Book Title:
A Complementary Learning Systems Theory for Social and Political Psychology

Chapter Heading
Estimating Voter Turnout Using a Simple Theoretical Model

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Abstract

This chapter provides a specific, simple application of the structural equation model introduced in the last chapter. That application will be used to predict voter turnout before the 2004 Presidential election. The chapter reintroduces the measurement model for *interest*, as well as the regression equation created at the end of the last chapter. The purpose of this chapter is a practical demonstration of an application of a segment of the Complementary Learning Systems Theory to a practical problem; that is, how many Americans will vote in the 2004 Presidential election.

Introduction

Relevance of the structural equation model to estimates of voter turnout for the 2004 election campaign. As described in the previous chapter, individual levels of interest and intention are highly predictive of voter behavior (i.e., validated voter turnout). As we saw, the full structural model described in the last chapter indicates that interest plays a central role in the structure of information processing of political information, and, has powerful affects on subsequent behavior (in the full model *B* = *.0848*),that is, predicting an 8.48% change in voter turnout per one standard normal deviate change in interest. We saw that intentions had an even more influential impact, *B* = *.193* (which means that a single normal standard deviate change in voter intentions represents a 19.3% change in voter turnout. I will use the reduced model parameter estimates of .101697 for *Interest* and *.192575* for *intentions to vote* when calculating sample turnout rates (i.e., estimates of voter turnout for different election samples) in this chapter.

How we can estimate voter turnout before the 2004 election. The Annenberg School of Communication at the University of Pennsylvania has reported collecting data by mid-September 2004 in accord with their on-going survey of the American electorate in anticipation of the election in November of 2004. Fortunately, their data collection reported on the internet, allows for estimates of voter turnout. This is due to the fact that Annenberg reported measures for interest (NAES, 9/17/04) and voter intentions (NAES, 9/21/04). The Annenberg interest measure, is identical in wording to the measure I use here from the National Election Studies.

The intention variable used from Annenberg is merely their calculated percentage of adults stating their intention to vote. That was based on a survey among American adults queried from July 15th to September 19th. 19,013 adults were questioned. Since Annenberg has provided an estimate of the percentage of adult Americans who intend to vote as well as the levels of interest American adults report, we can use that data to estimate the contributions that citizen intentions, and interests have on estimated turnout levels.

Effect of interest on the 2004 election turnout. The pattern of results reported in the previous chapter, implicates I argue, interest as a focusing mechanism which allows individuals to attend to goals (e.g., intending to vote), acquire skills (e.g., acquire specific knowledge structures), and to behave (e.g., actually voting) in accordance and in service of those interests and skills. When interest is most absent, prior knowledge structures predominate information processing to the extent that they are activated. When interest is active, prior knowledge structures can bias information processing only if interest does not actively constrain prior knowledge's effects on current information processing. Remember that for interest to constrain the effects of prior knowledge, cognitive effort is required.

Given what has just been noted, individuals who are interested in a presidential campaign, if they constrain prior knowledge structure effects, will tend to be more open minded, validity seeking, and *become even more* knowledgeable than more selective information processors.

Effect of intention to vote on the 2004 election. As was noted in the last chapter, where predicting behavior is concerned, it is crucially important to know what intentions are (see Fishbein and Ajzen, 1975) for a detailed description of the importance of intention in predicting behavior). And, as we saw in the last chapter, intentions are the

most influential predictor of behavior when a full structural model is applied to the specific issue of voter information processing and behaviors. Consequently, for this current analyses, the focus is the construction of a parsimonious, theoretically sound, empirically valid voter turnout model. It was expected that such a model construction could have immediate application in estimating voter turnout, before the 2004 election occurs.

Table 1. Predictor Variables used for these analyses

Year	Variable	Mean	SD	N
'84 & '88	**IPA**	2.4014	1.2068	4,297
1960	"	2.3342	1.2865	1,164
1964	"	2.6811	1.2070	1,571
1968	"	2.4110	1.3911	1,557
1972	"	2.6144	1.1676	1,372
1976	"	2.5076	1.4295	2,248
1980	"	2.3529	1.3303	1,570
1992	"	2.5537	1.2323	2,485
'84 & '88	**IIE**	2.0270	0.7337	4,297
1960	"	2.1452	0.7827	1,164
1964	"	2.1216	0.7964	1,571
1968	"	2.1657	0.7703	1,557
1972	"	1.9993	0.7624	1,372
1976	"	2.1552	0.7562	2,248
1980	"	2.0312	0.7538	1,570
1992	"	2.2068	0.7300	2,485
'84 & '88	**ITV**	0.83849	0.36804	4,297
1960	"	0.87801	0.32742	1,164
1964	"	0.86696	0.33972	1,571
1968	"	0.85356	0.35366	1,557
1972	"	0.85204	0.35519	1,372
1976	"	0.81406	0.38915	2,248
1980	"	0.81656	0.38715	1,570
1992	"	0.85070	0.35645	2,485

Notes: IPA - Interest in Public Affairs-is Variable 313 (ANES 1995), responses are coded so that 9 or 0 are coded 0; Hardly interested in public affairs is coded = 1; Now and then is coded = 2; Some of the time is coded = 3; and, Most of the time is coded = 4. **IIE** - Interest in the Current election - is Variable 310 (ANES 1995), responses are coded so that 9 or 0 = 0; Not much interest = 1; Somewhat interested = 2; Very interested = 3. **ITV** - Intention to vote - is Variable 713 (ANES 1995), responses are coded so that all responses except for 4 are coded 1.All of the variables listed are pre-election variables.

