Political Psychology, Vol. 28, No. 2, 2007

Integrative Complexity of 41 U.S. Presidents

Felix J. Thoemmes
Arizona State University

Lucian Gideon Conway III
The University of Montana

Although U.S. presidents are one of the most studied groups of political figures and integrative complexity is one of the most widely used constructs in political psychology, no study to date has fully examined the integrative complexity of all U.S. presidents. The present study helps fill in that gap by scoring 41 U.S. presidents' first four State of the Union speeches for integrative complexity and then comparing these scores with a large range of available situational and personality variables. Results suggest a tendency for presidents' integrative complexity to be higher at the beginning of their first term and drop at the end. This pattern was pronounced for presidents who eventually won reelection to a second term and was markedly different for presidents who tried to gain reelection but lost. Additional analyses suggested that presidents' overall integrative complexity scores were in part accounted for by chronic differences between presidents' complexity levels. Further analyses revealed that this overall integrative complexity score was positively correlated to a set of interpersonal traits (friendliness, affiliation motive, extraversion, and wittiness) and negatively correlated with inflexibility. Discussion centers upon the causes and consequences of presidential complexity.

KEY WORDS: Integrative complexity, Presidents of the United States, Presidential Personality, State of the Union address, Status contingency model, Big Five

The purpose of this study was to assess the integrative complexity of virtually all presidents of the United States. Using 41 presidents' State of the Union addresses, integrative complexity was assessed by independent raters, creating developmental and aggregate integrative complexity scores for each president. The resulting rich dataset allowed us to explore time-series developments of integrative complexity among the presidents and the relationship of integrative complexity to situational and personality variables.

Why U.S. Presidents?

The U.S. presidents are one of the most studied groups of persons in the world, probably only surpassed by undergraduate psychology students. Over the years, researchers have assessed such diverse information about the presidents as their birth order (Somit & Peterson, 1994), height (Young & French, 1998), narcissism (Deluga, 1997), proactivity (Deluga, 1998), hand gestures (Whitehead & Smith, 2002), social class (Young & French, 1996), psychodynamics (e.g., Elovitz, 2003), power, achievement, and affiliation motives (Winter, 1987), intelligence (Simonton, 2002), and the big five personality traits (Rubenzer & Faschingbauer, 2004).

Why study such a highly selective sample, which possibly does not generalize—or only poorly generalizes—to the whole population? As Simonton (1999) notes, the study of significant samples is driven by both "intrinsic" and "extrinsic" rationales. For example, one intrinsic reason why researchers turn their attention to the presidents is undoubtedly the fascination that these exceptional men arouse. The main interest in studies driven by intrinsic rationales becomes to focus on "what is idiosyncratic [about this sample] rather than what is shared" (p. 435) with other populations.

However, presidents are more than just intrinsically interesting: They also allow us to build a theoretical understanding of a particular set of psychological questions (what Simonton calls "extrinsic" reasons). So, for example, the presidents serve as a prime example of political leadership and as such allow tests of various questions and hypotheses about leadership. Not surprisingly, several researchers in the field of leadership theories utilized this information to test general theories or models of leadership (e.g., Deluga, 1998; House, Spangler, & Woycke, 1991). Especially helpful for these and other studies is the fact that through media coverage and copious documentation of every presidential decision, speech, or bill, a plethora of data is easily available for researchers through exploitation of archival resources.

The present study is similarly a combination of "intrinsic" and "extrinsic" rationales. On the one hand, we believe that U.S. presidents are a uniquely interesting group of persons; thus creating a rich dataset to describe that group is itself descriptively interesting. On the other hand, simply describing a group of persons—no matter how interesting—is not theoretically meaningful. So we also hope to help theory building in the areas of leadership and political psychology. In particular, we hope to gain a deeper understanding of the relationship between the complexity of thinking and presidential leadership. To do so, we employ a construct widely used to study political figures' thinking: integrative complexity.

Why Integrative Complexity?

At a broad level, how complexly a president thinks seems directly relevant to her or his ability to perform successfully. Leadership—especially leadership

on such a vast scale—is inherently complex. Take just one aspect of presidential leadership: international relations. It is invariably complex to negotiate with persons from completely different cultural backgrounds, with different national agendas, often different languages, and subtly different semantic meaning systems (see Suedfeld, Leighton, & Conway, 2005). Thus it is a useful question to ask how complex presidents' thinking about these and other areas is or can be.

And, indeed, lots of previous research suggests that the complexity of political leaders' thinking is extremely important in understanding leadership outcomes (e.g., Conway, Suedfeld, & Clements, 2003; Conway, Suedfeld, & Tetlock, 2001; Suedfeld & Bluck, 1988; Suedfeld & Rank, 1976; Suedfeld, Tetlock, & Ramirez, 1977; Tetlock, 1981, 1985; Tetlock, Peterson, & Berry, 1993). Almost all of this research uses a particular construct relevant to the complexity of thinking: integrative complexity.

Integrative complexity, originally descending from Kelly's personal construct theory (1955), is a psychological construct that tries to describe the elaboration and complexity of any given information or thought. In order for them to be practically assessed, these thoughts can be expressed in a variety of ways, such as spoken language or written information in any format. The basic description of integrative complexity is defined "in terms of degrees of differentiation and integration" (Baker-Brown, Ballard, de Vries, Suedfeld, & Tetlock, 1992, p. 393). Differentiation refers to the ability to distinguish different viewpoints on an issue and to acknowledge them. A differentiated viewpoint consists of multiple alternatives and dimensions and shows an increased ambiguity tolerance that is not present in an undifferentiated viewpoint. Differentiation is the first step towards integration, which is defined as the "conceptual connection[s] among differentiated dimensions" (p. 393). An integrative view acknowledges the mutual influence and the interdependence of different dimensions. Differentiated perspectives are being synthesized into a superordinate dimension. This synthesis can then be differentiated to and integrated with different dimensions, which constitutes the so-called hierarchical or higher order integration. In the current theoretical framework of integrative complexity the hierarchical integration would be regarded as the highest form of integrative complexity of thinking.

In summary, people with very low integrative complexity can be described as engaging in "black-or-white" thinking, all-or-nothing judgments, possessing a general inability or unwillingness to accept uncertainty and divergent viewpoints, and a desire for rapid closure. On the other side of the spectrum, people with very high integrative complexity maintain a high acceptance of uncertainty, ability to synthesize opposing viewpoints, or multidimensional integration of opinions.

Given the immense amount of research devoted to integrative complexity and the U.S. presidents as separate areas of study, it is surprising that no comprehen-

sive study of the integrative complexity of U.S. presidents exists. Although lots of studies examine an individual president's integrative complexity or a set of presidents' integrative complexity, no study to our knowledge systematically examines all the U.S. presidents' complexity across time. It is part of the purpose of the present study to help fill in this gap. We examine here 41 of the 43 U.S. presidents' integrative complexity over their first four years in office; this nearly complete sample of U.S. presidents only excludes two presidents who did not serve long enough to make a state of the union speech.

The Present Theoretical Approach

Below, we pose a set of theoretical questions relevant to the integrative complexity of U.S. presidents and discuss previous research relevant to that set. Sometimes, on the basis of strong empirical or theoretical grounds, we make predictions concerning expected outcomes. Other times, however, we do not pose specific predictions, but rather illuminate the theoretical ground we hope to cover by examining a particular question.

Thus, we combine two different approaches to the study of political leadership, one involving the test of specific hypotheses and the other involving the posing of particular questions within a given framework for understanding (in the words of Renshon, this latter approach is a "set of categorical elements that require detailed observational data with which to give meaning to them and chart their associations" (2001, p. 234)). *Both approaches are equally valid* (for discussion and examples of both approaches, see Renshon, 2001), although each method has its advantages and disadvantages. For example, the framework approach "makes fewer a priori assumptions and demands on the researcher to reach closure" (p. 248) and this flexibility in turn may lead to less forced (and fewer biased) interpretations.

Questions Driving the Present Research

Does the Integrative Complexity of U.S. Presidents Typically Change Across Their Tenure?

Much research suggests that situational factors influence the complexity of thinking (for a review, see Conway, Schaller, Tweed, & Hallet, 2001). But it is probably the case that some of these situational factors are "built in" to leadership cycles: The cognitive demands on the president are probably different in the first year than in the fourth year in office. And, indeed, some research suggests a progression of complexity over time for political leaders (Suedfeld & Rank, 1976; Tetlock, 1981).

So what might we expect in the case of U.S. presidents? Previous research provides some clues. In particular, it appears that complexity is typically lower

during times when leaders are seeking power than when they are actually in power. For example, Tetlock (1981) demonstrated in a sample of 10 U.S. presidents that a president's speeches once in office are typically higher than his pre-office campaign speeches. A similar effect emerged for successful revolutionary leaders, who showed higher complexity once in power than prior to achieving it (Suedfeld & Rank, 1976).

Although the present study (unlike these previous studies) evaluates the complexity of leaders who are always *incumbent*, three different theoretical perspectives suggest that U.S. presidents may similarly show higher complexity immediately after an election than immediately prior. First is an impression management perspective: It is possible that presidents are aware of the upcoming reelection bid and thus intentionally shift their rhetoric downward in complexity as a tactic to gain reelection (e.g., Tetlock, 1981).

A second perspective complements the impression management view and gives further reason to believe it might extend to the present sample. Previous research (e.g., see Bueno De Mesquita, Morrow, Siverson, & Smith, 1999) suggests that the most important motive for politicians once in power becomes to actually stay in power. In the words of Bueno De Mesquita et al.: "We assume that political leaders in all systems are motivated by the same universal interest: the desire to remain in office" (1999, p. 793). If a president fails to get reelected, he or she cannot accomplish anything; thus, staying in power may become more psychologically important than the responsibilities of actual government. This theory implies that, as elections draw near, presidents who are in power should both behave *and* think much the same as nonincumbents trying to obtain power: In both cases, the major focus is on personal power and not the process of actually governing. As a result, it may well be that—just like nonincumbent presidents seeking to gain power for the first time—incumbent presidents will also show lower complexity immediately prior to their reelection bid because of a strategic shift in rhetoric or other related cognitive process.

