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Source: *Political Psychology*, Vol. 27, No. 4 (Aug., 2006), pp. 511-526

Published by: International Society of Political Psychology

Stable URL: <http://www.jstor.org/stable/3792393>

Accessed: 04/03/2010 02:53

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## **Presidential IQ, Openness, Intellectual Brilliance, and Leadership: Estimates and Correlations for 42 U.S. Chief Executives**

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*Individual differences in intelligence are consistently associated with leader performance, including the assessed performance of presidents of the United States. Given this empirical significance, IQ scores were estimated for all 42 chief executives from George Washington to G. W. Bush. The scores were obtained by applying missing-values estimation methods (expectation-maximization) to published assessments of (a) IQ (Cox, 1926; n = 8), (b) Intellectual Brilliance (Simonton, 1986c; n = 39), and (c) Openness to Experience (Rubenzer & Faschingbauer, 2004; n = 32). The resulting scores were then shown to correlate with evaluations of presidential leadership performance. The implications for George W. Bush and his presidency were then discussed.*

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**KEY WORDS:** Presidential leadership, IQ, Openness to Experience, Intellectual Brilliance, intelligence

Perhaps no individual-difference variable has more practical consequences than does general intelligence. This impact is witnessed at five levels of specificity. First, at the broadest level of applicability, intelligence is closely associated with the cognitive complexity necessary for meeting the demands of modern life (Gottfredson, 1997). Second, and more specifically, cognitive capacity is the best single predictor of job performance in a wide range of occupations (Ones, Viswesvaran, & Dilchert, 2005). Third, and yet more narrowly, individual differences in intelligence correlate positively with leader performance (Bass, 1990; Simonton, 1995). For instance, according to one meta-analysis of 151 independent samples (Judge, Colbert, & Ilies, 2004), the overall correlation is .27 (when corrected for range restriction). Fourth, this association holds for a more specialized form of leadership, namely the performance of political leaders (Simonton, 1990). For

example, a historiometric study of 342 European monarchs found that intelligence correlated .32 with eminence and .67 with leadership (Simonton, 1984; see also Simonton, 1983, 2001a). Fifth, and most specifically, assessed intelligence has a positive correlation with the performance of U.S. presidents (Simonton, 1986c, 1988, 2001b), where performance was based on surveys of presidential experts, including both political scientists and historians. In fact, out of more than two dozen individual-difference variables examined, intelligence was the only one to display consistently positive correlations with all available measures of presidential greatness (Simonton, 1992; cf. McCann, 1992). Indeed, it constitutes the only direct individual-difference correlate of performance once situational factors are taken into account (Simonton, 1991b, 1992; see also Simonton, 1986a, 1996). Intelligence is a crucial component of leader performance, in part, because it is associated with other advantageous attributes, such as charisma and creativity (Simonton, 1988).

Given that most presidents of the United States died long before the advent of intelligence tests, it is imperative to specify the basis for the scores used in these investigations (Simonton, 1986c, 1987). Assessment began by extracting personality descriptions from several biographical sources for 39 presidents from Washington through Reagan. All identifying information was then removed to produce anonymous biographical profiles. Several independent judges used these profiles in conjunction with the Gough Adjective Check List (Gough & Heilbrun, 1965) to rate the presidents on 300 descriptors, obtaining reliable assessments for 110 adjectives (cf. Deluga, 1997, 1998; Historical Figures Assessment Collaborative, 1977). These latter measures were then subjected to a factor analysis that obtained 14 distinct dimensions. One of these factors included such items as "intelligent," "wise," "inventive," "interests wide," "artistic," "curious," "sophisticated," "complicated," and "insightful" (but not "dull" or "commonplace"). Moreover, a factor score defined by the linear composite of these items yielded a measure having an internal-consistency reliability (coefficient alpha) of .90 (Simonton, 1986c). The resulting factor was then interpreted as assessing the chief executives on Intellectual Brilliance.

This measure was then validated a number of ways. For example, the variable correlates with objective biographical events, such as the chief executive's pre-election publication record (Simonton, 1986c), a variable that prior research showed was associated with presidential greatness (Simonton, 1981). In addition, Intellectual Brilliance correlates with alternative assessments of presidential intellect. For instance, the measure has a correlation of .80 with Thorndike's (1950) intelligence evaluations of 10 chief executives based on his reading of pertinent biographical data (Simonton, 1986c).