As one can see from Table 1, there has been some variability across elections for all three variables. Taking note of the previous chapter, one realizes that a measurement model and a structural equation model were constructed to fit the NES data going back to the 1960 election. Since the constructs of immediate interest in predicting voter turnout are

interest and intention to vote, I will next reproduce a portion of the measurement model that is related to the construction of the latent construct - *Interest.*

Table 2. Measurement model for the Latent Construct Interest

Year	Variable	r	Factor Load	Factor Weight
'84 & /88	IPA	.416	.842	.594
	IIE	.416	.842	.594
1960	IPA	.449	.851	.587
	IIE	.449	.851	.587
1964	IPA	.358	.824	.607
	IIE	.358	.824	.607
1968	IPA	.378	.830	.602
	IIE	.378	.830	.602
1972	IPA	.373	.829	.603
	IIE	.373	.829	.603
1976	IPA	.368	.827	.604
	IIE	.368	.827	.604
1980	IPA	.363	.826	.606
	IIE	.363	.826	.606
1992	IPA	.372	.828	.604
	IIE	.372	.828	.604

Notes: Variables are IPA (interest in public affairs) and IIE (interest in the current election campaign). Both are described in Table 1. **r** is the zero order correlation between IPA and IIE in each sample year. Factor Load is the correlation that the indicators IPA and IIE have with the latent construct, which I have labeled - *Interest*. The Factor Weight is the applied to the standardized variable, which is used to estimate each respondent's factor score on the latent construct *Interest*.

Reliability of the construct Interest. One can see from Table 2 that the construct interest appears consistently reliable across samples spanning over thirty years. In addition, I calculated individual factor scores for each respondent for each sample, and, then calculated each respondent's factor score by applying the standardized results from the pooled 1984 and 1988 sample (see previous chapter), and found that the correlation between the two scores for each sample was greater than $r = .99$. Consequently, interest appears to be a robust latent construct with reliability of measurement, even when one uses a standardizing sample as I did here.

Table 3. Applying the standardizing equation to the samples.

Year	Expected %	Observed %	N	(E - O) * N	p-value
1960	.60745	.638	1,164	-35.560	.12
1964	.61709	.628	1,571	-17.140	.51
1968	.60020	.615	1,557	-23.044	.40
1972	.59588	.562	1,372	+46.480	.06
1976	.58349	.548	2,248	+79.782	.02

1980	.56685	.547	1,570	+31.165	.27
1992	.60923	.606	2,485	+8.030	.82
Totals			11,967	+89.709	.24

Notes: *Expected%* is the calculation based on the application of the pooled (1984 and 1988 samples) regression equation; i.e., Constant = .580405 + Interest*.101697 + Intention to vote*.192575 to each respondent's factor score on the latent construct Interest and to the standardized construct Intention to vote for each respondent**.** Consequently, the numbers represented under *Expected%* are the mean score for the sample after applying the regression equation to each member of that sample. *Observed%* is the percentage of the Voter Eligible Population (VEP, McDonald and Popkin, 2001) for each year. N = number of respondents in each sample. (E - O) * N is the product of the percentage difference between the expected and observed percentages, times the number of respondents in each sample. **p-value, is the two-tailed probability value for the difference between the expected and observed percentages. The overall weighted error rate is .0075; Z = 1.184; p = .2364 (two-tailed).**

Given the non-significant probability values as we can see from Table 3's last line, it appears reasonable to assume that the theoretical model estimates voter turnout fairly well. If the error rate had produced a significant *Z* for the combined studies we would have less confidence that the model fits the data reasonably well. However the variablility and accuracy of the model represented by Table 3, is remarkable when one considers that there are only two predictors in the regression equation estimating voter turnout. It is more remarkable when one considers that the estimates are based on using a standardizing sample (the pooled 1984 and 1988 samples) which is then used to estimate voter turnout over a three decade period. As I mentioned in the last chapter, I have confidence that interest and intention are crucial psychological constructs when humans behave with deliberation as one normally does when actually going out to vote.

Estimating voter turnout for 2004. Quantifying Annenberg's results so that they can be used to estimate voter turnout in 2004 is reasonably straightforward. From Annenberg's Table 3 (NAES, 9/17/04), we can estimate that Interest is + .424 SD over the 1984 and 1988 pooled sample (see the calculations below). That calculation is based on taking the total number (%) reported by Annenberg, to each of the different interest levels for each of, Interest in Public Affairs and Interest in the Current Election. Immediately below, I provide some detail on those calculations.

