of global power does seem to encompass all of the aspects of the five power bases.

In the past, researchers have attempted to measure the overall power of a source by simply adding together ratings of the five individual French and Raven (1959) power bases (Ragins, 1989, 1991; Ragins & Sundstrom, 1990; Stahelski & Patch, 1993). The results of this study demonstrate that this practice is not appropriate. The individual power bases do not equally reflect overall power. Some bases are more important in certain circumstances than in others. In the educational setting in which this study was conducted, legitimacy and expertise were bases that were most influential with graduate students. While this relationship may not be true in other types of organizations, it is likely that some type of weighted average would be more appropriate to generate a measure of overall power. Future research efforts should be directed at assessing which

bases are most influential in different types of social relationships and types of organizations (e.g., military vs. civilian, organic vs. mechanistic, profit vs. non-profit).

The five power base scales only accounted for 22% of the variance in the resistance–control scale. As was expected, given the negative relationship implied in the resistance–control definition of power, only coercive and legitimate power entered into the regression equation with the resistance–control scale as the criterion variable. The correlation between the resistance–control scale and the global power scale was moderate and positive, indicating that the two definitions of power are conceptually linked but distinct. The moderate relationship of the global power measure with the resistance–control measure, and the fact that all five power bases loaded on global measure and not on the resistance–control measure, indicates discriminant validity. Global power measures potential influence—not merely negative forms of influence, which is implied by the definition of power as resistance and control.

We have also demonstrated the predictive utility of the global power measure by assessing its relationship to compliance, which is one of the most important outcomes of a social power relationship (Tedeschi & Nesler, 1994). The global power measure had a strong positive correlation with compliance, and accounted for an additional 7% of the variance over and above the five power bases. Global power also predicted compliance better than did the measure of resistance and control, indicating that its predictive power is greater than a narrow definition of power and that the global power scale comprises a more multifaceted measure of the construct of social power.

There may be two reasons that the measure of global power accounted for more variance in compliance than did the individual bases or the resistance–control measure. First, it is likely that there are additional bases of power which are not accounted for by the original five bases proposed by French and Raven (1959). For example, information power has been added by some to the taxonomy of power bases (Raven, 1992). Other power bases have also been suggested, including attractiveness (Nesler, Storr, & Tedeschi, 1993), trustworthiness (Tedeschi, 1990), and credibility (Nesler, 1993; Nesler et al., 1993). Hence, a measure of global power may be a better measure of the construct of power than are measures of individual bases. Second, there is evidence that individuals have implicit power theories much like they have implicit leadership theories (Aguinis, Nesler, Quigley, & Tedeschi, 1994). Individuals may use an organized, hierarchical system to process information regarding power and, once they establish that a source possesses one or two power bases (e.g., legitimacy and expertise), they may infer that the source of power also possesses others. This would produce a generalized expectancy in the individual that the person with power has the ability to influence them or others. The finding that global power predicted compliance above and beyond the individual bases and

the sum of the bases suggests that people do have implicit power theories and that global power is more than the sum of the individual power bases.

The combined results of this study suggest that the global power measure can be a useful tool in examining power relationships in dyadic social situations. Nevertheless, there are limitations to the present study which should be mentioned. First, the measures of power and compliance were self-report measures. We have no independent verification that the power relationships reported by the graduate students are veridical. Other researchers have, in fact, examined power relationships from multiple perspectives (e.g., Ragins & Sundstrom, 1990). However, it has been proposed that the perception of the individual's power is important in determining the person's actual power (Tedeschi, 1990). Additionally, we cannot be certain the self-reported measure of compliance truly measured graduate assistants' compliance with their supervisor's requests. While there has been research which has taken multiple vantage points on the power relationship by assessing powerholder, target, or third-party perceptions (e.g., Instone, Major, & Bunker, 1983; Ragins, 1989), future research should obtain independent measures of compliance, in addition to self-reports, to determine how well global power predicts subordinate behavior. Finally, the global power measure was developed for an academic setting. Modifications would be necessary so that it can be used in other types of settings, such as an assessment of the target's perception of the agent's ability to influence his or her attitudes or behavior in the given interaction context. The global power scale has already been modified to be used in a business-oriented scenario (Aguinis et al., 1995). The modified scale had good reliability and, thus, there is evidence that modifications to the scale to match specific situations are possible while maintaining its psychometric properties. Future research efforts should be aimed at assessing the utility of the global power scale in other settings and with other populations.

