AN ANALYSIS OF INFORMATION ITEMS ON THE 1990 AND 1991 NES SURVEYS: A REPORT TO THE BOARD OF OVERSEERS FOR THE NATIONAL ELECTION STUDIES

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Section 1: Introduction and Overview of Findings

Empirical studies addressing questions of political information and/or sophistication are common and varied. Some assume the importance of an informed citizenry, and attempt to gauge the level, distribution, and correlates of political knowledge in the U.S. public (Hyman and Sheatsley, 1947; Kriesberg, 1949; Metzner, 1949; Berelson, et al., 1954; Hero, 1959; Withey, 1962; Erskine, 1962; 1963a; 1963b; 1963c; Patchen, 1964; D. Smith, 1970; Glenn, 1972; Keeter and Zukin, 1983; Sigelman and Yanarella, 1986; Bennett, 1988; 1989; Entman, 1989; Zeigler and Haltom, 1989; Delli Carpini and Keeter, 1989; 1992). Others begin to actually specify and test the assumption that an informed citizen is a "better" citizen.[1] This approach conceptualizes political knowledge as part of the broader constructs of political "sophistication" (Converse, 1964; Neuman, 1986; Luskin, 1987; Smith, 1989), "awareness" (Zaller, 1990), "expertise" (Lodge, McGraw, and Stroh, 1989; McGraw and Pinney, 1990; Krosnick, 1990), "information" (MacKuen, 1984; Sniderman, Glaser, and Griffin, 1990), or "enlightened preferences" (Bartels, 1990). Finally, rather than lamenting the relatively low levels of political sophistication, or attempting to demonstrate the importance of individual-level knowledge, some researchers focus on the rationality of the citizens' "decision" not to seek out political information; on the ability of citizens to reach rational, effective decisions without much political information; and on the ways in which relatively uninformed individual decisions can result in surprisingly stable, "informed" collective decisions (Graber, 1988; Aldrich, Sullivan, and Borgida, 1989; Rahn, et al., 1990; Carmines and Kuklinski, 1990; Stimson, 1990; Page and Shapiro, 1991).

Despite this wide-ranging literature, empirical studies of sophistication, knowledge, and/or information have not, until recently, systematically addressed issues of conceptualization and measurement.[2] As Zaller notes:

> Variables purporting to measure "political awareness," "political expertise," "political sophistication," "cognitive sophistication," "political information," "political involvement," "media exposure," and "political interest" appear regularly in the public opinion literature and are used (along with education) more or less interchangeably to explain the same general family of dependent variables.

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[1] "Better," or more sophisticated citizens are those who, relative to others, are well-informed; hold numerous, stable, constrained opinions; are interested in politics; can conceptualize about politics in broad ideological terms; are instrumentally rational; can process and access information efficiently; follow politics regularly in the media; and/or participate in politics frequently.

[2] The major exceptions to this are Zaller (1986); Neuman (1986); Iyengar (1986; 1990); Owen and Stewart (1987); E. Smith (1989); Bennett, 1990; and Delli Carpini and Keeter, 1990.

> Questions thus arise: Are these alternative measures different in any important ways? If so, what are the differences? If not, what is the basic concept of which they are all indicators, and how is this concept best measured?
> (Zaller, 1990: p. 126)

The solution increasingly advocated to this problem is to use factual knowledge as *the* measure of sophistication (Luskin, 1987; Lodge, McGraw, and Stroh, 1989; McGraw and Pinney, 1990; McGraw, Lodge, and Stroh, 1990; Smith, 1989; Krosnick and Milburn, 1990; Fiske, Lau, and Smith, 1990; Zaller, 1990). It is true that knowledge items correlate with other measures of sophistication, are more stable over time (and so, presumably, are more reliable), and have a certain face validity. In our opinion, however, this "solution" simply shifts the problems of conceptualization and measurement from political sophistication to political knowledge. The discipline of political science has no generally accepted measure of the public's level of political information. The National Election Study surveys have a few direct and several indirect, measures of political information. While previous research has shown that these measures perform comparatively well for a variety of purposes (Zaller, 1986), their use remains a haphazard approach to quantifying political knowledge. In addition, the typical NES survey includes no knowledge questions about the institutions and processes of government.

Our original proposal to the Board sought to accomplish several tasks: to add measures of knowledge about political institutions and processes, and assess the performance of these items relative to that of the traditional knowledge measures on the NES; to examine the dimensionality of political knowledge, particularly with respect to knowledge of institutions and processes versus knowledge of current issues and political figures; to attempt to derive a short scale incorporating institutional knowledge items with the traditional items; to assess the reliability of different knowledge measures; to examine the equivalence over time of different measures of surveillance knowledge. Because the pilot study design changed, abandoning the two-wave pilot panel, the latter two analyses could not be conducted. We were able to place six questions measuring knowledge of institutions and processes on form 3 of the pilot survey. In combination with items from the 1990 survey, we can address the first three tasks described above.

This report describes the performance of the six knowledge items added to the pilot survey as well as 18 other direct and indirect measures of political knowledge on the pilot and 1990 surveys. Here is an overview and summary of the analyses to be presented:

- The six items measuring knowledge of political institutions and processes (hereafter called the "civics items") constituted a good scale for this purpose. The items varied in difficulty, ranging from 73 percent to 25 percent correct. Marginals were very similar to those obtained when the items have been asked on other national surveys (mean difference 3.2 percent), suggesting that they are reasonably reliable measures. Exploratory and confirmatory factor analyses, as well as a regression analysis used to evaluate construct validity, showed that the items tapped a single dimension of knowledge.

- Additional measures of political knowledge on both the 1990 and 1991 surveys were used along with the civics items to examine the dimensionality of knowledge, and to assess the comparative performance of different measures. Exploratory and confirmatory factor analyses showed that the knowledge items fit comfortably into four factors: civics knowledge, knowledge of political leaders, knowledge of party stances and control of Congress, and knowledge of party and public officials' positions on the Gulf war. The Gulf war factor was only weakly related to the others. The other three -- civics, people, and party -- were highly intercorrelated, providing evidence that political knowledge is fundamentally a general trait.

- Indexes of knowledge about civics, party, and people had similar levels of correlation with several criterion variables in the survey: the interviewer rating of respondent's level of political knowledge, participation, opinionation, attitude stability, and a large battery of predictor variables.