A third perspective, the cognitive manager model (Suedfeld, 1992), suggests a similar outcome but for a different reason. This model states that persons' ability to think complexly may be linked to more general theories about stress. In particular, it suggests that stress may cause higher complexity in the short term as cognitive resources are devoted to the stressful situation. But continued stress will exhaust the person, so that eventually—given continued long-term stress—lower complexity will result. Thus, it may be that incumbent presidents decrease in complexity over time because (a) as the impending reelection looms nearer, the drains on the president's resources become greater as his/her attention is divided between reelection and governing, and/or (b) the presidency is a cognitively draining job, and the cumulative cognitive stress may take its toll on the president's *ability* to think complexly over four years. Thus, presidents may simply wear down cognitively.

Do Presidents Who Win Reelection Show Different Complexity Levels than Those Who Lose a Reelection Bid?

Research on integrative complexity suggests that it isn't merely reactive: Complexity also predicts what will happen in the future. Will it do so in the present sample? In particular, do "successful" presidents—here defined as those presidents who sought reelection after their first term and won—show either (1) an overall mean level of complexity or (2) a pattern of complexity over time that is different than their losing presidential counterparts?

Previous research again suggests some clues. For example, integrative complexity predicts whether leaders are successful at maintaining power (Suedfeld & Rank, 1976; Wallace & Suedfeld, 1988). In particular, higher complexity levels once in power tend to be predictive of longer tenures. This might, on the surface, suggest that winners would show higher levels of complexity during their first term than losers. But this straightforward analysis may be too simple. To the degree that low complexity is a more successful means of gaining power, presidents who fail to shift to a lower level of complexity near the time of reelection may be less successful. Thus, it may not be the mean overall level of complexity that matters, but rather the ability to shift complexity levels at the appropriate time.

As a result, one salient possibility is that (electorally) successful presidents will show a larger decrease in complexity as the election draws near. This might occur for some of the reasons discussed above. Successful presidents might be especially likely to strategically shift their rhetorical complexity downward as elections approach. Successful presidents might also be those leaders most prone to recognizing the need to stay in power as singularly important (e.g., Bueno De Mesquita et al., 1999) and thus most likely to engage in appropriate complexity-reducing cognitions in order to accomplish that goal. Thus, it may be that successful Presidents (who win reelections) are more aware of or more able to decrease integrative complexity to appeal to voters and to stay in power. Unsuccessful presidents in turn, might be less able to change or less aware to recognize the need to shift integrative complexity.

Predictions derived from the cognitive manager model in this case are somewhat less clear. It is worth noting that, although the cognitive manager model suggests that cognitive stress often will have complexity-reducing effects in the long term, it does not necessarily claim that such effects are inherently negative (see Suedfeld, 1992). Indeed, the model claims that sometimes the complexity-reducing effect of cognitive stress serves adaptive functions (for example, freeing up our mental resources for other things). Roughly, in response to such stress it is possible to make two types of opposing errors: (1) not shifting complexity downward when it is necessary to do so in order to conserve cognitive resources for other tasks (or some other purpose), and (2) not sustaining complexity through situations when it is necessary to do so. Assuming, based on prior research, that being "successful" in the electoral sense means a downward shift in complexity

prior to the election, this would suggest two possible temporal patterns (paralleling these errors) consistent with the cognitive manager approach: (1) Successful presidents may show a sharper drop from the beginning to the end of their tenure (reflecting the error of the unsuccessful president of not responding to the increased stress around election time with appropriately lower complexity), or (2) Successful presidents may show higher complexity during the first three years (reflecting the error of the unsuccessful president of not maintaining complexity under stress when it would be appropriate to do so). Stated differently, the cognitive manager model (Suedfeld, 1992), rather than suggesting that high complexity is always a good thing, instead emphasizes that what makes a great leader is maintaining the appropriate *match* between one's complexity level and the situation.

Despite their different angles, each of these theoretical perspectives *does* suggest that successful presidents in some way may show a different pattern of complexity across time than unsuccessful presidents. The present study allows for a test of this *presidential success* by *year of speech* interaction.

Do Situational Factors Predict Presidents' Integrative Complexity Levels?

In addition to the cyclical constraints of reelection cycles, other situational variables, too, impact integrative complexity (see Conway et al., 2001). We test several of these situational moderators in the present study: war/peace, majority/minority status, political platform, economic indicators, and the presidents' birth order. Although the last two are exploratory, research offers suggestions on the first three.

Lots of research indicates that leadership complexity of an attacking nation drops prior to the advent of war (see Conway et al., 2001, for a review). As a result of the complexity-reducing properties of war, we expect that when the United States is at war, presidents will show lower complexity than during peace time.

Additionally, there is some research to suggest that liberal politicians in the United States are more complex than conservative politicians (Tetlock, 1983). This "ideology-contingency model" proposes that liberals are more open-minded and not as rigid in their worldview as conservatives and as a result show more integrative complexity. Following that line of research, we would predict that liberal presidents would be higher in integrative complexity than more conservative ones. Furthermore, liberalism, assessed by expert opinion (Segal, Timpone, & Howard, 2000), is highly correlated ($r > .90$) with party membership for so-called "modern" presidents (beginning around 1937). Democrats score significantly higher than Republicans on the liberalism measure and the correlation is so high that party membership is almost interchangeable with liberalism. As such, we predict for modern presidents that Democrats have higher integrative complexity than Republicans.

For historical presidents, prior to the era of modern presidency, the party membership as a proxy measure of liberalism fails. Preliminary data collected by the authors did indeed suggest that there is no relationship between liberalism ratings and party membership for historical presidents. Over the years liberal ideas (of each particular time in history) have been given different emphases in the two parties that make a comparison of integrative complexity on the basis of party membership for historical presidents not meaningful.

The liberalism or "ideology-contingency" model is not without criticism, and it is worth noting that in much of this previous research this trend is potentially confounded with the ideological majority/minority status of the subject. In a study that assessed Supreme Court judges, Gruenfeld (1995) suggested that persons in the ideological minority demonstrate lower integrative complexity than persons in the ideological majority, regardless of their political ideology (Gruenfeld, 1995; Gruenfeld & Preston, 2000; Gruenfeld, Thomas-Hunt, & Kim, 1998). Gruenfeld argued that being in a minority position decreases integrative complexity due to at least two processes. On the one hand, convergent thinking, meaning the focusing on only one thought, caused by the pressure to conform with other minority ideologies to strengthen the own position that is already weaker than the majority. This by definition prohibits differentiated viewpoints. On the other hand minority members also experience the pressure and stress of personal accountability for the own opinion and viewpoints expressed more than majority members in which accountability is more distributed among all members. This increased cognitive stress also leads to a decrease in integrative complexity. Even though no previous study has looked at majority/minority status influence on the presidents, we assume that the same mechanism works here. Specifically, it implies for the current study that presidents, who would face a position of being in the ideological minority, would express decreased integrative complexity. Majority position presidents on the other hand would show increased integrative complexity.

In conjunction with the earlier "ideology-contingency" model it becomes important not to examine both hypotheses individually. If Gruenfeld's "status-contingency" model holds, an effect found for liberalism might not be meaningful after controlling for majority/minority status. As such, our data can be used to conduct a critical comparison between the two models.

As outlined later, in this study we tried to gauge the ideological status of a president by assessing whether or not the president's party had control over the legislative body, namely Congress.

Do Personality Factors Predict Presidents' Integrative Complexity Levels?

Although situational factors impact integrative complexity, it is likely the case that some persons—and thus some presidents—are simply chronically more complex than others (see Conway et al., 2001; Suedfeld, Conway, & Eichhorn, 2001). We phrase the issue in the present work in the form of a methodological

question: Once accounting for situational factors such as year of speech, is the between-president variance still greater than within-president variance? Although there is reason to suspect that the answer may be yes, we do not make a specific prediction due to the admittedly strong nature of situational impacts on complexity.

Further, to the degree that complexity is in part due to stable personality differences, which personality traits might be responsible for it? Three sets of traits loom as possibilities. First and most obviously is sheer intelligence. People chronically differ in intelligence, and complex thinking and intelligence are often correlated (see McDaniel & Lawrence, 1990; Suedfeld & Coren, 1992). Thus we expect that presidents rated particularly high in intelligence should be particularly complex. Relatedly—because intelligence is perhaps one of the most important traits in predicting presidential greatness (Simonton, 2002)—we also expect that complexity will be positively correlated to measurements of historians' ratings of presidents' greatness.

Complex thinking is not simply a matter of ability, however: It is also a matter of motivation. Some persons may be incredibly intelligent but still have little motivation to seek out alternative explanations or other sorts of mental activities likely to increase complexity. Indeed, some researchers (see Coren & Suedfeld, 1995; Suedfeld & Coren, 1992) have suggested that the available evidence points toward conceptualizing the personality aspects of complexity as a "style" rather than an "ability"—thus proposing that the motivational aspects of complexity are more important than ability. One way that these motivational aspects can be captured is in measurements relevant to dogmatism or cognitive inflexibility. Under the assumption that cognitive inflexibility can measure some aspects of motivation to engage in cognitively complex thinking, we predict that integrative complexity is negatively related to cognitive inflexibility.