In conclusion, we have developed a measure of global power based on the definition of power as the ability to influence. The measure demonstrated satisfactory psychometric properties, both in terms of reliability and validity. All five French and Raven (1959) power bases were correlated with the global power measure, and global power predicted variance in compliance above and beyond that predicted by individual bases of power or a sum of the individual bases. The global power measure will be a useful tool for researchers interested in social power both from theoretical and applied perspectives. It provides a short yet valid instrument of an individual's overall impression of another person's ability to influence them.

References

Aguinis, H. (1995). Statistical power problems with moderated multiple regression in management research. *Journal of Management*, 21, 1141-1158.

Aguinis, H., Lee, S. J., Nesler, M. S., Quigley, B. M., Boczkowski, P. J., Szyferman-Aguinis, L., Garcia-Cueto, E., & Tedeschi, J. T. (1995, July). *Cultural differences as antecedents of power perceptions: An examination across four countries*. Paper presented at the meeting of the American Psychological Society, New York, NY.

Aguinis, H., Nesler, M. S., Hosoda, M., & Tedeschi, J. T. (1994). The use of influence tactics in persuasion. *Journal of Social Psychology, 134*, 429-438.

Aguinis, H., Nesler, M. S., Quigley, B. M., Lee, S. J., & Tedeschi, J. T. (1996). Power bases of faculty supervisors and educational outcomes for graduate students. *Journal of Higher Education, 67*, 267-297.

Aguinis, H., Nesler, M. S., Quigley, B. M., & Tedeschi, J. T. (1994). Perceptions of power: A cognitive perspective. *Social Behavior and Personality, 22*, 377-384.

Aguinis, H., Simonsen, M. M., & Pierce, C. A. (1998). Effects of nonverbal behavior on perceptions of power bases. *Journal of Social Psychology, 138*, 455-469.

Ajzen, I., & Fishbein, M. (1977). Attitude–behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin, 84*, 888-918.

Bargar, R. R., & Mayo-Chamberlain, J. (1983). Advisor and advisee issues in doctoral education. *Journal of Higher Education, 54*, 407-432.

Bass, B. M. (1960). *Leadership, psychology, and organizational behavior*. New York, NY: Harper.

Benner, P. (1984). *From novice to expert: Excellence and power in clinical nursing practice*. Menlo Park, CA: Addison-Wesley.

Brass, D. J., & Burkhardt, M. E. (1993). Potential power and power use: An integrative investigation of structure and behavior. *Academy of Management Journal, 36*, 441-470.

Carson, P. P., Carson, K. D., & Roe, C. W. (1993). Social power bases: A meta-analytic examination of interrelationships and outcomes. *Journal of Applied Social Psychology, 23*, 1150-1169.

Dahl, R. A. (1957). The concept of power. *Behavioral Science, 2*, 201-215.

Emerson, R. M. (1962). Power–dependence relation. *American Sociological Review, 27*, 31-41.

Falbe, C. M., & Yukl, G. A. (1992). Consequences for managers of using single influence tactics and combinations of tactics. *Academy of Management Journal, 35*, 638-652.

French, J. R. P., & Raven, B. H. (1959). The bases of social power. In D. Cartwright (Ed.), *Studies in social power* (pp. 150-167). Ann Arbor, MI: Institute for Social Research.

Frost, D. E., & Stahelski, A. J. (1988). The systematic measurement of French and Raven's bases of social power in workgroups. *Journal of Applied Social Psychology, 18*, 375-389.

Goodwin, L. D., & Stevens, E. A. (1993). The influence of gender on university faculty members' perceptions of "good" teaching. *Journal of Higher Education*, **64**, 167-185.