I calculated the mean level of interest in the election to be 2.39 for 2004 according to the Annenberg (NAES, 9/17/04) survey. That is 0.36 greater than the pooled sample, and represents an increase of 0.36/.7337(see Table 1) = + .491 in the mean standard deviation over the pooled sample. Based on the factor weight of .594 from the pooled factor construction for interest, we can see that the weight given to interest in the election is .594*.491 = .291 as it is applied to the mean factor score for the latent construct *Interest*.

Next we look at interest in public affairs, and calculate the mean score for that variable compared to the mean value for the pooled (1984 and 1988) samples. I calculate a mean difference of 0.27/1.2068 = 0.224.

Therefore, 0.224*.594 = .133

Therefore, .133 + .291 = 0.424 as the mean change in the standard normal deviate score for *Interest* compared to the pooled, standardizing sample.

We note too that the regression equation based on the standardizing sample applies .101697. Therefore:

.424 * .101697 = .043. Consequently, we can estimate based on these calculations that Interest will contribute to a 4.3% increase in voter turnout over the pooled sample Constant = .580405. Now we need to calculate the affect of intentions to vote.

Annenberg estimates (NAES, 9/21/04) that 86% of Americans who can vote will vote this year. Calculating:

.860 - .83849 (i.e., the pooled result for intention to vote from Table 1) = .02151/.36804 = .0584447.

Therefore .0584447*.192575 = .011, which is the expected increase in voter turnout attributable to the increase in intentions in 2004, to vote over the standardized sample ('84 and '88). Therefore:

Constant (.580405) + Interest (.043) + Intention to vote (.011) = .634

Looking at Dr. Michael McDonald's (2004) updated web estimate of the voter eligible population we can estimate voter turnout to be 63.4% of the voter eligible population (203.865 Million), which would put voter turnout for the highest office in 2004 at approximately 129.250 million. If this estimate is accurate, that would shatter the record breaking turnout total turnout numbers from 2004 which was about 104.405 million. Indeed a turnout for the Presidential election of 63.4% would nearly equal the all-time record of 63.8% of the VEP for the 1960 Kennedy/Nixon election.

If one uses the 1,885 figure for Annenberg's sample that we used to estimate interest, one would estimate that the MOE for this estimate would need to be at nearly 2.5%; I suspect a more reasonable estimate would be about 3%. I say that in part because these estimates were derived from data not necessarily consistent with that data which has been collected by NES over the span of their election studies. Still, Annenberg's survey methodology is unlikely to differ significantly from the NES methodology. Further, it seems likely that voter turnout will be up in 2004 based on many news reports of enormous surges in voter registration, and other indicators like increased viewership for the Presidential and Vice-Presidential debates (even with many more options for viewership on TV compared to just 4 years ago). Still, these other indicators may or may not reflect a significant and real change in voter turnout. I have no way of knowing for sure, as these indicators were out of the scope of this research.

I have only seen one estimate that expects significantly increased voter turnout in the vicinity that I am predicting in this study.That single prediction that I am aware of is

by Curtis Gans. Gans has predicted somewhere between 118-121 million votes this fall. The prediction here in this study indicates that Gans is off by approximately 2 million even if the lower confidence interval of .604*203.865 = 123.134 million. Indeed Gans recently (Jacoby, 2004) pointed out that Americans do not vote because of lack of interest not because of the myriad of other reasons put forth (no time to vote, difficulty of registration, etc.). If this study is any indication, Mr. Gans is not only right about the surge in voter turnout nationally due to a surge in interest, yet, he is understating it by at least a bit.

Discussion:

Voter turnout has been an issue which has received considerable academic treatment over the years. However, aside from Green (e.g., 2000, 2004) and his colleagues (Gerber and Green, 2003) I am aware of very little empirical evidence that has been accumulated which fits with a theoretical accounting of why people actually vote. This is contrasted with the plethora of studies which have examined the voter decision, often as a direct proxy for actually voting. As we saw in the last chapter, interest has direct effects on voter turnout when controlling for intentions to vote.

Indeed, in my judgment, Green's research is one of the few programs that have advanced our understanding of intervention treatments and how that affects voter turnout. Green has found that appeals to turnout to vote have a significant effect on turnout, particularly among those who are not partisan. Partisans are already, presumably interested when confronted by a simple appeal to turnout to vote. It will be interesting to disambiguate the research reported here, with Green's work, where we can examine the level of interest among those who are successfully appealed to. I would suspect that the most significant effect of simple appeals to vote, are greatest among the least interested. An appropriate theoretical question that could be answered empirically, is, are people who are least engaged, after being appealed to, more interested? I suspect they are, yet I have no way of answering that based on the research already conducted.

As I noted earlier, the research undertaken here is compelling because of the empirical success of this very simple, parsimonious, and theoretically appealing foundation for the voter turnout model. Note, that the results were at least as good as Freedman and Goldstein's (1996) admittedly atheoretical model (see previous chapter), which included many more variables in their equation. It is hoped that further research of an empirical nature, much like that of Green and his colleagues, can be done to further advance our understanding of the antecedents of interest in the electoral process.

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