A third set of traits also relates more to motivation than to ability: namely, interpersonal-relevant traits. For example, Suedfeld, Bluck, Ballard, and Baker-Brown (1990) found a strong positive correlation between the use of affiliation motive imagery and integrative complexity in Canadian Prime Ministers. Work from the laboratory also supports the notion that more interpersonally motivated persons are higher in complexity: Coren and Suedfeld (1995) report that cognitive complexity is related to several scales from the Interpersonal Adjective Scales, including a positive relationship to agreeableness, extraversion, and dominance, and a negative relation to introversion and submissiveness. Thus, the relatively consistent picture of the cognitively complex person that emerges from this set of findings is one of a self-confident, expressive, warm, and interpersonally likable person. As a result, in general we expect traits related to interpersonal skills and motives to be positively associated with integrative complexity.

We also include here many traits (i.e., neuroticism, tidiness, achievement motivation) which little or no previous research addresses and for which no

pertinent theoretical reason exists to make a clear prediction. Analyses on these traits are purely exploratory with no particular guiding research hypothesis or question.

Method

Integrative Complexity

Trained research assistants collected and prepared the presidential speeches for coding. From each president, up to the first four State of the Union speeches delivered by the president during his first term in office were used as source materials. Second or later terms were not included in the study. Through Kennedy, these were collected from a monograph edited by Boykin (1963) in which he selected excerpts from State of the Union addresses that were given by the Presidents of the United States. After Kennedy, the speeches were primarily obtained online from the American Presidency Project at the University of California, Santa Barbara (http://www.presidency.ucsb.edu/sou.php), which is under the administration of John Wooley and Gerhard Peters. The value of the dataset was tremendously enhanced by the fact that scoring of each president tapped a similar archival resource. Integrative complexity scores can vary dramatically across various types of communication (Guttieri, Wallace, & Suedfeld, 1995; Levi & Tetlock, 1980). A more or less unified standard of the coded context or an archival source that is similar across subjects in terms of audience and purpose ensures that ratings of integrative complexity can be compared in a meaningful manner.

From each collected address, up to five paragraphs were randomly chosen as the basis for coding integrative complexity. Any content that could identify the author of the speech (e.g., names, dates, etc.) was removed and replaced with generic words (e.g., "1941" replaced with "date"). Two experienced coders both coded the complete dataset. The coefficient alpha was .76 ($n = 41$) for aggregate data with mean integrative complexity score of each president as the unit of analysis, and .68 ($n = 679$) for the raw data with each single paragraph's integrative complexity score as the unit of analysis. Main analyses reported below used the average of the two coders' scores.

Although these reliability coefficients were generally satisfactory, we also conducted every analysis for each coder separately. This revealed a pattern that, although sometimes predictably inferentially weaker for one or the other coder, was very similar to that reported below. Further, we performed either MANCOVA analyses (for environmental measures) or regression analyses (for personality measures) to see if the coder (entered as a within-subjects variable) moderated any of the significant results reported below. No significant interaction between the coder and the focal variables emerged, with *p*s ranging from .066 to .979 (mean $p = .436$). Thus, it is justifiable to use only the average of the two coders' scores in final analyses.

Based on every coded paragraph of each president (between 5 and 20 paragraphs per president), one aggregate integrative complexity score for each president was calculated by taking the mean of all paragraphs for that president (averaged across coders). Scores ranged from 2.18 (Kennedy) to 1.25 (Tyler). An overview of the overall integrative complexity scores by president is given in Table 1.

Truly Random Versus Quasi-Random Selected Samples. Through Kennedy, the speeches were not entirely randomly selected, but instead randomly selected from a convenience sample of previously selected paragraphs by another author. Sometimes these paragraphs were not completely reported, and such selective excerpts may impact complexity. Previous research suggests that using preselected excerpts does not affect the pattern of complexity over time (Conway et al., 2003), and additional analyses on the present research also revealed the same thing. However, in both previous research (Conway et al., 2003) and the present work such selected excerpts showed lower levels of *overall mean* complexity. In order to directly account for the possibility that this difference in overall mean level of complexity might have influenced the results, we directly controlled for it by using a dummy variable (0 = quasi-random, 1 = fully random) as a covariate in all ANCOVA omnibus tests reported below. We thus only report results as being significant if they held as such when directly accounting for the true randomness of the materials. In general, consistent with previous research, the pattern of results held the same for both the quasi-random and true random samples.

It is also worth noting that these selected excerpts are actually methodologically beneficial in one key respect: They help offset a general stylistic difference between the older texts and modern-day audiences, thus making coding more comparable across multiple times. Many of the older speeches were delivered in a style that artificially increases the length of the paragraphs, and the present use of selected excerpts helps offset that difficulty.

Multilevel Analysis. Due to the obvious nesting structure of the data (excerpts within speeches within presidents) a multilevel model was constructed to examine possible effects of the nesting. A model was chosen with different speeches (one to four) as predictors for complexity at the microlevel. At the macrolevel each speech's mean integrative complexity score for every president was predicted by the grand mean of all speeches from that particular president. This model allowed an assessment of the impact of the nesting structure of the data. Intraclass correlations among the presidents during each speech were calculated and yielded results ranging between 0.04 and 0.11 (mean $r_{ICC} = 0.08$). Based on these correlations the design effect was calculated. This measure provides an estimate of the impact of the nesting structure of the data. In our sample, design effects ranged from 1.64 to 2.76 (mean design effect = 2.24). This design effect is relatively small, but certainly noticeable. However, additional analyses on some of the key effects suggested that using MLM yielded similar effects as those found with the

Table 1. Mean Integrative Complexity Scores

President	Integrative Complexity	SD	n
G. Washington	1.82	.84	19
J. Adams	1.86	.76	18
T. Jefferson	1.94	.83	16
J. Madison	1.71	.61	17
J. Monroe	1.75	.79	18
J. Q. Adams	1.60	.62	20
A. Jackson	1.75	.79	18
M. v. Buren	1.79	.88	17
J. Tyler	1.25	.49	18
J. Polk	1.28	.57	20
Z. Taylor	1.70	.98	5
M. Fillmore	2.13	.77	12
F. Pierce	1.83	.66	18
J. Buchanan	1.35	.52	20
A. Lincoln	1.82	.67	14
A. Johnson	1.89	.68	19
U. Grant	1.50	.66	17
R. Hayes	1.37	.37	19
C. Arthur	1.44	.57	18
G. Cleveland	1.55	.65	20
B. Harrison	1.68	.61	17
W. McKinley	1.38	.67	16
T. Roosevelt	1.81	.99	18
W. Taft	2.17	.94	12
W. Wilson	1.61	.59	14
W. Harding	2.15	.63	10
C. Coolidge	2.05	.65	11
H. Hoover	1.61	.49	19
F. Roosevelt	1.88	.69	20
H. Truman	2.09	.62	17
D. Eisenhower	1.68	.67	19
J. Kennedy	2.18	.61	14
L. Johnson	2.10	.84	20
R. Nixon	2.03	.82	20
G. Ford	1.87	.83	15
J. Carter	1.83	.80	20
R. Reagan	1.90	.74	20
G. Bush sr.	2.00	.78	15
W. Clinton	2.03	.79	19
G. Bush jr.	1.95	.71	20
Total	1.77	.73	696

traditional approaches. As a result, we decided not to report the multilevel models in order to simplify the presentation of the results.

Environmental Measures

Year of speech. To analyze any developmental trends in the pattern of complexity across the first four years in office, three dummy-coded variables representing speech (1st, 2nd, 3rd, or 4th) were created.

Majority/Minority in Congress. For each year in which a State of the Union address was given that was coded in the original dataset, it was assessed whether or not the party of the president had a majority or a minority in the Senate and the House of Representatives. This information was collected from the respective websites. The House of Representatives gives a complete overview of the historic party division (available at http://clerk.house.gov/histHigh/Congressional_History/partyDiv.html) and identifies Martis (1989) as a source. The Senate provides the same information (available at http://www.senate.gov/pagelayout/history/one_item_and_teasers/partydiv.htm) and gives the Secretary of Senate as authority for the information.

Success measures. From the national archives website (available at http://www.archives.gov/federal-register/electoral-college/votes/index.html), information was gathered concerning whether or not a president ran for a second term in office and whether he won or lost this election.

Armed conflict. Times of armed conflicts were assessed using Richardson's (1960) monograph "Statistics of deadly quarrels" and an online encyclopedia (available at http://en.wikipedia.org/wiki/Military_history_of_the_United_States) for the latest conflicts that occurred after Richardson published his monograph. All armed conflicts with Native Americans are excluded from the list. This is not intended to disregard these conflicts, but because of their special and localized nature, they become somewhat less comparable to the international conflicts that the United States engaged in. Even though some conflicts may have started or ended in the middle of a reported year, the conflicts were coded that each year in which any armed conflict began or was still going on was considered to be wartime.

Economic measures. Economic indicators like unemployment rates and the change in consumer price index were collected from the online resource of the United States Department of Labor, Bureau of Labor statistics (available at http://www.bls.gov/cpi/home.htm#data and http://www.bls.gov/ces/home.htm#data) for post-Second World War presidents. Unemployment rates were collected from 1948 to 2004; the consumer price index was collected from 1953 to 2004.

Additional environmental measures. We assessed the political platform of all presidents but used this information in later analyses only for modern Presidents (past 1937).

Further, we also assessed whether the presidents were first-born or not (Somit & Peterson, 1994).

Personality Measures

Personality measures from various sources were drawn upon for the present work. For ease of presentation, we here organize this list by the various sources (as opposed to conceptually by trait categories). As we will see, often a similar pattern emerged for measures from different sources that are conceptually related.

Adjective Checklist. Simonton (1987) used the Gough Adjective List to score various archival sources of the presidents on the over 300 adjectives of the checklist. Based on this data Simonton extracted 14 factors that were supposed to circumscribe the presidential personality. These factors were: moderation, friendliness, intellectual brilliance, Machiavellianism, poise and polish, achievement drive, forcefulness, wit, attractiveness, pettiness, tidiness, conservatism, inflexibility, and pacifism. These factors are reported to have sufficient reliability (on average .87) and to show satisfactory construct validity. Scores on the 14 factors that Simonton assessed are reported for every president through Reagan.