- Using a variety of techniques including stepwise multiple regression and logistic regression, we selected a subset of six variables from among the larger list of 20 measures (excluding the four Gulf war questions). In tests of criterion validity, the performance of this index was comparable to that of longer criterion scales.

- Recommendations:

  Add three or four civics knowledge items to the NES to cover this domain of knowledge and to provide a basis for tracking knowledge of institutions and processes over time. In 1992, place civics items on both the pre- and post-election waves in order to permit a test-retest assessment of their reliability.

  Continue to ask identification questions about the job or position of political leaders, as well as the name and party of House candidates. Include both prominent and little-known figures in order to ensure a range of difficulty in the items.

  Retain the items on party control of the House and Senate, and items asking respondents to place the parties ideologically and on the issues of race, defense spending, and government services and spending.

  For prominent issues, consider adding at least one direct measure of knowledge to accompany the opinion questions. Although the 1985 NES pilot survey and our 1989 national survey suggested that issue knowledge is not particularly domain-specific, knowledge items regarding the Gulf war on the 1991 pilot survey raise the possibility that knowledge of certain issues may be distinctive. Addtionally, issue knowledge measures can be useful in distinguishing attitudes from nonattitudes.

Section 2: An Initial Examination of Six Knowledge Items

Six questions regarding institutions and processes of U.S. national government were asked on the pilot survey form 3, with 449 respondents answering these six items (data for one respondent were missing). The form 3 pilot respondents were somewhat more knowledgeable than the entire 1990 sample, registering a mean of 5.5 (standard deviation 3.3) on a 14-item knowledge index, compared with the overall sample's mean of 5.0 (SD=3.2). The pilot sample also scored a little higher on an index of political participation, and was slightly better educated than the overall sample. Table 2.1 shows several comparisons.

*****TABLE 2.1 HERE*****

Table 2.2 presents the marginals and question wording for the six civics knowledge items. In addition, we compare these marginals with those from other national surveys that have asked the same question.[3] As can be seen, the items cover a reasonably wide range of difficulty, though none are extremely easy or hard. The item marginals also demonstrate good stability over time, with no difference greater than 7 percent, and a mean difference of 3.2 percent.

*****TABLE 2.2 AND 2.3 HERE*****

Table 2.3 presents the inter-item correlations among the six variables. The correlations average .29, ranging from a high of .41 to a low of .17. With the exception of knowledge of the number of times a president can be elected (which is a little less correlated with the other five items), the size of the relationships are quite similar, suggesting that a single factor may account for the underlying variance. This observation is supported by both exploratory and confirmatory factor analyses (Table 2.4). A maximum likelihood analysis of all six items extracted one factor with an eigenvalue above 1.0, accounting for 31 percent of the variance in these items. Similarly, a single-factor LISREL model (using tetrachoric correlations and a weighted least squares estimation procedure) produces an extremely strong fit with the data. Not surprisingly, in both analyses the "Times Elected" item loads least well, though at an acceptable level.

*****TABLE 2.4 HERE*****

Factor analyses such as those performed above cannot, by themselves, determine the dimensionality of data (Piazza, 1980; Carmines and Zeller, 1989; Smith, 1989). It is also necessary to compare the way in which other, theoretically-related variables correlate with the various measures upon which the overarching construct is based. To this end we regressed each

[3] These surveys include a 1989 national survey of 610 adults, conducted by the authors using the Survey Research Laboratory at Virginia Commonwealth University, and the 1972 National Election Study.

of the 6 individual items on a set of twelve independent variables. These variables, described in Table 2.5 and used in several other analyses in this report, are mainly those found (or suspected) to correlate with knowledge/sophistication in other studies, though three (income, marital status, and work status) are intended to serve largely as controls.

*****TABLE 2.5 HERE*****

Gender was a significant predictor for all six items in the logistic regression analysis (data not shown), while education was significant for all except the number of times a president can be elected to office. Interest in politics was a significant predictor at the .05 level or lower for all except the item on the Bill of Rights (p value was .06). Age was significant for three (judicial review, who appoints judges, and number of times a president can be elected), and participation was barely significant for only one (who appoints judges). Thus, the correlates of the items were very similar.

The marginal frequency distributions of a simple additive index using all six items, along with some descriptive statistics are presented in Table 2.6. The variance in this index is good, though its distribution is somewhat platykurtic. The standardized Item Alpha for the index is .72. Again "Times elected" proves the least reliable item, actually depressing the overall alpha slightly.

*****TABLE 2.6 HERE*****

Section 3: A Structural Analysis of Political Knowledge Items

Researchers are seldom interested in people's recall of the particular facts included on surveys, but rather in "what that recall implies about the respondents' general political knowledge" (E. Smith 1989: p. 173). A critical step in developing a valid measure of political knowledge is determining the dimensionality of the overall construct. If, on the one hand, political knowledge is multidimensional, then an overall measure must adequately capture each of its component parts. The more distinct (that is uncorrelated) these dimensions are, the more care that must be taken in identifying and measuring them. If, on the other hand, political knowledge is unidimensional, then concern over the issue of content validity becomes less pressing.

In Section 2 we established that the six information items are reasonably reliable measures of a single construct. But what is that construct? Is it "general political knowledge" or a more specific knowledge of "political institutions and processes"? The 1990/1991 NES surveys contain a number of items that directly or indirectly measure political knowledge. We chose items that produced an additional 18 more-or-less direct measures of factual knowledge. These items, along with the percentage correctly answering each, are presented in Table 3.1. As can be seen, these items can be divided into three broad and arguably important components of political knowledge: eight measure knowledge of individual political leaders; six measure

knowledge of partisan politics; and four measure knowledge about a single policy (the Gulf War).

*****TABLE 3.1 HERE*****

Research on the structure of political knowledge has produced mixed findings, ranging from a single dimension to seven highly correlated dimensions (Iyengar, 1986; Zaller, 1986; Owen and Stewart, 1987; E. Smith, 1989; Bennett, 1990). Our earlier research (Delli Carpini and Keeter, 1990), suggested that knowledge of "institutions and processes," "political leaders" "partisan politics," and "substantive issues" can be adequately arrayed on a single dimension, but is better described as a set of highly intercorrelated factors. Our analysis of the 1990/1991 NES data largely supports this conclusion. Table 3.2 presents the results of an exploratory factor analysis. This maximum likelihood analysis extracted six factors with eigenvalues above 1.0, explaining a total of 42 percent of the variance in the 24 items (chi square/df=189/147=1.3).