Even more significant for our current purposes, Intellectual Brilliance correlates .70 with the IQ scores that Cox (1926) had calculated for eight U.S. presidents as part of Terman's (1925-59) classic study of the relation between intelligence and achievement (Simonton, 1986c). These IQ scores, though

extracted from biographies using historiometric methods, used an entirely different operational definition of intelligence and therefore focused on contrasting sources of information. In particular, Cox compiled chronologies of childhood and adolescent achievements to detect any signs of intellectual precocity. Using a team of independent raters, the ages at which certain accomplishments appeared were compared with the average ages at which those achievements would be expected in the general population. The IQ scores were then defined according to the traditional concept of the intelligence quotient as  $100 \times MA/CA$ , where MA is mental age and CA is chronological age (extended from Terman, 1917). The method was applied to only eight chief executives because the sample consisted of 301 leaders and creators from numerous nations and periods of history (Cox, 1926). Nonetheless, it is worth noting that the IQ scores for this sample correlated .25 with individual differences in eminence (using an archival space measure devised by Cattell, 1903; cf. Simonton, 1986c). Furthermore, high IQs in Cox's (1926) sample are linked with traits that have a close affinity with those defining Intellectual Brilliance, namely, originality of ideas, profoundness of apprehension, pervasive cognitive activity and drive, and intellectual versatility (Cox, 1926; Simonton, 1976; White, 1931).

The Intellectual Brilliance assessment was validated much later via a totally divergent methodology (Simonton, 2002). Rubenzer, Faschingbauer, and Ones (2000) assessed the 41 U.S. presidents prior to George W. Bush on the NEO, a standard measure of the "Big Five" personality dimensions (Costa & McCrae, 1992a,b). The assessment was executed by having recognized experts on specific presidents rate their subjects on the items making up the key facets and factors of the NEO. From these questionnaires useful measures were obtained for all of the NEO scales, at least for a subset of 31 chief executives for whom sufficient ratings were available. The resulting measure of special relevance here is Openness to Experience, a cognitive proclivity that encompasses unusual receptiveness to fantasy, aesthetics, feelings, actions, ideas, and values. In the general population this factor is positively associated with intelligence (Bates & Shieles, 2003; Gignac, Stough, & Loukomitis, 2004; Harris, 2004). In the specific case of presidents, as well, Openness correlates .71 with the Intellectual Brilliance factor (Simonton, 2000, 2002). In other words, Intellectual Brilliance has almost the exact same correlation with Openness as it does with the Cox (1926) IQ scores. Thus, it is very likely that the three measures, despite their distinct origins, are all tapping into the same underlying construct—each president's broad intellectual breadth, power, and energy.<sup>1</sup> As further support for this conjecture, the Openness

<sup>1</sup> Some would argue that general intelligence (or Spearman's *g*) can be psychometrically discriminated from Openness (e.g., Costa & McCrae, 1992a,b). From this perspective the high correlation observed between Openness and the other measures may be suspicious because it is more than double the correlation usually observed in the general population. However, the two constructs may be more closely related in samples of presidents because of how such individuals are recruited to enter and succeed in politics. There is a precedent for such a selection effect in the fact that the power and

scores also predict the performance ratings that the presidents receive from historians and political scientists who have expertise in the American presidency (Rubenzer, Faschingbauer, & Ones, 2000). In fact, not only does Openness predict presidential success better than any other Big Five factor, but it correlates with “ethics on the job” as well (Ones, Rubenzer, & Faschingbauer, 2004).

Most recently, Rubenzer and Faschingbauer (2004) published the book *Personality, Character, & Leadership in the White House* in which they could elaborate and extend the findings reported in Rubenzer, Faschingbauer, and Ones (2000). Among the many additions in this later publication is the inclusion of NEO scores for George W. Bush, thereby enlarging the sample of assessed presidents from 31 to 32. This enlargement provided the impetus for the current investigation. Specifically, the goal is threefold. First, by applying modern statistical methods for reconstructing missing values, I provide estimates of IQ, Openness, and Intellectual Brilliance for all 42 presidents. Second, these objective (even if tentative) estimates will be correlated with the most up-to-date measure of presidential performance for the 41 presidents for whom ratings are possible. Third, the association from this result will be used to predict George W. Bush’s most likely performance rating were it based on intellectual ability alone.