"Big Five." Rubenzer and Faschingbauer (2004) collected data on the big five personality traits extraversion, neuroticism, openness to experience, conscientiousness, and agreeableness. They distributed the NEO-FFI questionnaire to historians and let them rate the presidents. Several ratings for each president from different raters were combined into an aggregate score. They report scores for the big five traits for all presidents except Monroe, W. Harrison, Tyler, A. Johnson, Hayes, Garfield, Arthur, Cleveland, and McKinley.

Motive Imagery. Winter (1987) assessed the power, achievement, and affiliation motives of the presidents from Washington to Reagan except Tyler, Fillmore, A. Johnson, Arthur, and Ford.

Additional Personality Variables. Deluga (1997, 1998) provided presidential measurements for narcissism, charisma, creativity, and proactivity. Narcissism was assessed for all presidents up until Reagan. Creativity and proactivity were assessed again for all presidents up until Reagan but also excluded Tyler, A. Johnson, Arthur, and Ford.

Historical Greatness. Finally, we used previous ratings of a president's "historical greatness" (Simonton, 1987) through Carter, excluding Garfield and W. Harrison.

Liberalism. Expert opinion scores of presidential liberalism were collected from Segal et al. (2000). This dataset included all "modern" presidents from FDR to Clinton. In order to complete this dataset, we constructed an online questionnaire following Segal et al.'s method, asking experts to rate presidents on economic and social liberalism. The only difference in questioning was that we combined economic and social liberalism. This decision was based on the fact that the two ratings in Segal et al.'s study were almost perfectly correlated ($r = .97$,

$p = .00$). The survey was sent to the political science faculty at a large southwestern university with the request to forward it to fellow scientists. In addition to that, a link was posted on several online forums for political science researchers (e.g., H-NET). A total number of 40 people responded. However, eight of these coders had more than 50% missing data. The interrater reliability assessed with Cronbach's Alpha was .94 for the 17 raters with complete data. Subsequently, raters with more missing data were included into the calculation of Cronbach's Alpha of the remaining listwise deleted items. Through this procedure (and the assessment of pairwise correlations between the raters) it became apparent that two raters grossly differed in their ratings (one of these raters had 90% missing data). Both raters were excluded from the dataset. The ratings of the remaining 38 raters were averaged for each president. The resulting scale correlated highly with Segal et al.'s (2000) data, $r = .95$, $p = .00$, indicating that the assessment of the modern presidents was very reliable. Several of the coders commented that it is problematic to assess liberalism of historical presidents because the definition of liberalism has changed over time, and thus it may be difficult to compare presidents across time on that dimension. This point is valid. Nevertheless, enough interrater reliability, as outlined above, was present to justify including these results in an analyses of integrative complexity; as will be seen, whether looking at only modern presidents or the entire sample, the results were nearly identical.

Results

Personality Factors

Did Presidents Show Stable Individual Differences in Integrative Complexity? In order to see to what degree variability in presidential complexity might be accounted for by stable individual differences, we computed an ANCOVA with president ($n = 41$) as the independent variable. Unlike all the other analyses reported below, however, it is not possible to directly covary out the random/quasi-randomness variable from these analyses (because the IV and covariate in this case would be perfectly confounded). Thus, for this purpose we computed an adjusted score that added the mean difference between the partially randomly selected excerpts and the truly randomly selected paragraphs to the partially randomly selected paragraphs. This adjusted score thus accounts for the fact that the partially randomly selected samples may be lower because of the difference in format.

The format difference proved to be irrelevant: Whether using the raw or adjusted score, it was evident that chronic differences between presidents' complexity levels existed (ps $< .002$). Further, we covaried out three environmental variables: (1) war versus peacetime, (2) legislative control, and (3) year of speech within term. Accounting for these environmental variables did not impact the results for either the raw score (ANCOVA $F[39,623] = 2.32$, $p < .001$) or the

adjusted score (ANCOVA $F[39,623] = 1.94$, $p = .001$). In summary, once accounting for some important environmental factors, some presidents appear to be chronically more complex than others.

Did Personality Traits Predict Integrative Complexity? Correlates with personality variables were assessed by correlating them with average integrative complexity scores of each president (using the president as the unit of analysis) while partialling out the randomness dummy variable. The correlations of all personality variables with integrative complexity are displayed in Table 2. While many of the personality variables were, as expected, not correlated with integrative complexity, the following constructs yielded significant or near-significant results. As expected, inflexibility was negatively correlated with integrative complexity, $r = -.31$, $p < .05$ (note that the p-value for inflexibility is one-tailed due to the obvious directional hypotheses). Other traits relevant to flexibility (openness to

Table 2. Correlations between personality variables and integrative complexity while controlling for randomness of selection process

Personality variable	*r*	*p*	*n*
Moderation[a]	.05	.375	37
Friendliness	.32^	.055	37
Intellectual brilliance[a]	.08	.332	37
Machiavellianism	.04	.797	37
Poise	−.27	.118	37
Achievement drive	.20	.236	37
Forcefulness	−.13	.446	37
Wittiness	.42*	.010	37
Attractiveness	.28	.094	37
Pettiness	−.11	.513	37
Tidiness	−.14	.426	37
Conservatism	−.26	.124	37
Inflexibilty[a]	−.31*	.035	37
Pacifism	.09	.596	37
Neuroticism	−.06	.773	37
Extraversion	.36*	.575	32
Openness to experience[a]	.07	.359	32
Agreeableness	.24	.197	32
Conscientiousness	−.18	.341	32
Historical greatness	.17	.167	36
Proactivity	−.24	.160	37
Creativity	−.08	.673	32
Narcissism	−.16	.364	37
Achievement motive	−.07	.665	32
Affiliation motive	.40*	.026	32
Power motive	.05	.811	32

Note: *$p < .05$; ^$p < .07$; [a]one-tailed test due to obvious directional hypothesis.

experience, moderation) showed correlations in the right direction but did not approach significance.

Consistent with prior research, a set of four traits relevant to interpersonal skills was positively correlated with complexity (all correlations control for the randomness variable): Extraversion ($r = .36$, $p < .05$), the affiliation motive ($r = .40$, $p < .05$), friendliness ($r = .32$, $p < .06$), and wittiness ($r = .42$, $p < .05$). The only other trait clearly relevant to interpersonal motives or skills, agreeableness, showed a positive but nonsignificant correlation.

Surprisingly, traits relevant to both intelligence and historical greatness, although always showing correlations in the expected direction, were not significantly correlated with integrative complexity.

It should be noted that the correlations were not corrected for alpha inflation. However, all significant correlations reflect previous research and theory and are therefore treated as a priori tests of significance. The only possible exception to this is the "wittiness" correlation, which, although clearly relevant to interpersonal skills, might possibly be viewed as more closely linked to cognitive than social skills. While the significant correlation with wittiness becomes nonsignificant if properly corrected for alpha inflation and might therefore best be treated as only a tentative result, the overall pattern of results suggested here is generally consistent with expectations and so cannot easily be attributable to alpha inflation and capitalization on chance.

Environmental Influences

Year-of-term effect. An omnibus ANCOVA yielded a main effect for year of term, $F(3, 674) = 4.01$, $p = .008$. In general, a linear downward trend in complexity emerged across the four years (complexity mean = 1.86 for the first speech, 1.82 for the second speech, 1.74 for the third speech, and 1.61 for the fourth and last speech). Planned comparisons revealed that the first two speeches both differed from the fourth speech, ts > 2.7, ps < .007. Effect sizes (measured with Cohen's d) for both comparisons were .35 and .30, respectively. None of the other differences between speeches were significant, although the difference between the third and fourth speeches approached significance ($p = .083$). These results clearly suggest that presidents' speeches were significantly less complex at the end of their first term than at the beginning.

Moderator of year-of-term effect: Reelection success. Previous research suggests that successful leadership requires not merely high or low complexity: It requires having the right complexity at the right time. In particular, with regards to elections and revolutions, it suggests that a winning formula is to lower one's complexity immediately prior to an attempt to gain control of political office but raise one's complexity once office is secured (Suedfeld & Rank, 1976; Tetlock, 1981). In order to see if the pattern of complexity was predictive of success, we looked at only those presidents who ran for reelection (thus, these analyses

excluded those presidents who did not run for reelection). From that pool, we computed a 4 (year of speech) × 2 (reelection success: won or lost) ANCOVA. Although reelection success had no main effect on prior complexity ($F < 0.05$), it did moderate the pattern of complexity across presidents' first term, interaction $F(3,431) = 3.11$, $p = .026$. In particular, whereas eventual winners increased in complexity during their second speech and then showed steady decreases during their last two speeches, eventual losers showed a large drop in complexity during their second speech and then little change after that (if anything, they showed a slight increase from speech 3 to speech 4).

Planned comparisons revealed that, for the eventual winners, the only significant difference was between year 2 and year 4, $t(127) = 3.03$, $p = .003$, $d = .56$, although the difference between year 3 and year 4 approached significance ($p = .070$). For the eventual losers, the only significant difference occurred between speech 1 and speech 3, $t(89) = 2.27$, $p = .025$, $d = .49$, although the difference between year 1 and year 2 approached significance ($p = .088$). In summary, these analyses reveal that, as suggested by Figure 1, both winners and losers showed drops in complexity over their first term, but at different points: Winners' drop in complexity occurred later in their term than eventual losers'.

In addition, we calculated the point-biserial correlation coefficient between the last speech given before the reelection and election success. The analysis yielded an $r\ (22) = -.32$, $p = .07$, for a one-tailed test, indicating that winners had lower integrative complexity ($M = 1.58$, $SD = .63$) than losers ($M = 1.75$, $SD = .66$); however, significance was closely missed.