*****TABLE 3.2 HERE*****

While the rotated factors (varimax) have some "noise" in them, in general the analysis produces a highly interpretable pattern: knowledge of institutions and processes (factor #1); knowledge of the parties' stand on issues (factor #2); knowledge of relatively obscure political leaders (factor #3); knowledge of party control of Congress (factor #4); and knowledge of more visible political leaders (factor #5). Knowledge of ones U.S. Representative, of the number of times a person can be elected President, and of three of the Gulf War items behave somewhat erratically, muddying the waters a bit. Nonetheless, overall the factors are highly suggestive.

This pattern is both confirmed and clarified through a series of LISREL analyses. The pilot study sample size of 450 sets a limit of 16 variables in a LISREL analysis using tetrachoric correlations and weighted least squares (Joreskog and Sorbom, 1988). As a result, we first examined the structure of items within each of the three remaining areas of knowledge (the structure of the "institutions and processes" items was already examined above). Tables 3.3 through 3.5 present the results of these analyses. Despite their performance in the exploratory analysis, the four measures of knowledge about the Gulf War form an acceptable single-factor model (Table 3.3). A single-factor model summarizes the pattern of inter-correlations among the eight "people" variables quite well (Model 3.4a), though a model based on the "prominent" vs "obscure" distinction (Model 3.4b) hinted at in the exploratory analysis does a slightly better job. A similar, though more convincing pattern is found for knowledge of party politics, where a single-factor model (3.5a) is outperformed by a two-factor model (3.5b) distinguishing between knowledge of party control of Congress and knowledge of party issue stands.

*****TABLES 3.3 THROUGH 3.5 HERE*****

Our next step was to choose the most reliable indicators (as determined by the relative size of the epistemic correlations) of each of the hypothesized dimensions of political knowledge, taking

care to include a wide enough range of items to test this dimensionality in a single model, but not too many to violate the restrictions imposed by LISREL analysis.[4] Table 3.6 presents the results of this analysis. Consistent with our earlier research, a single-factor model (3.6a) performs well, with all the indicators pointing to a strong model. As Wheaton (1988) makes clear, however, in LISREL the fit of a model is assessed not only by these indicators, but also relative to the fit of other models. Models 3.6b through 3.6d present three competing models, each based on the logic or evidence discussed above. As can be seen, each model improves marginally upon the one-factor model, especially as measured by the size of some of the epistemic correlations and of the chi square/df ratio. Separating out the three Gulf War items (model 3.6b) provides the clearest improvement, as indicated by the substantial increase in the size of the three epistemic correlations (an average increase of .28), and by the relatively small interfactor correlation (.35). The improvements gained by the four and five factor models (3.6c and 3.6d) are more modest, but not to be dismissed out of hand.

*****TABLE 3.6 HERE*****

Before assessing the analysis above, we performed a test of the construct validity. Nine different political knowledge scales were regressed on a the set of 12 independent variables described earlier (see Table 2.5). The knowledge scales are simple additive indexes based upon the exploratory and confirmatory factor analyses presented above.

*****TABLE 3.7 HERE*****

The results of these regression analyses are presented in Table 3.7 (both unstandardized bs and standardized betas are included). With one major exception, the pattern of interrelationships across the scales are more noteworthy for their similarity than their differences. The one exception is the "Gulf War scale," for which the 12 independent variables could explain no variance, and for which none of the coefficients was statistically significant. Knowledge of the Gulf War appears to be a very distinct phenomenon.

The pattern is quite stable and interpretable for the remaining eight scales, however. Four variables (Income, Marital Status, TV News, and Work Status) are statistically and substantively insignificant across all eight scales. Three (Education, Political Interest, and Gender) are significant predictors across all eight scales. Age reaches statistical significance only three times, but the size of the relationship remains fairly stable across six of the scales. Race is statistically significant only for knowledge of political leaders, and this can be attributed

[4]We used knowledge of Gorbachev rather than of Thatcher, despite the slightly greater epistemic correlation (.83 to .81) because we were uncomfortable about the potential effects of Thatcher's resignation, which occurred while the survey was in the field. As it turns out, however, using knowledge of Thatcher produces results and interpretations essentially identical to those reported.

specifically to differences in knowledge about relatively visible leaders. The remaining three variables show slightly more substantively interesting variation across scales. Newspaper reading is significant in six of the equations, but its strongest impact is on knowledge of less visible political leaders. And participation in electoral politics and strength of partisanship are both positively related to knowledge of partisan politics.

Section 4: Assessing the Reliability and Validity of Various Measures of Knowledge.

Establishing the reliability of the knowledge measures is somewhat problematic. The most dependable method of reliability testing is a test-retest procedure conducted over a short period of time; however, this method could not be used here for most of the variables due to the change in the study design. Nevertheless, the available data as well as theory may provide some guidance.

The relative stability of the marginals for the civics items between the 1972 NES survey, our 1989 national survey, and the 1991 pilot study provides some evidence of reliability (Table 2.2). We would expect good stability in the marginals for civic items over time, since the knowledge they are measuring is less likely to be affected by the changing prominence of issues and personalities.

The marginals can also be helpful in detecting one component of unreliability: guessing by respondents. Incorrect answers (as opposed to "don't know") usually, though not always, connote guessing. Depending on the form of the question, the percentage who guessed correctly -- and thus who do not actually know the answer -- can be as large as the percentage who tried and missed it. The frequencies in tables 2.2 and 3.1 show the percentage who were correct, incorrect, or said they didn't know. The overall mean percentage incorrect for all items was 21. The people items had the lowest rate (18 percent -- and only 14 percent without the Mandela question which had 51 percent incorrect), while the rates for the party and civics items were similar (23 and 24 percent respectively, though the civics mean would have been 19 without the outlier "Senator's term"). Even though respondents to the civics section were told that "many people don't know the answers to these questions," and that they could skip items, the temptation to guess was very strong.