Heinrich, K. T. (1991). Loving partnerships: Dealing with sexual attraction and power in doctoral advisement relationships. *Journal of Higher Education*, **62**, 514-538.

Hinkin, T. R., & Schriesheim, C. A. (1989). Development and application of new scales to measure the French and Raven (1959) bases of social power. *Journal of Applied Psychology*, **74**, 561-567.

Imai, Y. (1989). The relationship between perceived social power and the perception of being influenced. *Japanese Psychological Research*, **31**, 97-107.

Instone, D., Major, B., & Bunker, B. B. (1983). Gender, self-confidence, and social influence strategies: An organizational simulation. *Journal of Personality and Social Psychology*, **44**, 322-333.

Katz, J., & Hartnett, R. T. (1976). *Scholars in the making*. Cambridge, MA: Ballinger.

Littlepage, G. E., Van Hein, J. L., Cohen, K. M., & Janiec, L. L. (1993). Evaluation and comparison of three instruments designed to measure organizational power and influence tactics. *Journal of Applied Social Psychology*, **23**, 107-125.

McCabe, D. L., & Trevino, L. K. (1993). Academic dishonesty: Honor codes and other contextual influences. *Journal of Higher Education*, **64**, 522-538.

McClelland, D. C. (1975). *Power: The inner experience*. New York, NY: Irvington.

Mechanic, D. (1962). Sources of power of lower participants in complex organizations. *Administrative Science Quarterly*, **7**, 349-374.

Nesler, M. S. (1993). *Credibility, believability, and compliance: A basis of social power, a mediating variable, and an outcome of the social influence process*. Unpublished doctoral dissertation, University at Albany, State University of New York.

Nesler, M. S., Aguinis, H., Quigley, B. M., & Tedeschi, J. T. (1993). The effect of credibility on perceived power. *Journal of Applied Social Psychology*, **23**, 1407-1425.

Nesler, M. S., Hanner, M. B., Lettus, M. K., & Melburg, V. (1995). External degree graduates at work: Some empirical studies. *Proceedings of the National Council of State Boards of Nursing, Inc.*, 203-256.

Nesler, M. S., Sopczyk, D. L., Cummings, K. M., & Fortunato, V. J. (1998). Nursing informatics needs assessment: Are distance programs needed? *Nurse Educator*, **23**, 25-29.

Nesler, M. S., Storr, D. M., & Tedeschi, J. T. (1993). The Interpersonal Judgment Scale: A measure of liking or respect? *Journal of Social Psychology*, **133**, 237-242.

Nunnally, J. C. (1978). *Psychometric theory* (2nd ed.). New York, NY: McGraw Hill.

Podsakoff, P. M., & Schriesheim, C. A. (1985). Field studies of French and Raven's bases of power: Critique, reanalysis, and suggestions for future research. *Psychological Bulletin,* **97**, 387-411.

Ragins, B. R. (1989). Power and gender congruency effects in evaluations of male and female managers. *Journal of Management,* **15**, 65-76.

Ragins, B. R. (1991). Gender effects in subordinate evaluations of leaders: Real or artifact? *Journal of Organizational Behavior,* **12**, 259-268.

Ragins, B. R., & Sundstrom, E. (1990). Gender and perceived power in manager–subordinate relations. *Journal of Occupational Psychology,* **63**, 273-287.

Rahim, M. A. (1988). The development of a leader power inventory. *Multivariate Behavioral Research,* **23**, 491-503.

Rahim, M. A. (1989). Relationships of leader power to compliance and satisfaction with supervision: Evidence from a national sample of managers. *Journal of Management,* **15**, 545-556.

Rahim, M. A., & Afza, M. (1993). Leader power, commitment, satisfaction, compliance, and propensity to leave a job among U.S. accountants. *Journal of Social Psychology,* **133**, 611-625.

Raven, B. H. (1992). A power/interaction model of interpersonal influence: French and Raven thirty years later. *Journal of Social Behavior and Personality,* **7**, 217-244.

Rouse, L. P. (1983). Social power in the college classroom: The impact of instructor resource manipulation and student dependence on graduate students' mood and morale. *American Educational Research Journal,* **20**, 375-383.