### Method

The sample consists of all presidents of the United States from George Washington to George W. Bush. Although Bush was inaugurated as the 43rd President of the United States, he was only the 42nd U.S. president (because Cleveland served two nonconsecutive terms as the 22nd and 24th president of the United States). Hence, the sample size is 42 rather than 43.

#### *Intellectual Capacity Measures*

The factor scores for Intellectual Brilliance were taken from Simonton (1986c, p. 154). All presidents between Washington and Reagan were assessed ( $n = 39$ ), the scores having been standardized to a zero mean and a unit standard deviation (i.e.,  $z$  scores). The Openness scores came from Rubenzer and Faschingbauer (2004, pp. 26, 200, 302). These scores have a hypothetical range of 0 to 100, and the actual range is very close to that. Even though presidents from Washington to George W. Bush were assessed, 10 presidents could not be reliably scored because of the unavailability of appropriate experts, thereby reducing the sample size ( $n = 32$ ). Finally, IQ estimates were adopted from Cox (1926) for the small subset of presidents who were of sufficient renown to make it into the sample

achievement motives are more highly correlated among presidents than in the population at large (Winter, 1973, 1987). Thus in the case of U.S. chief executives (and perhaps other political leaders) high general intelligence may be more strongly linked with the qualities associated with Openness.

of 301 geniuses ( $n = 8$ ). Actually, there were four estimates for each president. First, IQs were calculated for two periods of biographical data, the first from birth to age 17 and the second from age 18 to age 26. These were identified by Cox as IQ I and IQ II. Second, the raw IQ scores for each of these periods were corrected for measurement error (see Cox, 1926, pp. 82–83, for the specific formula). This statistical correction for attenuation was deemed necessary because some biographies had more adequate information than did others. Hence, each period has both uncorrected (U) and corrected (C) IQ scores. The outcome is four IQ scores: I-U, I-C, II-U, and II-C.

The original scores on Intellectual Brilliance, Openness to Experience, and the four Cox (1926) IQ estimates are shown in boldface in Table 1. These numbers have been rounded off to the first figure to the right of the decimal point. Table 2 shows the basic statistics for each measure, including the mean ( $M$ ) and standard deviation ( $SD$ ). It should be observed that the four IQ estimates differ in three systematic ways. First, the corrected scores (C) tend to be larger than the uncorrected scores (U). This is not surprising given that the correction for attenuation is supposed to have this consequence, but it does raise the issue of whether the corrected scores might be too high. Second, the first-period estimates (I) tend to be smaller than the second-period estimates (II). Third, the dispersion, as indicated by the standard deviations, tends to be larger for the first-period estimates (I) relative to the second-period estimates (II).<sup>2</sup>

Lastly, it is worth noting that although the presidents range tremendously in Openness, the mean for the group falls in the low end of the distribution.

### *Leadership Performance Measure*

The measure of presidential leadership was based on the ratings or rankings contained in the following 12 sources: the Schlesinger (1948) survey, the Rossiter (1956) rating, the Schlesinger (1962) second survey, the Bailey (1966) rating (as quantified by Kynerd, 1971), the Maranell (1970) survey, the *Chicago Tribune Magazine* poll (as reported in Murray & Blessing, 1983), the Porter poll (also as reported in Murray & Blessing, 1983), the Murray and Blessing survey (1983), the Siena Research Institute survey (Kelly & Lonnstrom, 1990), the Ridings and McIver (1997) survey, and a survey conducted by C-Span (C-Span Survey of Presidential Leadership, 2000). When necessary, the original scores were inverted so that higher numbers signified greater presidential performance. All 12 measures were then standardized to produce  $z$  scores (i.e.,  $M = 0$  and  $SD = 1$ ). The average of these dozen standardized measures defined the indicator of each president's leadership performance (or "presidential greatness").

<sup>2</sup> Because these IQs were based on the old definition of the intelligence quotient as a ratio of mental to chronological age (rather than the modern definition of IQ in terms of the normal distribution), the scores have no pre-set standard deviation (16 or 15 in most modern tests). Nonetheless, the standard deviations for the entire sample tend to be between 14 and 15 (Simonton, 1976).

