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THE REALITY OF UTAH'S ENVIRONMENTAL MOVEMENT: AN ANALYSIS OF UTAH VOTERS’ LEVEL OF EDUCATION AND THEIR CONCERN FOR THE ENVIRONMENT

JEFFREY R. MAKin AND JARED D. HARRISON

We test the explanatory power of materialist and post-materialist theories in explaining the relationship between Utah voters’ level of education and their concern for environmental issues. On the basis of these theories, our analysis predicts that voters with more education are more inclined to be post-materialists and, therefore, more concerned about environmental issues. In contrast, voters with less education are more likely to be materialists and less concerned about environmental issues. We test these two predictions using data gathered through the Utah Colleges Exit Poll. Our analysis shows that there is a positive relationship between Utah voters’ level of education and their concern for the environment, and the relationship between the two variables is statistically significant. Upon finding this relationship, we argue that, based on our findings, there is evidence for the predictive power of materialist and post-materialist theories. We conclude our analysis by addressing other factors that may be influencing Utah voters’ concern for the environment, and we suggest future research possibilities in this area.

During the late 1960s and early 1970s, the current environmental movement began to organize a loose coalition of groups concerned with preserving natural resources and controlling pollution (Lake 1983, 215). This loose coalition was organized largely because more people were becoming concerned about environmental issues. Researchers have attempted to account for this increase in concern for the environment. Specifically,

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We would like to acknowledge the help we received from Professors Kelly Patterson and Greg Snow; this research would not have been possible without their help and guidance. We also acknowledge that the Utah Colleges Exit Poll and this research would have been impossible without the help of university and college students from across the state of Utah.
Ronald Inglehart developed a theory of post-materialism that explains this phenomenon. In this paper, we test the explanatory power of Inglehart's theory using data collected through the 2002 Utah Colleges Exit Poll. We predict that a positive correlation exists between Utah voters' level of education and their concern for environmental issues. Thus, if the theory has predictive power, Utahns with higher levels of education will be more concerned about the environment than will be those with less education.

Theoretical Foundation

The theories of materialism and post-materialism explain our predicted relationship between level of education and concern for the environment. These theories focus on the values individuals associate with certain material commodities (Rohrschneider 1990, 6). Materialist theory stems from the idea that individuals are concerned about their own economic stability, and consequently, they assign economic values to the objects around them (Inglehart and Flanagan 1987, 1289). For example, an individual with less education may see a tree and think “I will need to burn that tree to stay warm.” Furthermore, because money is essential to survival and because materialists are very concerned about their ability to survive, they assign monetary values to the things around them. A materialist may look at a stone and think it is worth five dollars because it could be used to make a brick worth five dollars. In contrast to materialists, post-materialists do not assign economic values to the objects around them; the values they assign to material objects are more aesthetic (Inglehart and Flanagan 1987, 1297). This means that individuals with more education are not as concerned about their survival because they know they will survive. Thus, a post-materialist may look at a tree and think “I can’t wait for the leaves to change colors. It makes the horizon look beautiful.” Value assignments and an individual’s perception of their ability to survive become an “important determinant of issue opinions” (Rohrschneider 1990, 6).

We use this theory to show that individuals with less education are more likely to be materialists and that individuals with more education are more likely to be post-materialists. Figure 1 shows a continuum between materialism and post-materialism and the assignment of levels of education to either materialist or post-materialist values.

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<table>
<thead>
<tr>
<th>Level of Education</th>
<th>Materialism</th>
<th>Post-Materialism</th>
</tr>
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<tbody>
<tr>
<td>Less than Eighth Grade</td>
<td>Some High School</td>
<td>High School Graduate</td>
</tr>
<tr>
<td>Some College</td>
<td>College Graduate</td>
<td>Post-Graduate</td>
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</tbody>
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According to Figure 1, individuals with less than an eighth grade education are more likely to be materialists because their lack of education makes them feel like they must pursue materialistic approaches to survive. In contrast, people who have attained a college or post-graduate education are more inclined to be
post-materialists because they feel more secure about their ability to survive. Therefore, they can devote more time to post-materialist activities, such as admiring the leaves on the trees. Those people who have some high school education, are high school graduates, or have some college education are more likely to be located in the middle of the continuum, either leaning toward materialism or post-materialism. It is important to note that this theory predicts that individuals with less education tend to assign monetary values to the material objects around them and individuals with more education tend to assign aesthetic values to the same material objects. This theoretical explanation can, therefore, explain why Utah voters with more education are more concerned about environmental issues than Utah voters with less education.