The only items for which test-retest correlations are available are two of the party placement variables. For party ideology the correlation between the 1990 and 1991 responses (an 0/1 variable for correct or incorrect) was .56. The percent correct in 1990 was 57, in 1991 it was 52, and the percent correct in both surveys was 43. For party positions on defense spending, the correlation between 1990 and 1991 was .52. The marginals in the two surveys were nearly identical (52 and 51 percent respectively), while the percentage correct in both was 40. These test-retest correlations are higher than those observed for many attitudes (e.g., in the 1956-60 NES panel the correlations ranged from .20 to .39 over several issues; see e.g., E. Smith 1989, pp. 22-24). Unfortunately, we do not have comparable correlations for the other knowledge

items.

Assessing reliability is relatively straightforward, given the proper tools. Validity assessment is more subjective and less amenable to a mechanical, data-based process. Empirically validating a measure is an indirect process driven by a theory of how the concept being measured relates to other concepts (Carmines and Zeller 1979). Although there is little settled theory regarding the relationship between political knowledge and other aspects of political behavior, several propositions have been made and tested in recent years (Zaller 1986; Iyengar 1986; Neuman 1986; Lodge, McGraw, and Stroh 1989). Individuals with higher levels of knowledge are thought to participate more, to have more opinions on political issues, to have more consistent opinions over time (that is, with less random fluctuation), to have attitudes that show greater structure and consistency, and to process information more efficiently. While there is evidence to support all of these propositions, for a variety of reasons the empirical links between political knowledge and each of these concepts is fairly weak. For example, political participation is induced by a sense of civic duty as well as by interest and expertise; consequently, the link with knowledge is attenuated. Similarly, because survey respondents often feel compelled to provide a response even when they do not have a genuine opinion on a topic, there is relatively little variance in opinionation to explain (Neuman 1986, chapter 3).

Even the best of criterion variables do not provide a gauge of the absolute validity of measures. Accordingly, our main concern in this section is with the *comparative* performance of different measures of knowledge. We examined the correlations between three indexes of knowledge (the civics, party, and people items) and eight criterion variables:

(1) Interviewer rating of respondent's information level (v688), a five-category scale shown by Zaller (1986) to be a strong measure of knowledge.

(2) Political efficacy: an additive index of three standard efficacy items (v508, v509, and v510).

(3) Participation: an additive index of voting, voter registration, and several campaign activities (v279, v280, v366, v367, v368, v369, v370, v371, and v373).

(4) Stability of ideological self-identification: an 0/1 variable indicating whether respondent's ideology was the same in 1990 and 1991 (v406 and v2450 were recoded to apportion "leaners" from v407 and v2451; then v406 and v2450 were recoded with codes 1,2,3=1, 4=4, 5,6,7=7, and 8,9=0; v407 and v2451 were compared and the respondent assigned a code of 1 if they were the same, 0 otherwise).

(5) Stability of attitude towards defense spending: an 0/1 variable indicating whether respondent's general views on defense spending were the same in 1990 and 1991 (v439 and v2475 were recoded with codes 1,2,3=1, 4=4, 5,6,7=7, and 8,9,0=0; variables were compared and the respondent assigned a code of 1 if they were the same, 0 otherwise).

(6) Stability of attitude on racial preferences in hiring: an 0/1 variable indicating whether respondent's opinions were the same in 1990 and 1991 (v463 and v2558

were recoded with codes 3,8,9=8; variables were compared and the respondent assigned a code of 1 if they were the same, 0 otherwise; sample size for analyses using this variable was 240).

(7) Stability of party identification: an 0/1 variable indicating whether respondent's party identification (Democrat, Republican, any other response) was the same in 1990 and 1991 (v317 and v2329 were recoded with codes 2,3,4,8,9=3; variables were compared and the respondent assigned a code of 1 if they were the same, 0 otherwise).

(8) Opinionation: an index counting the number of questions on which respondent was willing to offer an opinion (items included v98, v100, v102, v104, v164, v377 to v387, v406, v439, v446, v447, v452, v459, v471, v477, v479, v480, v482, v484, v486, v488 to v491, v2112, v2116, v2120, v2401 to v2408, v2410, v2450, v2475, v2483, v2485, v2556, v2557, v2558, v2800, v2804, v2805, v2808, v2811, v2815, v2819, v2823).

Table 4.1 shows the correlations between the knowledge indexes and the criterion variables. The correlations with the interviewer rating were nearly identical (.57, .59, and .61 for the civics, party, and people indexes respectively). The party and people indexes were more strongly related to efficacy (.37 and .36) than was the civics index (.27); the same pattern held for the participation index, though the differences were not as large (.37, .42, .41 for civics, party, and people respectively). The correlations with the various measures of attitude stability were similar across the three indexes. Opinionation was more highly correlated with the party index (.39) than with the civics and people indexes (.29 and .31).

***** TABLE 4.1 HERE *****

Overall, these data suggest that the indexes have roughly comparable discriminating power, with the civics index a little less effective than the others for some purposes. In addition, the analysis of construct validity presented in section 3 showed that the antecedents of knowledge about civics, party, and people were similar.

The conclusion that the civics items perform about as well as the other knowledge questions on the NES was perhaps foreshadowed by the structural analysis presented earlier, and by the relatively high correlations among the civics, party, and people indexes (mean correlation .62). The subdimensions of political knowledge are sufficiently interrelated that a good measure of one of them can -- for most individuals and for most purposes -- stand as a reasonable surrogate for the individual's overall level of political knowledge. However, the dimensional analysis also showed clearly that a multidimensional model provided a better fit with the data, a finding we have replicated with other national and state-level surveys. And by the standard of a third type of validity assessment -- content validity -- a good measure of political knowledge should reflect the broader domain of politics: not just the current cast of characters and their organization into parties, but also what government "is and does," in Barber's words (1973, p. 44).

Section 5: Developing a Standard Measure of Knowledge.

We believe that the National Election Study should play a leadership role in the development of a parsimonious measure of political knowledge, just as it has in most other key areas of the study of mass political behavior. The 1985 and 1991 pilot surveys, along with studies conducted by other researchers, provide a basis on which to make judgments about such a measure. While there are still many unanswered questions, we know much more now than we did just a few years ago.

The 20-item knowledge index built from items on the 1990 and 1991 surveys is a strong measure (Table 4.1; column labeled "NES and civics items").[5] It scales well (coefficient *alpha* = .87) and, with two slight exceptions, is more strongly correlated with the battery of 8 criterion variables than any other index. It has reasonable content validity, providing roughly equal weight to institutions and processes, party control and issue locations, and political leaders. The civics items should help to increase the overall reliability of this index, as well as its comparability over time, though we cannot demonstrate this empirically.