Table 1. Original and Imputed Scores for 42 Presidents

President	Intellectual brilliance	Openness	IQ estimates			
			I-U	I-C	II-U	II-C
Washington	<b>0.3</b>	<b>14.0</b>	<b>125.0</b>	<b>130.0</b>	<b>135.0</b>	<b>140.0</b>
J. Adams	<b>0.6</b>	<b>61.0</b>	<b>120.0</b>	<b>150.0</b>	<b>145.0</b>	<b>155.0</b>
Jefferson	<b>3.1</b>	<b>99.1</b>	<b>145.0</b>	<b>160.0</b>	<b>150.0</b>	<b>160.0</b>
Madison	<b>0.6</b>	<b>62.0</b>	<b>120.0</b>	<b>150.0</b>	<b>135.0</b>	<b>160.0</b>
Monroe	-1.4	3.7	109.0	120.7	128.2	138.6
J. Q. Adams	<b>1.2</b>	<b>98.0</b>	<b>165.0</b>	<b>170.0</b>	<b>165.0</b>	<b>175.0</b>
Jackson	<b>-0.6</b>	<b>0.5</b>	<b>110.0</b>	<b>120.0</b>	<b>130.0</b>	<b>145.0</b>
Van Buren	<b>-0.3</b>	<b>31.0</b>	119.4	132.9	135.1	146.0
W. Harrison	<b>-0.1</b>	<b>31.5</b>	120.3	133.6	135.5	146.3
Tyler	<b>0.2</b>	37.9	122.9	136.6	137.2	148.1
Polk	<b>-0.6</b>	<b>21.0</b>	116.0	128.7	132.7	143.4
Taylor	<b>-1.2</b>	9.0	110.8	122.7	129.3	139.8
Fillmore	<b>-0.7</b>	<b>46.0</b>	120.8	136.7	137.4	149.0
Pierce	<b>-0.3</b>	<b>37.0</b>	120.6	134.8	136.3	147.4
Buchanan	<b>-0.8</b>	<b>5.0</b>	111.9	122.8	129.4	139.6
Lincoln	<b>0.8</b>	<b>95.0</b>	<b>125.0</b>	<b>145.0</b>	<b>140.0</b>	<b>150.0</b>
A. Johnson	<b>-1.2</b>	8.0	110.8	122.7	129.3	139.8
Grant	<b>-1.4</b>	<b>2.3</b>	<b>110.0</b>	<b>115.0</b>	<b>125.0</b>	<b>130.0</b>
Hayes	<b>-0.1</b>	31.5	120.3	133.6	135.5	146.3
Garfield	<b>0.9</b>	52.9	129.0	143.5	141.2	152.3
Arthur	<b>0.9</b>	52.9	129.0	143.5	141.2	152.3
Cleveland	<b>-0.5</b>	23.0	116.9	129.6	133.3	144.0
B. Harrison	<b>-0.7</b>	<b>30.0</b>	117.5	131.4	134.3	145.4
McKinley	<b>-0.6</b>	20.8	116.0	128.6	132.7	143.4
T. Roosevelt	<b>0.9</b>	<b>56.0</b>	129.7	144.6	141.8	153.0
Taft	<b>0.0</b>	<b>1.0</b>	114.5	123.8	129.8	139.5
Wilson	<b>1.3</b>	<b>64.0</b>	133.0	148.3	143.9	155.2
Harding	<b>-2.0</b>	<b>10.0</b>	107.8	121.1	128.4	139.9
Coolidge	<b>-1.5</b>	<b>17.0</b>	111.4	124.8	130.6	141.6
Hoover	<b>0.5</b>	<b>8.0</b>	118.0	127.5	132.0	141.6
F. Roosevelt	<b>0.9</b>	<b>45.0</b>	127.4	140.9	139.7	150.5
Truman	<b>0.2</b>	<b>1.7</b>	115.5	124.6	130.3	139.8
Eisenhower	<b>-0.7</b>	<b>29.0</b>	117.3	131.1	134.1	145.1
Kennedy	<b>1.8</b>	<b>82.0</b>	138.9	155.7	148.2	159.8
L. Johnson	<b>-0.2</b>	<b>7.0</b>	114.8	125.2	130.7	140.6
Nixon	<b>0.4</b>	<b>14.0</b>	118.9	129.2	133.0	142.9
Ford	<b>-0.6</b>	<b>8.0</b>	113.3	124.4	130.2	140.4
Carter	<b>0.0</b>	<b>77.0</b>	130.2	149.0	144.4	156.8
Reagan	<b>0.4</b>	<b>10.0</b>	118.0	127.9	132.2	141.9
G. H. W. Bush	-0.3	<b>18.0</b>	116.5	128.4	132.6	143.0
Clinton	1.0	<b>82.0</b>	135.6	153.6	147.0	159.0
G. W. Bush	-0.7	<b>0.0</b>	111.1	121.4	128.5	138.5