For the remaining environmental variables discussed below, initially we also performed a factorial ANCOVA in order to see if that variable interacted with year

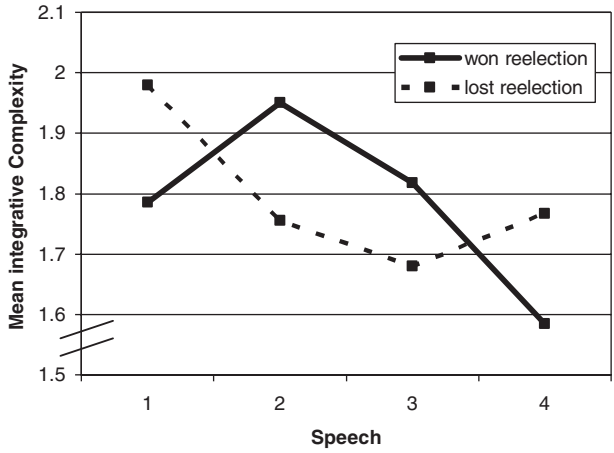

Figure 1. Integrative complexity scores during one term.

of speech to predict the pattern of complexity over time. None of these variables revealed a significant interaction with year of speech. Therefore, in order to simplify our analytic presentation, we present below results only on analyses that exclude the year of speech variable and instead attempt to predict overall differences in presidential complexity (i.e., the aggregate score of all four years in office).

Party Control of House or Senate. The impact of having an opposing senate or house of representatives was also assessed (opposing is defined by being controlled by a party that is different from the president's party) using three levels: (1) One level was having the majority in both the senate and the house, (2) the next level was having majority in only one of the two houses, and (3) the third level was having no majority in any of the two houses. There was a main effect for party control of the legislative bodies, ANCOVA $F(2,645) = 6.52$, p = .002. When presidents' party control over legislative bodies was split, their integrative complexity was lower ($M = 1.56$) than when either his party exerted control over both bodies ($M = 1.86$) or no control over either ($M = 1.80$). Planned comparisons revealed significant differences between the split power group and the other two groups, ts > 3.3, p's < .002, ds ranging from .35 to .44. The difference between the two extreme groups did not approach significance ($p = .501$). An examination of preexisting differences between the groups revealed that they differed in a variety of variables. Among those were a series of personality variables that were identified earlier to be predictive of integrative complexity. In an attempt to control for these differences an ANCOVA was conducted, controlling for the personality variables friendliness, wittiness, affiliation motive, extraversion, and inflexibility. The effect for legislative control found earlier disappeared in this ANCOVA. The main effect for this factor now yielded an $F(2,458) = .44$, $p = .65$.

It should be noted that the data could also be successfully modeled in a mediational model following Baron and Kenny's (1986) steps with affiliation motive as the mediating variable between the effect of legislative control (represented in the regression equation as the dummy variable distinguishing between the split power group and the other two groups) and integrative complexity. The regression coefficient for legislative control as a predictor of affiliation motive was $b_1 = -4.91$, $p < .05$, the regression coefficient for legislative control as predictor of integrative complexity was $b_2 = -.26$, $p < .05$, and the partial regression coefficient of affiliation motive predicting integrative complexity was $b_3 = .01$, $p < .05$. The partial regression coefficient of legislative control predicting integrative complexity failed to reach significance, $b_4 = -.10$, $p = .21$. Sobel's t-test for the indirect effect yielded a significant result, $t = -3.08$, $p < .01$.

Liberalism effect. The impact of liberalism was assessed in different ways. First, we calculated a correlation coefficient between the overall integrative complexity of the Presidents for which liberalism expert ratings from Segal et al. (2000) were available (FDR to Clinton) and both the economic and social liberalism scores from Segal et al. (2000). The analysis yielded an $r(11) = .45$, $p = .08$,

and $r(11) = .40$, $p = .11$ (both tests one-tailed due to the clear directional hypothesis), for social and economic liberalism in general, indicating that more liberal presidents scored higher on integrative complexity than less liberal ones (however not significantly so). A combined measure of both economic and social liberalism correlated with the complexity measure yielded an $r(11) = .43$, $p = .09$. Subsequent analysis revealed however that this analysis was highly underpowered with a post hoc power of only .46, which is not surprising considering the number of presidents for which data was available.

In a similar analysis, we directly compared the modern Democratic presidents with modern Republican presidents. Under the premise that the liberalism scale was so highly correlated with political platform, as outlined earlier, we believed this to be a meaningful comparison. The significance test yielded a similar but also nonsignificant result, $t(10) = -1.44$, $p = .09$ (one-tailed), indicating that Democrats did score higher on integrative complexity ($M = 2.0$, $SD = .14$) than Republicans ($M = 1.9$, $SD = .13$), but not significantly. Again, this study was underpowered due to a small sample size.

Following this analysis, we correlated the liberalism scores of all presidents (collected by the present authors for the purpose of this study) with the overall integrative complexity rating. The analysis yielded a correlation coefficient of $r(39) = .23$, $p = .08$ (one-tailed test), again indicating that high integrative complexity was related to high expert ratings of liberalism, and again closely failing to reach conventional levels of significance.

In a further attempt to gauge differences between liberal and more conservative presidents, we assessed the correlation between Simonton's (1987) measure of conservatism and overall integrative complexity. For these variables we had data for practically all presidents. The analysis yielded the expected negative r (37) $= -.12$, $p = .24$ (one-tailed test). High conservatism scores were associated with lower scores on integrative complexity, but the strength of association did not reach significance.

Status and Party Membership. In order to disentangle the effects of party membership and minority/majority status, a two-way ANOVA was conducted on all modern presidents. Party membership as the first factor was used as a proxy for liberalism, which is, as outlined earlier, permissible based on the extremely high correlation between them. The control over Congress served as the second factor, with factor levels full, partial, and none control. Even though the same patterns as described in the earlier analysis emerged, none of the effects reached significance, including the overall omnibus test, F (4,203) = .52, $p = .72$. The main effect for party membership again indicated that Democrats were higher in integrative complexity ($M = 2.0$) than Republicans ($M = 1.9$), but not significantly, $F(1,203) = .52$, $p = .47$. Also, no main effect for legislative control emerged, $F(2,203) = .22$, $p = .80$. The marginal means for the three conditions full, partial, and none control were 1.97, 1.82, and 2.0, respectively. There was no significant interaction between the two factors, $F(1,203) = .02$, $p = .84$.

To further extend this analysis, a regression equation with liberalism and status as predictors for integrative complexity was conducted. This equation included all presidents for which liberalism data was available and not only modern presidents. The liberalism variable was centered, and the status variable was recoded using two dummy codes. Based on previous results, the "split house" condition was used as the baseline (coded zero in the equation) to compare it to the two other conditions. The interaction terms were also included in the equation.

Similar to previous analyses, the main effect for status (as expressed by the regression coefficients of the two dummy variables) was observed. Both coefficients were significant ($B_1 = .30, p < .01, B_2 = .22, p = .01$), indicating that both the conditions with full or no control over Congress were associated with higher integrative complexity scores than the "split house" condition. The effect of liberalism failed to reach significance ($B_3 = -.01$, $p = .38$), as did the interaction effects between liberalism and the two dummy variables. It must be noted however that the main effect of status disappeared in a subsequent regression analysis in which the personality variables associated with integrative complexity were entered as predictors in a first block, essentially controlling for these preexisting group differences.

Additional Environmental Analyses. Additional analyses suggested that no effect on complexity emerged for war/peacetime, ($p = .948$), unemployment rate, ($p = .553$) or birth order ($p = .272$).

It is worth noting that birth order was one of the few effects that were impacted substantially by controlling for the randomness variable. When not controlling for the randomness variable, a main effect for birth order emerged, $F(1,677) = 4.68$, $p = .031$. Presidents were higher in complexity if they were firstborn ($M = 1.85$) than if they were latter born ($M = 1.72$). While this effect may be interesting and meaningful, we opt here to only focus on effects that clearly were not accounted for by the partial versus true randomness of the sample. On the flip side, although the consumer price index was significantly negatively correlated with complexity when controlling for the randomness variable (partial $r = .68$, $p = .043$), this effect did not occur for the zero-order correlation ($p = .304$). Thus, we opt to treat it with caution.

Discussion

The present study is the first to our knowledge to take a comprehensive panorama of the causes, consequences, and correlates of U.S. presidents' integrative complexity. As such, it provides a rich dataset from which to explore multiple questions relevant to the relationship between integrative complexity and leadership. In doing so, the present study highlights how both environmental and personality factors contribute to U.S. presidents' complexity. But exactly what theoretical contribution do these results make? We start with the environmental influences first.

U.S. Presidents' Complexity Changes across Their Tenure

One of the striking results from this rich dataset is that there is a systematic tendency for U.S. presidents to gradually decrease in complexity throughout the course of their first term in office. They are highest immediately after election and lowest immediately prior to the end of their first term. This in and of itself is interesting: It extends previous work on presidents (Tetlock, 1981) and revolutionary leaders (Suedfeld & Rank, 1976) into new territory, demonstrating that even in circumstances where a leader is already in power, the impending threat to that power causes leaders to show lower complexity levels. However, it is worth asking the question: Why might this be?

There are at least three relevant possibilities. First, it is possible that this reflects an awareness of upcoming reelection and a resulting rhetorical shift. It is obvious that presidents are aware of the impending reelection issues, and they may shift the complexity of their rhetoric as a mechanism of attempting to win reelection. Relatedly, this finding is also consistent with the hypothesis that politicians in power will ultimately focus their goals on staying in power (e.g., see Bueno De Mesquita et al., 1999). Consistent with this view, the present results suggest that presidents in power show a very similar cognitive/rhetorical pattern as nonincumbents seeking office. This could be viewed as validation of the power hypothesis.