Salancik, G. R., & Pfeffer, J. (1977). Who gets power—and how they hold on to it: A strategic-contingency model of power. *Organizational Dynamics,* **5**, 3-21.

Schur, E. M. (1969). *Law and society.* New York, NY: Random House.

Shaffer, B., Percy, P. M., & Tepper, B. J. (1997). Further assessment of the Hinkin and Schriesheim's measures of interpersonal power. *Educational and Psychological Measurement,* **57**, 505-514.

Sheridan, J. E., & Vredenburgh, D. J. (1978). Usefulness of leadership behavior and social power variables in predicting job tension, performance, and turnover for nursing employees. *Journal of Applied Psychology,* **63**, 89-95.

Spector, P. E. (1992). *Summated rating scale construction: An introduction.* Newbury Park, CA: Sage.

Stahelski, A., & Patch, M. E. (1993). The effect of the compliance strategy choice upon perceptions of power. *Journal of Social Psychology,* **133**, 693-698.

Tate, R. L. (1984). Limitations of centering for interactive models. *Sociological Methods and Research*, **13**, 251-271.

Tedeschi, J. T. (1990). Self-presentation and social influence: An interactionist perspective. In M. J. Cody & M. L. McLaughlin (Eds.), *The psychology of tactical communication* (pp. 301-323). Cleveland, OH: Multilingual Matters.

Tedeschi, J. T., Bonoma, T. V., & Schlenker, B. (1972). Influence, decision, and compliance. In J. T. Tedeschi (Ed.), *The social influence process* (pp. 287-345). Chicago, IL: Aldine.

Tedeschi, J. T., & Felson, R. B. (1994). *Violence, aggression, and coercive actions*. Washington, DC: American Psychological Association.

Tedeschi, J. T., & Nesler, M. S. (1994). Bases of social power and social influence. *Inostrannaja Psichologija*, **2**, 25-31.

Weber, M. (1947). *The theory of social and economic organizations*. New York, NY: Free Press.

Yukl, G. A., & Falbe, C. M. (1991). Importance of different power sources in downward and lateral relations. *Journal of Applied Psychology*, **76**, 416-423.

Appendix

Global Power (Ability to Influence)

My supervisor can influence me to work harder at my job.
My supervisor can influence the type of projects I become involved in.
My supervisor can influence my school-related activities.
My supervisor can influence how I evaluate the work of others in our field.

Resistance and Control Power

My supervisor can get what (s)he wants from me.
My supervisor can control me.
My supervisor can get me to do what I would not normally do.
My supervisor can get me to do what I would not do otherwise.
My supervisor has the ability to get me to behave in accordance with her/his wishes.
My supervisor can get me to do things I don't want to do.

Compliance

My supervisor is someone with whose directives I comply.
My supervisor is someone whose suggestions I follow.

Reward Power

My supervisor can give me extra time off.*
My supervisor can write a strong letter of recommendation on my behalf.*
My supervisor can make my work week easier.*
My supervisor can recommend me for continued funding (modified from Hinkin & Schriesheim, 1989).
My supervisor can provide me with special benefits.

Coercive Power

My supervisor can give me undesirable job assignments.
My supervisor can make my work difficult for me.
My supervisor can make things unpleasant here.
My supervisor can make being at work distasteful.

Legitimate power

My supervisor can make me feel that I have commitments to meet.
My supervisor can make me feel like I should satisfy my job requirements.
My supervisor can give me the feeling I have responsibilities to fulfill.
My supervisor can make me recognize that I have tasks to accomplish.

Expert Power

My supervisor can give me good technical suggestions.
My supervisor can share with me his/her considerable experience and/or training.
My supervisor can provide me with sound job-related advice.
My supervisor can provide me with needed technical knowledge.

Referent Power

My supervisor can make me feel valued.
My supervisor can make me feel like he/she approves of me.
My supervisor can make me feel personally accepted.
My supervisor can make me feel important.

*New reward power items. Coercive, legitimate, expert, and referent power items are from Hinkin and Schriesheim (1989).