*Note.* Original scores are in boldface, estimates in regular font. All statistics are rounded off to one decimal place. Intellectual brilliance is expressed by *z* scores with a mean of 0 and a standard deviation of 1 (from Simonton, 1986c). Openness is expressed as a percentage score ranging from 0 to 100 (from Rubenzer & Faschingbauer, 2004). The four IQ estimates originate in Cox (1926) and represent standard IQ scores with a hypothetical mean of 100 and a standard deviation of 16. The latter represent four estimates: I-U (ages 0–17, uncorrected), I-C (ages 18–26, corrected for data reliability), II-U (ages 0–17, uncorrected), and II-C (ages 18–26, corrected for data reliability).

**Table 2.** Basic Statistics for Original Measures

President	Intellectual brilliance	Openness	IQ estimates			
			I-U	I-C	II-U	II-C
<i>n</i>	39	32	8	8	8	8
Minimum	2.0	0.0	110.0	115.0	125.0	130.0
Maximum	3.1	99.1	165.0	170.0	165.0	175.0
<i>M</i>	-0.0	35.4	127.5	142.5	140.6	151.9
<i>SD</i>	1.0	32.5	18.7	19.3	12.7	13.9

In line with previous research demonstrating the impressive expert consensus on the differential reputation of the U.S. presidents, the resulting 12-item composite had an internal-consistency (coefficient alpha) reliability of .99, which is as close to perfection as can be expected for real data (see also Simonton, 1986b, 1991a). As further validation of this measure, it was correlated with published ratings of supposed components of presidential leadership. In particular, the greatness measure correlated positively with Maranell’s (1970) assessments of presidential prestige ( $r = .95$ ), strength ( $r = .96$ ), activity ( $r = .90$ ), and accomplishments ( $r = .97$ ) and with Ridings and McIver’s (1997) assessments of presidential leadership ( $r = .93$ ), accomplishments ( $r = .94$ ), political skill ( $r = .90$ ), and appointments ( $r = .90$ ). Hence, the leadership criterion reflects the essential features of presidential performance.

### Results

The first step in the analysis was to use the observed scores in Table 1, indicated in boldface, to reconstruct the missing values (Little & Rubin, 2002). This was possible for three reasons. First, every president has at least one score that is not missing. Second, statistical tests indicated that one could not reject the null hypothesis that the scores are “missing completely at random” (MCAR = 5.03,  $df = 4$ ,  $p = .284$ ). That is, the scores seen in Table 1 can be said to be representative of the population of scores rather than having some selection bias. Third, the six measures are highly intercorrelated, indicating that there is enough redundant information to predict (or impute) the missing scores with a reasonable degree of accuracy.

The magnitude of this redundancy is shown in Table 3, which gives the Pearson product-moment correlations using pairwise deletion (i.e., each correlation is calculated across all cases for which both scores are available). It should be immediately obvious that the six variables are assessing the same underlying quality of cognitive power. Not only are the four Cox (1926) scores highly intercorrelated, but also all four are strongly correlated with both Intellectual Brilliance and Openness to Experience. The smallest correlation is that between the last two variables, yet even this is high enough to suggest considerable overlap



**Table 3.** Pearson Product-Moment Correlations among Original Measures

Variable	1	2	3	4	5
1. Intellectual brilliance					
2. Openness	.69				
3. IQ I-U	.71	.74			
4. IQ I-C	.82	.92	.84		
5. IQ II-U	.72	.80	.94	.92	
6. IQ II-C	.70	.81	.81	.94	.89

*Note.* All correlations are significant at the  $p < .05$  level or better except for that between Intellectual Brilliance and IQ II-C ( $p = .054$ ).

between the two constructs. What renders these strong associations all the more remarkable is that the variables are based on three disparate methodologies: ratings based on personality profiles extracted from biographies (Intellectual Brilliance), evaluations obtained by surveying biographers (Openness), and scores calculated from chronologies of early childhood and adolescent accomplishments (IQ). Although each technique will have its own distinctive methodological advantages and disadvantages, the methods still converge on a consistent overall assessment.