A very different possibility, however, is derived from the cognitive manager model (Suedfeld, 1992). Rather than reflecting an intentional cognitive shift or a desire to stay in power, it may instead reflect the effects of stress on complex thinking at a more direct level. It is possible that impending reelection provides a kind of "cognitive overload" that makes it difficult for complex thinking to occur. Independent of that, it is also possible that complexity decreases because of the cumulative buildup of cognitive stress. Continued stress will eventually exhaust any person, so that ultimately—given continued long-term stress—lower complexity will result. The presidency is unquestionably a cognitively stressful job; and it is possible that presidents—in contrast to Tetlock's (1981) more optimistic view that increasing knowledge should lead to increasing complexity—simply "wear down" cognitively over the course of their term in office.

Indeed, an additional piece of evidence from the present study supports this latter cognitive interpretation. Presidents who did not run for reelection should presumably be less likely than those who did run to show changes in complexity due to an increasing awareness of the reelection period. Thus, if the changes we observed were due primarily to the impending reelection campaign, one would expect a different pattern from presidents who were not running for reelection. However, additional analyses suggest this is not the case. Presidents not running for reelection show the same basic pattern as the entire sample: They are highest at the beginning of their term and then gradually decrease, showing a large drop in their fourth year (Ms = 1.86, 1.77, 1.72, and 1.52, respectively). The difference between the first and fourth years is significant ($p < .01$). Although far from

definitive, this pattern suggests that the drop observed for the whole sample across presidential terms may be better explained by a cognitive fatigue explanation than an explanation based solely on the upcoming reelection campaign.

Are Complex Presidents More Successful?

Although there is a tendency to think of complexity as an unqualified panacea leading to success (see Suedfeld et al., in press), the present results support a more sophisticated view of the relationship between complexity and outcome measures. Looking only at overall complexity scores, complex presidents were neither more nor less likely to get reelected than less complex presidents, and they were not significantly more likely to be considered "great" presidents in the eyes of history. However, consistent with the cognitive manager model (Suedfeld, 1992), the present work suggests that what makes a successful leader is not so much the mean level of complexity but rather the *match* between complexity level and the situation. Some previous work suggests that successful leaders have low complexity while is seeking office, but higher complexity immediately after achieving that goal (Suedfeld & Rank, 1976; Tetlock, 1981). The previous work similarly suggests that successful leaders are defined by their ability to shift their complexity at the right time. In the present study, presidents who dropped quickly in complexity after their first speech tended to lose; presidents who dropped closer to their reelection campaign tended to win.

What does this mean? One view is that it is consistent with an impression management interpretation. According to Tetlock (1981), successful candidates are aware that lower complexity increases their likelihood of winning—so they make their rhetoric simpler on purpose with that strategic goal in mind. However, these successful politicians also realize that after they have won they must change their approach: The simple rhetoric that allowed one to win power will not allow one to deal with the complexities of actually governing. Thus, it may be in the present study that presidents tended to show higher complexity at the beginning than at the end of their term because they simply recognized that complex rhetoric is more strategically successful when managing the government than when in "campaign" mode.

This explanation, however, does not necessarily account for why presidents losing reelection showed an *earlier* decrease in complexity than their winning counterparts. Again we draw here on the cognitive manager model (Suedfeld, 1992). The model posits that cognitive strain exerts an impact on complexity that mirrors the effect of arousal on performance: Initially it causes an increase in complexity as cognitive resources are mobilized, but eventually it causes a decrease as exhaustion ensues. All leaders are not identical, however. At a broad level, there are individual differences in the manner in which given situational constraints impact cognitive complexity (see Conway et al., 2001). More specifically, although no one can deal with constant stress indefinitely, some people

appear better at dealing with it for longer periods than others, and that is perhaps why some leaders actually *increase* in complexity in the face of prolonged dire crises (see, e.g., Wallace & Suedfeld, 1988).

It is unquestionably the case that being the president is cognitively draining: It is possible that some of the presidents who lowered their complexity too early did so because they were less able to deal with this cognitive strain. The second year of office is perhaps too early for a president to apply a level of complexity that is fit for "campaign" mode; it may be that this does not reflect an intentional shift in rhetoric, but rather a cognitive incapacity on the part of that president. Thus it may be that those presidents who lost did so because they, unlike more successful presidents, simply could not use the appropriate level of complex thinking when it was needed, and this in turn impacted their actual job performance.

Other Situational Influences (and Noninfluences) on Integrative Complexity

The ideology contingency hypothesis that liberal presidents are more complex than less liberal ones could not be fully supported by our data. This might however be a problem of power, as we have described earlier. It is interesting though that all different approaches of answering this question yielded nearly significant results: The actual liberalism scores, party membership, and Simonton's measure of conservatism, all point in the same direction. Very tentatively one could draw the conclusion that liberal Presidents are in fact more integratively complex. There is however a caveat to this finding: Gruenfeld's (1995) results show us impressively that we must also account for minority or majority status and that ideological differences can in fact disappear in these situations. Our results however fail to give a definite answer. The fact that neither an effect for liberalism or minority/majority status was found (after controlling for certain personality variables) leaves us in a situation in which the data do not allow any strong conclusions either way.

The results of the analysis that evaluated the effects of legislative control with the whole sample (ignoring liberalism or party membership) need interpretation as well. Based on Gruenfeld's (1995) status contingency model, we would expect a decrease in integrative complexity in a condition in which the president had no control over any legislative body. The data however suggested that integrative complexity was only significantly lower in the split power condition. This effect disappeared when controlling for a series of personality variables that both were related to the outcome variable and differed across groups. One reasonable explanation for the effect might therefore be that the groups that we compared had preexisting differences among them. Additionally, given that the assignment to the conditions was nonrandom it casts doubt on the original effect found and suggests that there might be no difference across the legislative power conditions. The reason why no such effect could be found might be that legislative control might not really tap the construct of ideological majority versus minority. Even though the president has to work with the two legislative bodies, his primary environment,

the executive branch of the government, is ideologically homogenous. Therefore State of the Union addresses might not reflect the ideological position in regards to the two houses that a president is facing. It might be that this effect only works in smaller environments, like the board of Supreme Court judges, as Gruenfeld (1995) showed in her work.

It should however be noted that the data could also be successfully modeled in a mediational framework, with the affiliation motive mediating the effect between legislative control and integrative complexity. Despite the fit of the data, one would have to make the strong assumption that the change in affiliation motive is due to changes in the legislative control of the president. Under the assumption that motives are relatively stable constructs, this hypothesis remains rather unlikely and might just be a statistical artifact.

Besides these statistical considerations, one needs to consider another fact in regards to any analysis that included the minority/majority status variable. The actual quality of this measure could be questionable. It might be reasonable to assume that the legislative control of the president can be a proxy measure for ideological minority/majority status, especially if we consider that the State of the Union speeches are especially addressed at Congress. In this context, the president either has or has not the ideological support of the majority of his audience. However, maybe the effect of Congress on the president is not as strong as we suspected, and the results are more reflective of a poor measure than actual effects.

Being at war did not influence complexity levels. Given that a lot of previous research indicates that lower complexity is a precursor to war, it is worth asking why we did not find lower complexity during war years. One explanation is simply methodological: It is possible that our measurement was not temporally fine enough to capture the low periods of complexity. Often, the drops that occur in complexity prior to a war do so within weeks of the attack, and they sometimes rise once the war begins (see Conway et al., 2001; Suedfeld & Leighton, 2002). Because our measurements occur only once a year, it is possible that we simply did not capture the fine-grained temporal changes that often accompany wars.

Another explanation may be the nature of the State of the Union address itself. Complexity often varies by the intended target audience of the message. Most frequently, the complexity-reducing effect of war has been found on speeches intended for an international audience; however, the State of the Union address is designed primarily for an American audience. Thus it may be that for various reasons (e.g., selling a war at home versus making demands abroad; more domestic, nonwar related content in the speech) this change in target audience may have led to a noneffect.

Presidential Personality and Integrative Complexity

The present results corroborate the long-held idea that complexity is in part the result of situational forces. However, they further suggest that it is also in part

the result of stable personality traits that presidents bring into the situation. Even when accounting for several situational constraints, presidents chronically differed from each other in integrative complexity. It may be, then, that some presidents are simply more complex than other presidents.

The present study also offers some clues as to what sorts of personality traits make up the complex president. Interestingly, and somewhat surprisingly, purely ability-based traits such as intelligence appeared to play little or no role. Instead, traits with a more motivational component were predictive of overall integrative complexity levels. In particular, presidents who were dogmatically inflexible showed low complexity, and presidents high in interpersonal skills and motives showed high complexity. This makes sense. Persons who are inflexible are likely to be simple almost by definition: They do not like to consider alternatives. Further, persons who desire approval and affiliation and have the social skills to achieve them are especially likely to be complex: Persons who want the approval of others, for example, must sometimes be willing to consider others' points of view. The hermit can afford to be simple; but affiliating with people is a complex business.

At a broader level, taken together this evidence contributes to our theoretical understanding of the relationship between integrative complexity and personality. In particular, it supports the notion—developed by previous researchers (see Coren & Suedfeld, 1995; Suedfeld & Coren, 1992)—that a chronically high level of integrative complexity is better characterized as a cognitive "style" than a cognitive "ability." It may be that complex people are not complex so much because they are merely smart (although that does often play a role) but rather because they are motivated: They dislike an overly rigid cognitive structure and like—and are good at obtaining—other people's approval. The present results provide evidence for this motive-based characterization of the complex president.

Is Integrative Complexity a State or Trait?

Finally, we discuss whether integrative complexity can be viewed as a temporary state or a stable trait, in order to address a limitation inherent with our assessment. We believe that integrative complexity has some stable trait-like components related to ability and (especially) motivation, which however can be influenced by external sources, such as stress. This view thus treats integrative complexity similarly to other personality variables. Personality traits are assumed to be stable in some sense, but nevertheless the dimension represented by the given personality trait is also influenced by external factors and can change according to different situational influences. If personality would be completely stable, we would have perfect retest-reliability of every measure—this is of course not the case.