Only about one-third of the index is a part of the core of the NES: the party-related questions (6 items based on 10 questions), and the House candidate item (based on two questions). Questions on the recognition of political figures apparently have been asked regularly of late, but we are unaware of the decision rules for selecting these items. It may not matter which ones are selected as long as the figures vary in their prominence (and thus the difficulty of the items). Questions about the institutions and processes of government have only rarely been asked on NES surveys.

An effective measure of knowledge need not be as extensive as the 20-item index. Indeed, even if the NES could regularly afford to use all of the items, other surveys that wanted to replicate the measure would find it very costly. While there are many standard social science measures with 20 or more components, there are also many others that utilize far fewer (e.g., trust, efficacy, and partisanship). How might a shorter measure be derived?

There is no "automatic" method for selecting the best items from a larger scale, nor is there even a consensus among those who construct standardized tests as to what are the most important criteria. A number of considerations must be balanced. A good scale should have items covering a range of difficulty, so that the measure discriminates in both the upper and lower ranges of the population. The scale should include items from the various content areas thought to comprise the relevant domain; additionally, these items should in some sense be the best "representatives" of the content areas. From a mathematical point of view, it is also desirable that the sub-scale be the set of N items most strongly related to the larger index from which it

[5]The Gulf war items were dropped since it was clear that they were not measuring general political knowledge.

is drawn.

Table 5.1 shows, for each of the 20 knowledge items, a variety of attributes relevant to the choice of the best items. The first column simply shows the percentage who correctly answered the question. The second is the logistic regression coefficient obtained by regressing the item on a standardized criterion knowledge scale (the other 19 items plus the interviewer rating of the respondent's information level). This is a measure of the discriminating power of the variable (Zaller 1986, pp. 20-21). The third is the intercept for the logistic regression, which provides a measure of item difficulty. The fourth column is the corrected item-total correlation with an index created from the items (excluding the particular item being correlated). The fifth column shows the results of a stepwise multiple regression analysis in which the criterion scale is the dependent variable. At any given step in the process, the selected variables should be the set that best predicts the criterion scale score. The column shows the step on which the variable was selected, as well as the r^2 after the variable entered the equation. As is readily apparent from an inspection of the data, the r^2 quickly rises (.90 after 8 steps) and thus the discriminating power of the procedure declines after the initial selections.

***** TABLE 5.1 HERE *****

Using the data in Table 5.1 (and our experience with many of these items on other surveys) here are our choices for the best information items:

Party control of the House. Picked first by the stepwise regression, this item has good discriminating power as measured by the logistic regression (fifth overall). It is also arguably a key fact a citizen should know in order to understand current politics in the U.S. and to vote effectively. It has also performed well in our own national and state surveys.

Veto override percent. Picked third by the regression, this is a more difficult question than the party control item. Its discriminating power is good, and has also been a strong variable in our own surveys.

Party ideological location. Picked second by the regression, this item had the highest discriminating power of the four party placement questions. As another key concept at the heart of contemporary U.S. politics, it has strong face validity.

Judicial review. A relatively easy civics item (68 percent correct), this question had good discriminating power and was among the best of the civics questions according to the LISREL analysis. It was selected fifth by the regression analysis. The veto item taps familiarity with both Congress and the presidency, while this item ensures that the judiciary is represented.

Quayle. Although a late pick by the stepwise regression, this item had high

discriminating power according to the logistic regression, and was strong in the LISREL analysis. It is the easiest item of the 20, serving to distinguish those who are completely disconnected from politics. This is one "people" variable that may remain relatively consistent in its contribution to the scale over time. "Naming the Vice President" was a strong variable in our 1989 national survey and in several state surveys conducted since then.

Mandela. Picked tenth by the stepwise regression, and fourth among the items in discriminating power, this item was among the most difficult in the survey (17 percent correct). Three other people items were more difficult, and while they have greater face validity (Speaker of the House, Senate Majority Leader, and Chief Justice), their correlation with the criterion scale was lower. This item was also strong in the LISREL analysis. As the prominence of Nelson Mandela changes, this specific question may not perform as well; nevertheless, its placement suggests that a relatively unknown, though not obscure, foreign leader would be an appropriate substitute.

A six-item index produced with these variables performed well in comparison with the sub-domain scales, as well as the larger scale from which it was drawn. Its correlations with the interviewer rating (.63), participation (.43), opinionation (.38), efficacy (.36), stability of ideology (.24), and stability of defense spending attitudes (.23) were all close to those of the longer scales.

Other items with merit would include foreign leaders of comparable prominence to Gorbachev or Thatcher, another party location item (the location of the parties on aid to minorities came in sixth in the multiple regression), and the Senate term civics item (relatively low in discriminating power, but since it was asked in 1972 its use would facilitate a trend analysis). Though it was not included on these surveys, naming one's U.S. Senators has proven to be a powerful variable in our national and state surveys. Finally, the interviewer rating of the respondent's information level should be a part of any knowledge index.

Section 6: Summary and Conclusion

Political knowledge, whether as a construct in and of itself or as an indicator of political sophistication, is an increasingly important and common variable in research on public opinion and political behavior. Our analysis of the performance of extant NES items suggests that, overall, these items adequately discriminate respondents' levels of political information. Thus, the case could be made for making no changes in the variables available for measuring political knowledge. Such a decision has the virtue of maintaining the continuity of the NES surveys, and of avoiding the expense of adding additional variables to an already overcrowded docket.

There are, however, several non-trivial reasons for adding the institutional items recommended above. First, measures of civic knowledge have particularly strong face validity, and a scale

based on variables that cut across the different domains of political information has greater content validity than one that does not. Second, the structural analyses, the test of construct validity, and the various approaches to scale development all suggest that modest improvements in measurement can be achieved by including items that tap civic knowledge. Third, including variables specifically designed to tap levels of political knowledge frees variables designed to tap attitudes and opinions to serve their primary purpose. Fourth, including civics items in future NES surveys allows researchers to gauge patterns of stability and change in this important dimension of citizenship. And fifth, including civics items as the core of a political information scale goes a long way towards establishing a standard measure of knowledge that will aid in the comparison of results both across NES surveys and, should the measure be adopted more generally, across surveys conducted by different polling organizations.