The missing values were imputed using the Expectation-Maximization (EM) algorithm that constructs the complete data matrix according to the patterns displayed by the nonmissing scores (Little & Rubin, 2002). This iterative procedure uses the maximum-likelihood criterion to compute the missing values. Because it takes into consideration the entire data structure, EM has been shown to be superior to alternative imputation procedures, such as regression (see, e.g., Gold & Bentler, 2000). The EM algorithm was specifically implemented via the Missing Value Analysis module in SYSTAT 11 (*SYSTAT 11*, 2004, vol. 2, chap. 7). The outcome is shown in Table 1, the imputed scores given in regular font. The reconstructions are greatest for the four IQ estimates, least for the Intellectual Brilliance scores. Although the IQ scores must therefore be considered more tentative and approximate than the other two scores, they do have the asset of a substantive meaning comparable to scores on standardized IQ tests. That renders them more interpretable to a broad audience.

To obtain a better idea of the nature of these imputed values, Table 4 provides the basic statistics for the completed data matrix. Overall the results are fairly similar, except that the IQ estimates have lower means and standard deviations. Because far more missing values are estimated for the IQ scores than for the Intellectual Brilliance and Openness measures, the replaced values are more likely to regress toward the mean and to reduce variance. Although it is not obvious from mere inspection, the scores on all six measures appear to be free of any political bias. In particular, one cannot reject the null hypothesis that Democratic and Republican presidents have the same expected intelligence. This null result holds

**Table 4.** Statistics and Leader Performance Correlations (*rs*) for Measures with Imputed Values (N = 42)

President	Intellectual brilliance	Openness	IQ estimates			
			I-U	I-C	II-U	II-C
Minimum	-2.0	0.0	107.8	115.0	125.0	130.0
Maximum	3.1	99.1	165.0	170.0	165.0	175.0
<i>M</i>	-0.0	33.4	121.0	134.4	136.0	146.8
<i>SD</i>	1.0	29.6	10.9	12.5	7.6	8.3
<i>r</i>	.56	.34	.34	.35	.32	.31

*Note.* The *rs* are Pearson product-moment correlation coefficients. All coefficients except the last are significant at the *p* < .05 level, and for the last (*p* = .054). The correlation for Intellectual Brilliance is significant at the *p* < .001 level.

whether the sample includes all presidents since Jackson (when the Democratic Party began) or just all presidents since Lincoln (when the Republican Party began).

But how do these reconstructed scores correlate with the leadership performance criterion? The Pearson product-moment correlation coefficients are given in the last row of Table 4. It is evident that all six measures are positively correlated with presidential leadership, and all measures but one have about the same effect size (*viz.* about 10% of the variance is shared). Moreover, with that one exception, the correlations are about the same size as Ones, Rubenzer, and Faschingbauer (2004) found between Openness and their assessment of presidential success. The lone departure from the general pattern is Intellectual Brilliance, which has a correlation noticeably larger than the other five. Hence, if it was necessary to identify a single predictor variable, this would be the measure of choice. This explanatory superiority may help explain why it has consistently emerged as a significant predictor in a series of investigations published between 1986 and 2002 (e.g., Simonton, 1986c, 1988, 2001b, 2002). These studies also indicate that the impact of intelligence on greatness has not changed over the course of U.S. history.<sup>3</sup> That is, its predictive power has neither increased nor declined with time. For instance, an early study of 36 presidents obtained a standardized partial regression coefficient of .26 (Simonton, 1986c) while a much later study of 41 presidents obtained a coefficient of .29 (Simonton, 2002), a trivial difference. This temporal stability would not hold if either (a) the cognitive assessment of recent presidents was more or less reliable than the assessment of earlier presidents or (b) the structural association between intelligence and leader performance had weakened or strengthened in the U.S. modern presidency.

<sup>3</sup> Contrary to what has been suggested in some leadership research (Simonton, 1985), presidential greatness is *not* a curvilinear, inverted-U function of Intellectual Brilliance (Simonton, 1986c). Instead, the function is positive and linear. This is not to say that exceptional intellect cannot be a liability: Highly intelligent presidents are much less likely to win election by landslide victories (Simonton, 1987).

## Discussion

Ever since George W. Bush was elected to the presidency, questions have emerged about his general intelligence (Sailer, 2004). Although some of these attacks were nothing more than internet hoaxes, and others were founded solely on his frequent verbal slips, still others were based on more serious speculations, such as attempts to estimate his IQ from his reported performance on the SAT (Immelman, 2001). The results reported in Table 1 provide a more objective and quantitative means to address this issue. Two points should be clear from the imputed IQ scores.