Thus, we assume that both our yearly measure and the resulting overall collapsed measure of integrative complexity pick up (in part) on the stable trait

component of integrative complexity. We do not claim that our measure is able to (nor did we in the present research attempt to) pick up extremely small state fluctuations—the "temporal density" of it is far too coarse. However, we do believe that certain states during the course of a presidential term can be assessed with the measure. Different influences are present during different times of the presidency, and our measure is able to assess these states. The four yearly measurements could be seen as four state measures that are all representative of an underlying trait.

Limitations

Anytime one attempts to compare persons over so long a period of time, it is inevitable that interpretive problems arise as a result of changes that occurred during the time period under study. The present investigation is no different. Below, we address some of these limitations.

The Development of Speechwriting over Time

One of the most obvious limitations is the fact that, over time, presidents were more and more likely to rely on other people to help write their speeches. Although presidents have been seeking aid for speechwriting since Washington, the first president to officially employ a full-time speechwriter was apparently Coolidge (Donaldson-Evans, 2005). This might be a problem for the present interpretation: Perhaps presidents who rely heavily on speechwriters are not subject to the same psychological processes (or perhaps the processes do not reflect what is happening in the president, but rather in the speechwriter)?

Although we recognize this difficulty, there are three reasons to believe it is not as large a problem as (on the surface) it may appear to be. First, at a broad level, evidence exists that the complexity of public speeches *does* reflect the complexity of the actual person's thoughts under scrutiny. In a study of Winston Churchill, for example, the integrative complexity of Churchill's private documents (presumably closer to his actual thoughts than his public statements) was consistent with that of his public statements over time and across issues (Tetlock & Tyler, 1996). Further, aggressive international actions are preceded by drops in complexity in the leaders of the attacking nations both when the actions are expected *and* when the actions are intended to be a *surprise* to the defending nation (Suedfeld & Bluck, 1988). Although indirect evidence, this similarity in effects in the same domain (aggressive international action) but across two very different situational constraints (one where explaining that war is imminent is beneficial; one where hiding the same fact is beneficial) is difficult to explain without appeal to some kind of underlying similar cognitive mechanism such as cognitive stress (see Conway et al., 2001). The likely existence of this mechanism implies that complexity is tapping into a real cognitive process at the individual level.

This necessity does not necessarily speak to the specific question of leaders' reliance on speech*writing*, however. Two additional points do so. First, it may be that a perception of a speechwriter as someone who writes a speech for a passive president is exaggerated. Far more likely is the fact that the president takes a highly active role in speech construction, especially of landmark speeches like the SOTU. As George Washington University history professor Leo Ribuffo points out, "It's clear that the man makes the speechwriter. The speechwriter is the employee and the president is the president. [The president has] the final say" (cited in Donaldson-Evans, 2005). Many former speechwriters testify to the fact that the president is often directly engaged with speech construction. Consider these comments by Ray Price, a former speechwriter for Nixon:[1]

> I worked with Nixon; most—my estimate was about 19 out of 20—of his speeches were not written at all; he'd been a champion debater since high school, and he was more comfortable without a text than with one. Any speech to the nation from the Oval Office, any to a joint session of Congress, was written, as were selected others. His radio addresses were also written; he had much less of a direct hand in those.
>
> When we did do a written speech other than radio it was pretty much a back-and-forth process, usually through about six or seven drafts, with him editing me and me editing him, until we had what he wanted to say in the way he wanted to say it. Somehow, quite by coincidence, every State of the Union (I did them all) ended up at 14 drafts. He often used this writing process, as he did later when writing his various post-presidency books, as a way of refining ideas—if they don't work on paper, under the discipline of the written word, they probably don't work, period.

These and other comments from former speechwriters (see Donaldson-Evans, 2005) suggest that the content of a given speech—especially a speech as important as the State of the Union—likely reflect the actual thoughts of the president himself.

Finally, additional analyses from the present study support the claim that speechwriting did not play a major role in the results. Although most presidents received help with their speeches, the modern role of the speech writer is generally assumed to have begun during Calvin Coolidge's tenure (Donaldson-Evans, 2005). We therefore constructed a dummy variable for "speechwriting" using Coolidge as a cut-off point (0 = pre-speechwriting era, 1= post speechwriting era) and included this variable in a 4 (Year of Speech) × 2 (Speechwriting era: Yes or No) ANOVA. This analyses suggested that speechwriting mattered little to the

[1] Obtained from http://www.pbs.org/newshour/inauguration/speech1.html).

overall pattern: Although the speechwriting era showed higher levels of complexity overall ($F(1,670) = 7.57$, $p = .006$), speechwriting did not interact with year of speech (interaction $F < 0.80$, $p > .51$). Both prior to and during the speechwriting era, presidents showed a general linear trend downward from year 1 to year 4 (for speechwriting era: Year 1 = 1.97, Year 2 = 1.98, Year 3 = 1.98, Year 4 = 1.75; for nonspeechwriting era: Year 1 = 1.80, Year 2 = 1.72, Year 3 = 1.59, Year 4 = 1.53). Although "breaking" downward at slightly different points (year 3 versus year 4), these analyses are generally consistent with the notion that speechwriting did not substantially change the overall downward trend from year 1 to year 4 across presidents.

Of course, reliance on speechwriting has become more prominent. However, a second analysis similarly suggested this factor did not matter. In particular, the presidents' temporal rank order (from 1 to 43) was correlated with both the overall complexity score and a score representing the difference between their speech in year 1 and year 4. This latter score represents the overall amount of drop-off the president experienced in complexity over the course of his tenure. (Note that this latter analysis must by nature exclude presidents who did not give four SOTU addresses.) If the pattern of results changed as speechwriting became more intensely relied upon, this number ought to be correlated with the presidents' temporal rank order, which would mean that the average difference between year 1 and year 4 decreased or increased over time. No such correlation emerged. Although (consistent with what we have already discussed) the overall mean level of complexity for each president increased over time ($r(40) = 39$, $p = .012$), the average drop from year 1 to year 4 was uncorrelated with linear time ($r\,(33) = .01$, $p = .980$). This suggests that although speechwriting (and other factors) may have increased the *average* level of complexity over time, they did not impact the general trend for presidents to shift downward in complexity throughout their first term in office.

The Format Difference: Delivering the Speech in Person (Or Not)

Another potential problem is the fact that, from Jefferson to Taft, presidents did not actually deliver their speeches to Congress in verbal form. Might this difference in format impact the results? Again, using a dummy variable for the format difference, additional analyses suggest the answer is no. A 4 (year of speech) × 2 (president delivered speech in person: yes or no) ANOVA yielded a similar pattern across time for both personally delivered and nonpersonally delivered speeches, interaction $F < 0.7$, $p > .57$).

Generalizability Issues

As with any study, the scope of the present investigation is limited by the type of data collected and the population of people under study. First of all, State

of the Union addresses are a very specific kind of address: They are speeches given once a year and are therefore on a rather global level. They entail many different topics and address diverse issues. Therefore it becomes hard to estimate the impact of just one variable, e.g., war or economic climate. In any given speech, some parts might be influenced by these variables, whereas others might not be. In addition, the impact of these variables might be dependent on close proximity in time. Depending on the immediacy of the speech to an influential event, different effects may occur. While this influence of proximity needs to be further examined, using State of the Union addresses as opposed to selected speeches that might be chosen according to important events has the advantage of higher comparability. The internal validity of the study is strengthened due to the homogenous format of the sample and outweighs the costs of a less fine grained temporal resolution.

The generalizability of the study is further limited by the special sample of individuals under scrutiny. We do not claim to generalize our results to the general population. Especially some of the relationships between personality and integrative complexity might be not present in the general population. The presidents clearly represent a very special and extreme subpopulation, as Rubenzer and Faschingbauer (2004) note with respect to many important personality variables. Our results can therefore only be generalized across a sample of leaders that have a similar personality profile as the presidents.

Further, our study is limited—like all studies—in the number of personality and situational variables it takes into account. While we attempted to be as comprehensive as possible, no study can possibly account for *every* situational or personality variable. Thus, for example, while the present results can be taken as evidence that once accounting for *some* situational factors relevant to complexity presidents still demonstrate across-person variance, we do not confidently assert that this is conclusive evidence that presidents chronically differ in complexity because of personality factors. Other studies accounting for different factors may yet undermine this seeming "personality" effect. The evidence to date, however, *does* suggest a decent likelihood that chronic differences between presidents exist in how complexly they think.

In addition, the power of *some* of the analyses was undesirably low. Even though we collected an immense dataset on our variable of main interest, integrative complexity, some hypotheses that were tested relied on variables that were only sparsely available in our data. It would be advantageous to collect more data on these variables to increase the power of the analyses.

Concluding Thoughts

The present study provides a unique dataset that allows tests of leadership theories about the impact of environmental and personality variables on integrative complexity. We identified a pattern of changes in integrative complexity during the

tenure of presidents that is consistent with the cognitive manager model and might allow us to predict presidential success in the future. We also discovered personality correlates of presidential integrative complexity centering around two sets of motives: cognitive inflexibility and interpersonal motives. In summary, this study not only provided future researchers with a rich dataset about U.S. presidents, but also helped to deepen our understanding of changes in integrative complexity under different conditions by putting both contextual and personality variables into a meaningful theoretical framework.

ACKNOWLEDGMENTS

We would like to thank Virgil Sheets and Craig Enders for their statistical consulting. Our thanks also go to Sarah Turner, Francisco Zepeda, and Charles Jaggard for their tremendous help with data collection, preparation, and coding. Correspondence concerning this article should be addressed to Felix Thoemmes, Psychology Department, Arizona State University, Tempe, AZ, 85281, felix.thoemmes@asu.edu.

REFERENCES

Baker-Brown, G., Ballard, E. J., Bluck, S., de Vries, B., Suedfeld, P., & Tetlock, P. (1992). The conceptual/integrative complexity scoring manual. In C. P. Smith (Ed.), *Motivation and personality: Handbook of thematic content analysis* (pp. 400–418). Cambridge: Cambridge University Press.