We also suspect, but cannot demonstrate with the current data, that there are differences in the way the various domains of knowledge behave over time. Knowledge of public figures and of substantive issues are likely to be most affected by short-term forces (e.g., world events and the way in which such events are covered). Knowledge of partisan politics is most likely affected by moderate-term forces (e.g., changing party platforms, changing public agenda, and so forth). Knowledge of civics, however, because it does not often become part of the explicit public debate of day to day politics, is most likely affected by long-term forces (e.g., changes in the educational system, changes in political interest or a sense of civic duty, and so forth). If this is true, civics knowledge will be both a more reliable and stable measure over time. Therefore, having items that measure this type of information would allow researchers to better disentangle real change from fluctuations due to measurement problems, and to distinguish short-term, moderate-term, and long-term patterns of stability and change.

With this last point in mind we would, at a minimum, recommend that the civics items be included on either the next wave of the "Gulf War Study" (assuming that the form 3 respondents will be reinterviewed), or on the 1992 pre and post election surveys. This would allow for a more definitive evaluation the relative merits of specific items, as well as of the systematic differences, if any, across types of items.

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TABLE 2.1
COMPARISON OF THE PILOT FORM 3 AND 1990 SAMPLES

	Pilot Form 3 (N=450)	Entire 1990 sample (N=2000)
Mean knowledge score on 14-item index	5.5 (SD=3.3)	5.0 (SD=3.2)
Rated "high" or "fairly high" in information by the interviewer	32.9%	29.5%
White	88.2%	83.6%
Female	56.0%	54.8%
"Very much interested" in political campaigns	24.9%	21.1%
Follows politics "most of the time"	30.9%	27.5%
Mean score on index of political participation	2.1 (SD=2.1)	1.9 (SD=1.6)
Less than a high school diploma	18.7%	23.8%
At least a bachelor's degree	22.5%	20.1%

TABLE 2.2
SUMMARY AND COMPARISON OF ITEM FREQUENCIES

		1991*	1989**	1972***
Times Elected "Do you happen to know how many times an individual can be elected President?"	% Correct	73%		73%
	% Incorrect	16%		9%
	% Don't know	11%		18%
Judicial Review "Whose responsibility is it to decide if a law is Constitutional or not... is it the president, the Congress, or the Supreme Court?"	% Correct	68%	66%	
	% Incorrect	23%	24%	
	% Don't know	9%	10%	
Nominate Judges "And whose responsibility is it to nominate judges to the Federal Courts... the President, the Congress, or the Supreme Court?"	% Correct	51%	58%	
	% Incorrect	32%	29%	
	% Don't know	17%	13%	
Bill of Rights "What are the first ten amendments to the U.S. Constitution called?"	% Correct	43%	46%	
	% Incorrect	6%	5%	
	% Don't know	50%	49%	
Veto Percent "How much of a majority is required for the U.S. Senate and House to override a presidential veto?"	% Correct	37%	35%	
	% Incorrect	17%	17%	
	% Don't know	46%	49%	
Senator's Term "How long is the term of office for a United States Senator?"	% Correct	25%		30%
	% Incorrect	49%		37%
	% Don't know	26%		34%

*=1991 NES Pilot Study (n=449)
**=1989 VCU National Survey (n=610)
***=1972 NES Survey (n=1118)

TABLE 2.3
INTER-ITEM CORRELATIONS

	Bill of Rights	Judicial review	Nominate judges	Veto override %	Times a president can be elected	Senator's term
Bill of Rights	1.00					
Judicial review	.34	1.00				
Nominate judges	.29	.41	1.00			
Veto override %	.35	.36	.35	1.00		
Times a president can be elected	.17	.19	.20	.19	1.00	
Senator's term	.36	.29	.36	.34	.21	1.00
	(all correlations signicant at p< .001)					

TABLE 2.4
EXPLORATORY AND CONFIRMATORY FACTOR ANALYSES
OF SIX KNOWLEDGE ITEMS

	Exploratory (Maximum Likelihood)	Confirmatory (LISREL)
Nominate judges	.61	.74
Judicial review	.60	.81
Veto override %	.60	.74
Senator's term	.57	.79
Bill of Rights	.56	.69
Times a president can be elected	.33	.46
	Var Explained=31% Chi Sq/df=11/9=1.2 (p=.25)	CD: .88 AGFI: .99 Chi Sq/df=4.9/9 =.54 (p=.84)

TABLE 2.5
DESCRIPTION OF 12 INDEPENDENT VARIABLES

Variable	Var Number (codebook)		
Party Strength	v2333	Strength of Party Id	1=ind/ind to 4=Strong Partisan
Participation	v166;v366;v367; v368;v369;v370; v371;v373;v375; v2833	Participation in Politics (vote 88; vote 90; campaign activities)	0=no participation to 10=a good deal of participation
Pol Interest	v62;v69;v70; v106;v321	Interest in Politics (discuss politics; follow politics; interest in campaign; interest in politics	0=no interest to 23= a great deal of interest
Newspaper	v63;v64;v71	Read newspaper; read about campaign in newspaper	0=not at all to 13 = a great deal
TV News	v66; v67; v72	Watch TV News; watch campaign news on TV	0 = not at all to 15 = a great deal
Education	v557	Highest level of formal education	1 = 8th grade to 7 = advanced degree
Income	v663	Family Income	1 = < $2,999 to 23 = > $90,000
Gender	v547	Sex of Respondent	0 = female 1= male
Race	v549	Race of Respondent	0 = black 1 = non-black
Age	v552	Age of Respondent	Actual age from 18 to 99
Marital Status	v553	Marital Status of Respondent	0 = not married 1 = currently married
Work Status	v566	Employment Status of Respondent	0 = Unemployed, Homemaker, or employed under 20 hrs per week 1 = Employed over 20 hours per week

TABLE 2.6
DESCRIPTIVE STATISTICS OF A SIX-ITEM SCALE

Scale	% Correct (Cumulative)	
0	9% (9%)	Mean=2.98 St Error=.086 Median=3.00 Mode=1,2 St Dev=1.82 Variance=3.31 Kurtosis=-1.06 SE Kurt=.23 Skewness=.099 SE Skew=.12
1	17% (26%)	
2	17% (43%)	
3	16% (59%)	
4	17% (76%)	
5	12% (88%)	
6	11% (99%)	
Reliability		
	Corrected Inter-Item Correlations	Alpha If Item Deleted
Bill of Rights	.46	.68
Judicial review	.50	.66
Nominate judges	.49	.66
Veto override %	.49	.66
Times a president can be elected	.28	.73
Senator's term	.48	.67
	Standardized Item Alpha = .72	