First, Bush is definitely intelligent. The IQ estimates range between 111.1 and 138.5, with an average around 125. That places him in the upper range of college graduates in raw intellect (Cronbach, 1960). Admittedly, this average is influenced by Cox's (1926) corrected scores, which may be overestimates. Yet even if we focus on just the uncorrected IQs, the range is between 111.1 and 128.5, with a mean around 120, which is about the average IQ for a college graduate in the United States. In addition, the figure is more than one standard deviation above the population mean, placing Bush in the upper 10% of the intelligence distribution (Storfer, 1990). These results endorse what has been claimed on the basis of his SAT scores and his Harvard MBA, namely, that his IQ most likely exceeds 115 (Immelman, 2001). He is certainly smart enough to be president of the United States (Simonton, 1985).

Second, Bush's IQ is below average relative to that subset of the U.S. citizens who also managed to work their way into the White House. In fact, his intellect falls near the bottom of the distribution. When compared with twentieth-century presidents from Theodore Roosevelt through Clinton, only Harding has a lower score (at least on three of the four estimates). A similar conclusion is suggested by the Intellectual Brilliance measure, albeit in this case there are now two twentieth-century presidents with lower scores, namely, Harding and Coolidge. Moreover, Bush's IQ falls about 20 points—more than one standard deviation—below that of his predecessor, Clinton, a disparity that may have created a contrast effect that made any intellectual weaknesses all the more salient. Clinton's intellectual attainments as a Rhodes Scholar and Yale Law School graduate, his demonstrated capacity for mastering impressive amounts of complex and detailed information, his verbal eloquence and fluency, and his logical adroitness and sophistication—at times, as during the Monica Lewinsky scandal, verging on sophistry—places Clinton head and shoulders above his successor in terms of intellectual power.

Needless to say, it can be argued that the Intellectual Brilliance and IQ estimates are biased downward. George W. Bush may be much smarter than Table 1 implies. The counterargument must aim at the score he received on Openness, a score that provided the only information for the imputation of his IQ and Intellectual Brilliance estimates. This score placed him at the very bottom of the distribution of U.S. presidents. Indeed, the score puts him toward the bottom of

the general population as well. One reason to question this placement is that Rubenzer and Faschingbauer obtained Bush's NEO scores in a different manner than they did for the preceding presidents. As they expressed it, "We depart here from our usual method; rather than having biographers rate the president, the authors read biographies and then rated him. This was done for one simple reason: None of the few biographers available returned our questionnaires" (2004, p. 301). Although these assessments were supplemented somewhat by a last-minute questionnaire response received right before the book's publication they warned "Although we did eventually obtain three raters, greater caution is called for here in reading our results" (pp. 301–302). After all, "None of us have a deep knowledge of Mr. Bush comparable to the presidential experts that provided the other ratings" (p. 302). Thus, the authors themselves claim that their scores, including the Openness assessment, can only be considered tentative.

Even so, there are several reasons for suggesting that the numbers reported in last row of Table 1 are not unreasonable. To begin with, it is likely that his Openness score would not be higher than his father's, whose score of 18.0 put his IQ estimates in the low end of the distribution as well. If anything, the son's score should be lower given that his intellectual curiosity appears to be noticeably more restricted than his father's. As one national correspondent for United Press International put it, "despite being the scion of an elite family with worldwide connections, Bush's hobbies appear limited to not much more than running, fishing and baseball" (Sailer, 2004, p. 2). In fact, with respect to the Intellectual Brilliance evaluation, it would seem that the younger Bush does not make the impression of having wide interests or of being especially artistic, curious, sophisticated, complicated, and insightful. The same holds for the Openness measure. Presidents who score high on this assessment tend to rate high on the following facets: (a) Openness to Fantasy—"Vivid imagination and rich fantasy life; dreamy," (b) Openness to Aesthetics—"Deep appreciation of art, music, poetry, beauty; artistic, original," (c) Openness to Feelings—"Receptivity to own inner feelings and emotions. Experience emotions fully and value them; excitable, spontaneous," (d) Openness to Actions—"Willingness to try new activities, go new places, do things differently; wide interests, adventurous," (e) Openness to Ideas—"Intellectual curiosity, willingness to consider new ideas; idealistic, inventive," and (f) Openness to Values—"Readiness to reexamine (or reject) social, political and religious values; unconventional" (Rubenzer & Faschingbauer, 2004, p. 12). At best, according to the three raters, Bush only shows some proclivity for one facet, namely, Openness to Feelings, and many close observers of the president would probably agree (see, e.g., Suskind, 2004).