Baron, R., & Kenny, D. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.

Boykin, E. (1963). *State of the Union; highlights of American history, momentous events and policies in the political, social, and military life of the Nation as revealed in the State-of-the-Union and war messages of the Presidents: George Washington to John F. Kennedy / Selected and edited by Edward Boykin*. New York: Funk & Wagnalls Co.

Bueno De Mesquita, B., Morrow, J. D., Siverson, R. M., & Smith, A. (1999). An institutional explanation of the democratic peace. *American Political Science Review, 93*(4), 791–807.

Conway, L. G., III, Schaller, M., Tweed, R. G., & Hallett, D. (2001). The complexity of thinking across cultures: Interactions between culture and situational context. *Social Cognition, 19*, 230–253.

Conway, L. G., III, Suedfeld, P., & Clements, S. M. (2003). Beyond the American reaction: Integrative complexity of Middle Eastern leaders during the 9/11 crisis. *Psicologia Politica, 27*, 93–103.

Conway, L. G., III, Suedfeld, P., & Tetlock, P. (2001). Integrative complexity and political decisions that lead to war or peace. In D. J. Christie, R. V. Wagner, & D. Winter (Eds.), *Peace, conflict, and violence: Peace psychology for the 21st century* (pp. 66–75). Englewood Cliffs, NJ: Prentice-Hall.

Coren, S., & Suedfeld, P. (1995). Personality correlates of conceptual complexity. *Journal of Social Behavior and Personality, 10*, 229–242.

Deluga, R. (1997). Relationship among American presidential charismatic leadership, narcissism, and rated performance. *Leadership Quarterly, 8*, 49–65.

Deluga, R. (1998). American presidential proactivity, charismatic leadership, and rated performance. *Leadership Quarterly, 9*, 265–291.

Donaldson-Evans, C. (2005). Different writer, same president. News article obtained from http://www.foxnews.com/story/0,2933,156156,00.html on April 27, 2006.

Elovitz, P. (2003). Psychoanalytic scholarship on American presidents. *Annual of Psychoanalysis, 31*, 135–149.

Gruenfeld, D. (1995). Status, ideology, and integrative complexity on the U.S. Supreme Court: Rethinking the politics of political decision making. *Journal of Personality & Social Psychology, 68*, 5–20.

Gruenfeld, D., & Preston, J. (2000). Upending the status quo: Cognitive complexity in U.S. Supreme Court justices who overturn legal precedent. *Personality & Social Psychology Bulletin, 26*, 1013–1022.

Gruenfeld, D., Thomas-Hunt, M., & Kim, P. (1998). Cognitive flexibility, communication strategy, and integrative complexity in groups: Public versus private reactions to majority and minority status. *Journal of Experimental Social Psychology, 34*, 202–226.

Guttieri, K., Wallace, M., & Suedfeld, P. (1995). The integrative complexity of American decision makers in the Cuban missile crisis. *Journal of Conflict Resolution, 39*, 595–621.

House, R., Spangler, W., & Woycke, D. (1991). Personality and charisma in the U.S. presidency: A psychological theory of leader effectiveness. *Administrative Science Quarterly, 36*, 364–396.

Kelly, G. A. (1955). *The psychology of personal constructs*. New York: Norton.

Levi, A., & Tetlock, P. (1980). A cognitive analysis of Japan's 1941 decision for war. *Journal of Conflict Resolution, 24*, 195–211.

Martis, K. (1989). *The historical atlas of political parties in the United States Congress 1789–1989*. New York: McMillan.

McDaniel, E., & Lawrence, C. (1990). *Levels of cognitive complexity: An approach to the measurement of thinking*. New York: Springer-Verlag.

Military history of the United States. (n.d.) Retrieved June 20, 2005, from http://en.wikipedia.org/wiki/military_history_of_the_United_States.

Renshon, S. (2001). The comparative psychoanalytic study of political leaders: John McCain and the limits of trait psychology. In O. Feldman & L. Valenty (Eds.), *Political leadership for the new century: Lessons from the cross-cultural study of personality and behavior* (pp. 233–253). Westport, CT: Greenwood.

Richardson, L. (1960). *Statistics of deadly quarrels*. Chicago: Quadrangle Books.

Rubenzer, S., & Faschingbauer, T. (2004). *Personality, character & leadership in the White House: Psychologists assess the presidents*. Washington: Brassey's.

Segal, J. A., Timpone, R. J., & Howard, R. M. (2000). Buyer beware? Presidential success through Supreme Court appointments. *Political Research Quarterly, 53*(3), 557–573.

Simonton, D. (1987). *Why presidents succeed: A political psychology of leadership*. New Haven: Yale University Press.

Simonton, D. (1999). Significant samples: The psychological study of eminent individuals. *Psychological Methods, 4*, 425–451.

Simonton, D. (2002). Intelligence and predicted greatness: Equation replication using updated IQ estimates. In S. Shovov (Ed.), *Advances in psychology research* (pp. 143–153). New York: Nova Science Publishers, Inc.

Somit, A., & Peterson, S. (1994). Birth order as a factor in presidential selection and performance. *Social Science Journal, 31*, 407–420.

Suedfeld, P. (1992). Cognitive managers and their critics. *Political Psychology, 13*, 435–453.

Suedfeld, P., & Bluck, S. (1988). Changes in integrative complexity prior to surprise attacks. *Journal of Conflict Resolution, 26*, 626–635.

Suedfeld, P., Bluck, S., Ballard, E. J., & Baker-Brown, G. (1990). Canadian federal elections: Motive profiles and integrative complexity in political speeches and popular media. *Canadian Journal of Behavioural Science, 22*, 26–36.

Suedfeld, P., & Coren, S. (1992). Cognitive correlates of conceptual complexity. *Personality and Individual Differences, 13*, 1193–1199.

Suedfeld, P., Conway, L. G., III, & Eichhorn, D. (2001). Studying Canadian leaders at a distance. In O. Feldman & L. Valenty (Eds.), *Political leadership for the new century: Lessons from the cross-cultural study of personality and behavior* (pp. 3–19). Westport, CT: Greenwood.

Suedfeld, P., & Leighton, D. C. (2002). Early communications in the war against terrorism: An integrative complexity analysis. *Political Psychology, 23*, 585–599.

Suedfeld, P., Leighton, D. C., & Conway, L. G. III (2005). Integrative complexity and decision-making in international confrontations. In M. Fitzduff & C. E. Stout (Eds.), *The psychology of resolving global conflicts: From war to peace*. Volume 1, Nature vs. Nurture (pp. 211–237). New York: Praeger.

Suedfeld, P., & Rank, A. D. (1976). Revolutionary leaders: Long-term success as a function of changes in conceptual complexity. *Journal of Personality and Social Psychology, 34*, 169–178.

Suedfeld, P., Tetlock, P., & Ramirez, C. (1977). War, peace, and integrative complexity. *Journal of Conflict Resolution, 21*, 427–443.

Tetlock, P. (1981). Pre- to postelection shifts in presidential rhetoric: Impression management or cognitive adjustment. *Journal of Personality and Social Psychology, 41*, 207–212.

Tetlock, P. E. (1983). Cognitive style and political ideology. *Journal of Personality and Social Psychology, 45*, 118–126.

Tetlock, P. (1985). Integrative complexity of American and Soviet foreign policy rhetoric: A time-series analysis. *Journal of Personality and Social Psychology, 49*, 1565–1585.

Tetlock, P., Peterson, R., & Berry, J. (1993). Flattering and unflattering personality portraits of integratively simple and complex managers. *Journal of Personality & Social Psychology, 64*, 500–511.

Tetlock, P. & Tyler, A. (1996). Churchill's cognitive and rhetorical style: The debates over Nazi intentions and self-government for India. *Political Psychology, 17*, 149–170.

United States Department of Labor. Bureau of Labor Statistics. (n.d.). *Employment, hours, and earnings from the current employment statistics survey (National)*. Retrieved June 20, 2005, from http://www.bls.gov/ces/home.htm#data

United States Department of Labor. Bureau of Labor Statistics. (n.d.) *Consumer price indexes*. Retrieved June 20, 2005, from http://www.bls.gov/cpi/home.htm#data

United States House of Representatives. (n.d.). *Political divisions of the House of Representatives (1789 to present)*. Retrieved March 15, 2005, from http://clerk.house.gov/histHigh/Congressional_History/partyDiv.html

United States National Archives. (n.d.). *Historical election results. 1789–2004 presidential elections*. Retrieved March 16, 2005, from http://www.archives.gov/federal-register/electoral-college/votes/index.html

United States Senate. (n.d.). *Party division in the Senate, 1789–present*. Retrieved March 15, 2005, from http://www.senate.gov/pagelayout/history/one_item_and_teasers/partydiv.htm

University of California, Santa Barbara. (n.d.). *The American presidency project*. Retrieved June 2004 from http://www.presidency.ucsb.edu/sou.php

Wallace, M. D., & Suedfeld, P. (1988). Leadership performance in crisis: The Longevity-Complexity link. *International Studies Quarterly, 32*, 439–451.

Whitehead, G., & Smith, S. (2002). The use of hand gestures and smiles in the inaugural addresses of presidents of the United States. *Journal of Social Psychology, 142*, 670–672.

Winter, D. (1987). Leader appeal, leader performance, and the motive profiles of leaders and followers: A study of American presidents and elections. *Journal of Personality & Social Psychology, 52*, 196–202.

Young, T., & French, L. (1996). Social class and perceived competence of U.S. Presidents. *Perceptual & Motor Skills, 83*, 330.

Young, T., & French, L. (1998). Heights of U.S. presidents: A trend analysis for 1948–1996. *Perceptual & Motor Skills, 87*, 321–323.