TABLE 3.1
DESCRIPTION AND MARGINAL FREQUENCIES OF NES KNOWLEDGE ITEMS

Variable	Var # (NES)	% Correct	% Incorrect	% Don't Know
PEOPLE				
Quayle	v395	84%	1%	14%
Gorbachev	v398	71%	14%	15%
Thatcher	v399	53%	29%	18%
Name one candidate (and his/her party) for U.S. House	v111	23%	11%	66%
Mandela	v400	17%	51%	32%
Foley	v401	12%	10%	78%
Rehnquist	v397	5%	19%	76%
Mitchell	v396	3%	12%	85%
PARTY				
Relative ideological location of the two parties	v413;v414	57%	25%	18%
Party with most seats in the House	v402	55%	16%	29%
Relative location of parties on defense spending	v443;v444	52%	23%	25%
Party with most seats in the Senate	v403	47%	17%	36%
Relative location of parties on federal spending	v456;v457	45%	26%	29%
Relative location of parties on aid to blacks	v449;v450	42%	30%	28%
GULF WAR				
How U.S. Rep Voted on War	v2504	57%	33%	11%
How One Senator Voted On War	v2508	53%	37%	10%
How Second Senator Voted On War	v2512	53%	28%	19%
Which Party Supported Use of Force More	v2515	35%	61%	4%

TABLE 3.2
EXPLORATORY FACTOR ANALYSIS OF 24 KNOWLEDGE ITEMS

	Factor #1	Factor #2	Factor #3	Factor #4	Factor #5	Factor #6
Nominate judges	.56					
Judicial review	.53					
Bill of Rights	.50					
Senator's term	.50					
Veto override %	.47					
U.S. Rep	.32					
Black Party		.72				
Defense Party		.61				
Spend Party		.55				
Ideo Party		.51				
Gulf Party		.32				
Gulf Senator 1		.13*				
Mitchell			.72			
Rehnquist			.56			
Foley			.49			
Mandela			.47			
Senate Party				.94		
House Party				.57		
Quayle					.65	
Gorbachev					.52	
Thatcher					.39	
Times a president can be elected					.24*	
Gulf Senator 2					.24*	
Gulf Representative						.99

Variance Explained: 42%
Chi Sq./df = 189/147 = 1.3 (p=.011)
Varimax rotation.
* = Highest Loading Available (Otherwise only loadings of .3 or greater are reported)

TABLE 3.3
LISREL ANALYSIS OF GULF WAR ITEMS

Gulf war vote by Senator 1	.53
Gulf war vote by U.S. Representative	.41
Gulf war vote by Senator 2	.37
Gulf war support of parties	.21
CD: .44 AGFI: .99 Chi Sq/df: .06/2 = .03 (p=.970)	

TABLE 3.4
LISREL ANALYSES OF POLITICAL LEADERS ITEMS

	One Factor (3.4a)	Two Factors (3.4b)	
Quayle	.94	.93	
Gorbachev	.78	.81	
Thatcher	.76	.83	
Mitchell	.97		.94
Mandela	.83		.90
Rehnquist	.78		.81
Foley	.74		.78
U.S. Rep	.53		.56
	CD: .97 AGFI: .98 Chi Sq/df: 37/20=1.9 (p=.012)	CD: .99 AGFI: .99 Chi Sq/df: 12/19=.63 (p=.89)	1 2 1 1.00 2 .73 1.00

TABLE 3.5
LISREL ANALYSES OF PARTY ITEMS

	One Factor (3.5a)	Two Factors (3.5b)	
House Party	.93	1.01	
Senate Party	.89	.89	
Black Party	.79		.86
Defense Party	.73		.79
Spend Party	.72		.79
Ideo Party	.70		.77
	CD: .94 AGFI: .94 Chi Sq/df: 121/9=13.4 (p=.000)	CD: .999 AGFI: .99 Chi Sq/df: 7/8= .88 (p=.57)	1 2 1 1.00 2 .62 1.00

TABLE 3.6
LISREL ANALYSES OF SELECTED GENERAL KNOWLEDGE ITEMS

	One Factor (3.6a)	Two Factors (3.6b)		Four Factors (3.6c)			
Gulf Sen1	.21	.58		.57			
Gulf Sen2	.07	.25		.26			
Gulf Rep	.17	.45		.45			
Gulf Party	.54		.55		.59		
Defense Party	.78		.78		.83		
Black Party	.77		.75		.80		
Ideo Party	.75		.75		.81		
Spend Party	.70		.70		.75		
Veto override %	.75		.76			.84	
Judicial review	.72		.72			.80	
Nominate judges	.66		.67			.73	
Senator's term	.62		.62			.68	
Quayle	.84		.84				.90
Gorbachev	.73		.73				.85
Mitchell	.80		.80				.77
Mandela	.83		.83				.89
	CD: .94 AGFI: .97 Chi Sq/df: 216/104= 2.1 (p=.000)	CD: .97 AGFI: .97 Chi Sq/df: 202/103=2.0 (p=.000) 1 2 1 1.00 2 .35 1.00		CD: .996 AGFI: .98 Chi Sq/df: 116/94=1.2 (p=.109) 1 2 3 4 1 1.00 2 .30 1.00 3 .29 .70 1.00 4 .39 .79 .86 1.			