Finally, Bush's low Openness score is corroborated by a totally independent methodology: content analytical measures of integrative complexity. Applied to verbal materials such as speeches (with identifying material deleted), this objective technique gauges the extent to which the individual can differentiate multiple perspectives on an issue and integrate those perspectives into a single coherent

point of view (Suedfeld, Guttieri, & Tetlock, 2003; Suedfeld, Tetlock, & Streufert, 1992). Low scorers on integrative complexity can only see things from a single perspective—their own—and so no integration is necessary. One analysis showed that Bush's pre-9/11 baseline complexity was appreciably lower than that of Tony Blair, the prime minister of Great Britain during the same period (Suedfeld & Leighton, 2002). Bush's specific score is indicative of someone who discusses issues without taking alternative points of view into serious consideration. Significantly, the score that Bush received is markedly below that of every single elected U.S. president from McKinley through Carter inclusively (as reported in Tetlock, 1981). In addition, his score is below that of most U.S. senators and Supreme Court justices, albeit under certain circumstances it stands at about the same level as highly conservative senators and justices (using statistics reported in Tetlock, 1983; Tetlock, Bernzweig, & Gallant, 1985; Tetlock, Hannum, & Micheletti, 1984).

Yet these outcomes cannot simply be attributed to his being a conservative Republican: Bush's integrative complexity is also comparable to (a) extreme abolitionists and pro-slavery advocates in antebellum United States (as contrasted with free-soil Republicans and Buchanan Democrats; Tetlock, Armor, & Peterson, 1994), (b) hard-line communists in the Soviet leadership (Tetlock & Boettger, 1989), and (c) the extremist Islamic Fundamentalists in the Taliban and al-Qaeda leadership (Suedfeld & Leighton, 2002)—with the notable exception of Osama bin Laden, who is lower still. Even more tellingly, Bush's score does not change with the political conditions, unlike what usually holds for successful political and military leaders (e.g., Suedfeld, Corteen, & McCormick, 1986; Tetlock, 1981), but rather stays consistently low (Suedfeld & Leighton, 2002), and thus reveals a trait-like stability. Given the objective nature of these integrative complexity scores, their apparent lack of political bias, and their *prima facie* connection with both Openness to Ideas and Openness to Values, the overall Openness score Bush received in Table 1 may not be too far off the mark.<sup>4</sup>

If we assume that Bush's scores on Intellectual Brilliance, Openness, and IQ are in the right ballpark, then his expected presidential leadership would be lowered. The predicted disadvantage is most apparent in the case of Intellectual Brilliance because this measure has the highest correlation with performance as judged by historians and political scientists best qualified to evaluate U.S. presidents.<sup>5</sup> Specifically, on the basis of this trait we would predict that Bush's ultimate standing with posterity will fall about two-fifths of a standard deviation below the

<sup>4</sup> For the 11 presidents for which measures were available, integrative complexity correlated .58 with Openness to Experience, suggesting that they overlap conceptually, albeit the former variable is supposedly more responsive to situational influences whereas the latter purports to represent a stable trait.

<sup>5</sup> In fact, when entered into a multiple regression equation that includes five other predictors of presidential greatness (years in office, war years, assassination, scandals, and war hero), only Intellectual Brilliance emerges as a significant predictor ( $\beta = .29, p < .01$ , versus  $\beta = .19, p > .05$ , for the other five intellect measures).

mean (i.e.,  $-0.7 \times .56 = -0.39$ ). This would put him on about the same level as Jimmy Carter (Simonton, 2002). In terms of the presidential rankings, he would come in 26th out of 42 chief executives. To be sure, intellect is not by any means the only predictor of presidential leadership. Many other variables are involved as well, including both personality traits (McCann, 1992; Ones, Rubenzer & Faschingbauer, 2004; Winter, 1987) and situational factors (Kenney & Rice, 1988; Nice, 1984; Simonton, 1987, 1993). Some of these variables can raise his final assessment to that of an average, and even above-average, chief executive (but see Immelman, 2002). Yet the conclusion remains, however tentative at this point in time, that Bush's intellect may be more a liability than an asset with respect to his performance as the nation's chief executive. His strengths most likely lie elsewhere.

### ACKNOWLEDGMENTS

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