TABLE 3.6 (continued)
LISREL ANALYSES OF SELECTED GENERAL KNOWLEDGE ITEMS

	Five Factors (3.6d)				
Gulf Sen1	.57				
Gulf Sen2	.24				
Gulf Rep	.46				
Gulf Party		.59			
Defense Party		.84			
Black Party		.80			
Ideo Party		.81			
Spend Party		.75			
Veto override %			.83		
Judicial review			.80		
Nominate judges			.73		
Senator's term			.68		
Quayle				.94	
Gorbachev				.81	
Mitchell					.84
Mandela					.96
	CD: .999 AGFI: .98 Chi Sq/df: 101/94 =1.1 (p=.296)		1 2 3 4 5 1 1.00 2 .31 1.00 3 .29 .70 1.00 4 .30 .73 .81 1.00 5 .45 .77 .81 .64 1.00		

TABLE 3.7
REGRESSION ANALYSES OF KNOWLEDGE SCALES

	Visible Leaders	Obscure Leaders	All Leaders	Party Control	Party Stands	All Party
Scale	0-3	0-5	0-8	0-2	0-5	0-7
Mean	2.1	.6	2.7	1.0	2.3	3.3
Party Strength	.03 (.03)	.01 (.01)	.04 (.02)	.09 (.09)	.27 (.14)***	.36 (.14)***
Participation	.01 (.01)	.05 (.05)	.06 (.06)	.06 (.12)*	.11 (.11)*	.17 (.13)***
Interest	.04 (.19)***	.04 (.18)**	.08 (.23)***	.03 (.15)**	.07 (.21)***	.10 (.22)***
Newspaper	.02 (.10)*	.06 (.22)***	.07 (.19)***	.03 (.16)**	.01 (.02)	.04 (.08)
TV News	.01 (.03)	.01 (.02)	.02 (.03)	-.01 (-.02)	-.01 (-.03)	-.02 (-.02)
Education	.18 (.28)***	.12 (.19)***	.29 (.28)***	.09 (.17)**	.37 (.36)***	.47 (.34)***
Income	.01 (.08)	.01 (.04)	.02 (.07)	.00 (.02)	.02 (.07)	.02 (.07)
Gender	.23 (.11)**	.40 (.19)***	.63 (.18)***	.25 (.14)**	.56 (.16)***	.81 (.17)***
Race	.54 (.15)***	.24 (.07)	.78 (.14)***	.12 (.03)	-.22 (-.04)	-.09 (-.01)
Age	.07 (.12)**	.05 (.08)	.12 (.12)**	.07 (.13)**	-.05 (-.05)	.03 (.02)
Marital status	.07 (.03)	.03 (.02)	.10 (.03)	.12 (.07)	.07 (.02)	.19 (.04)
Work status	.19 (.09)	.00 (.00)	.19 (.05)	-.08 (-.04)	.09 (.02)	.01 (.00)
Adjusted R2	.33	.33	.48	.27	.40	.44

.??=unstandardized bs; (.??)=standard betas; *= p<.05
**=p<.01
***=p<.001

TABLE 3.7 (continued)
REGRESSION ANALYSES OF KNOWLEDGE SCALES

	Institutions And Processes	Gulf War	General Political Knowledge
Scale	0-6	0-3	0-24
Mean	3.0	1.6	10.6
Party Str	-.09 (-.04)	.08 (.08)	.40 (.07)
Participation	.07 (.06)	.03 (.05)	.33 (.10)*
Interest	.09 (.24)***	.01 (.04)	.27 (.26)***
Newspaper	.04 (.10)*	-.00 (-.02)	.16 (.13)**
TV News	-.01 (-.02)	-.02 (-.09)	-.03 (-.02)
Education	.38 (.35)***	.03 (.05)	1.17 (.37)***
Income	-.00 (-.01)	-.00 (-.01)	.04 (.04)
Gender	.97 (.26)***	.03 (.01)	2.43 (.23)***
Race	.47 (.08)	.01 (.00)	1.18 (.07)
Age	.10 (.09)	-.01 (-.01)	.24 (.08)
Marital Status	.08 (.02)	.02 (.01)	.40 (.04)
Work Status	.06 (.02)	.00 (.00)	.25 (.02)
Adjusted r^2	.41	.02	.55

.??=unstandardized bs; (.??)=standard betas; *= p<.05
**=p<.01
***=p<.001

TABLE 4.1
CORRELATIONS OF SCALES WITH CRITERION VARIABLES

	Civic index (6 items)	Party index (6 items)	People index (8 items)	14 NES items (not including civic items)	20 NES and civics items
Civic scale	1.00	.59**	.64**	.68**	.86**
Party scale	.59**	1.00	.61**	.92**	.87**
People scale	.64**	.61**	1.00	.87**	.86**
NES items (not incl. civics)	.68**	.92**	.87**	1.00	.96**
NES items and civics items	.86**	.87**	.86**	.96**	1.00
Interviewer rating of information level	.57**	.59**	.61**	.66**	.68**
Efficacy	.27**	.37**	.36**	.41**	.39**
Trust	.07	.00	.01	.01	.03
Participation	.37**	.42**	.41	.46**	.47**
Ideological stability 1990-1991	.22**	.26**	.23**	.27**	.28**
Defense spending stability 1990-1991	.22**	.25**	.22**	.26**	.27**
Racial attitude stability 1990-1991	.20**	.18**	.15**	.19**	.21**
Partisan stability 1990-1991	.04	.04	.04	.05	.06
Opinionation	.29	.39	.31	.40	.39
** $p < .01$ * $p < .05$					

TABLE 5.1
ATTRIBUTES OF 20 ITEMS FROM THE 1990 AND 1991 SURVEYS
(SORTED ACCORDING TO DISCRIMINATING POWER)

	Percent correct	Discriminating power (logistic regression coefficient)	Difficulty (logistic regression intercept)	Corrected item-total correlation	Step on which the item entered a multiple regression (r^2 after inclusion)
Mitchell	3	2.95	-6.43	.28	20 (.98)
Rehnquist	5	2.59	-5.14	.33	19 (.98)
Quayle	84	2.52	3.20	.48	18 (.98)
Mandela	17	2.16	-2.70	.52	10 (.93)
House Party	55	1.79	.35	.60	1 (.43)
Foley	12	1.76	-2.98	.40	16 (.97)
Gorbachev	71	1.72	1.43	.51	8 (.90)
Veto override %	37	1.67	-.81	.58	3 (.72)
Judicial review	68	1.64	1.18	.52	5 (.82)
Ideological Party	57	1.48	.43	.54	2 (.61)
Defense Party	52	1.43	.14	.53	14 (.96)
Senate Party	47	1.42	-.18	.54	17 (.97)
Nominate judges	51	1.36	.08	.52	13 (.95)
Senator's term	25	1.32	-1.50	.45	7 (.88)
Spend Party	45	1.30	-.28	.51	12 (.95)
Thatcher	53	1.29	.16	.51	4 (.78)
Black Party	42	1.26	-.42	.49	6 (.85)
Bill of Rights	43	1.24	-.35	.49	15 (.96)
Name one House candidate	23	1.15	-1.54	.40	9 (.91)
Times a president can be elected	73	.71	1.08	.29	11 (.94)