**Background and Literature Review**

Concern about environmental issues is relatively new to the political scene. President Franklin D. Roosevelt was the first president who was significantly concerned about the environment (Soden 1999, 116). However, public policies such as environmental policy often experience momentary success and popularity and then return to the "political backburners" (Lake 1983, 215). In 1972, Anthony Downs predicted that support for environmental movements would begin to wane because people would become less concerned about the environment, and the issue would no longer be politically relevant (38-50).

Downs' prediction was never realized. In 1973 and 1974, the energy crisis only briefly replaced environmental concerns on opinion polls (Kirschten 1978, 812).

In 1978 and 1980, Robert C. Mitchell argued that change in public opinion polls' priority lists did not indicate a decline in public support for environmental issues in 1973 and 1974. "[When] asked . . . whether they consider themselves active environmentalists, sympathetic to the environmental movement, or unsympathetic to the movement . . . 62 percent said that they are active or sympathetic, a level of support that is almost identical to that found in 1978 . . ." (Mitchell 1980, 41). Thus, Mitchell believed that concern for environmental issues was at least remaining constant; it was not declining.

Following Mitchell's lead, other scholars began to argue that people were becoming more concerned about environmental issues. In 1986, James D. Gill, Lawrence A. Crosby, and James R. Taylor argued:

Behavioral scientists have shown considerable interest in public attitudes toward issues of environmental quality. This interest coincides with the continuing development of an environmental movement pressing for ecologically responsible production and consumption as the means for controlling environmental problems (537).

Most scholars who write about the popularity of environmental issues agree with this assessment. Largely, social scientists believe that concern for the environment has at least remained constant, and some scholars argue that concern is actually increasing (Dunlap and Scarce 1991, 651).
Despite widespread consensus that concern for potential environmental problems is remaining constant or increasing, scholars disagree about what causes people to be concerned about the environment. Some scholars, such as Frederick Buttel and William Flinn, argue that as individuals' incomes increase, their support for environmental issues also increases (1978, 17-36). Matthew Crenson argues that individuals' concern for the environment changes according to their age (1971, 15). Jones et al. found that ethnicity influences the concern an individual may have for an environmental issue or at least one's likelihood to express environmental concerns to authorities (1977, 158). Thus, we can conclude that a number of different factors can influence an individual's concern for environmental issues.

Laura M. Lake conducted a study in California that found that income, party identification, religion, ethnicity, age, and level of education each seemed to have a significant effect on an individual's concern for the environment. Upon studying data from California bond issues from 1970 to 1980, Lake found that “Median years of school completed . . . and percent voting ‘yes’ for the propositions . . . yields, with few exceptions, positive, moderately strong, and significant relationships” (1983, 231). Thus, Californians' support for environmental protection had a positive correlation with education during the 1980s. We expect to see similar results to those of Lake regarding education and concern for the environment among Utah voters. However, despite the possible persuasiveness that our analysis may have, we recognize that this research only provides a brief glimpse of what may actually be occurring with regard to Utah voters and their concern for the environment. Consequently, we proceed with caution, attempting to avoid the possibility of making our findings seem stronger than they are. We realize that a number of confounding causal variables are most likely influencing Utah voters' concern for environmental issues. However, we assert that Utah voters' level of education is one of the variables influencing their concern for the environment.

Methodology
Gathering the Data

The data used in this research were gathered by university students as part of the 2002 Utah Colleges Exit Poll, conducted on November 5, 2002. We designed a multistage stratified sample that would be representative of the entire voting population of Utah. Because Utah is primarily a Republican state, it was very important to ensure that Democrats were also represented in the survey and had an equal chance of being selected to participate. Therefore, we included particular polling places that were known to be highly Democrat.

The initial process of designing the multistage stratified sample consisted of three basic steps. First, we divided Utah along the lines of its three congressional districts. Second, we divided each district according to the county lines. Third, we chose the counties from which to sample.
Despite widespread consensus that concern for potential environmental problems is remaining constant or increasing, scholars disagree about what causes people to be concerned about the environment.

Before selecting the counties, eight counties in the state were determined to be certainty counties. Counties were selected as certainty counties for two primary reasons. First, we selected counties because of the location of the other colleges and universities that would be participating in the polling process. The counties where these schools are located were automatically selected to facilitate the participation of students from these schools. Second, we selected counties based on the political impact they have in the state. For example, Salt Lake County was a certainty county because it has a large number of Democratic voters. Using this method, we determined that Salt Lake, Weber, Davis, Utah, Cache, Washington, Iron, and Sanpete counties were certainty counties. The remaining counties, which we called uncertainty counties, were weighted according to their number of inhabitants. Counties with more residents had a greater chance of being selected. Using this method, six more counties were selected for the sample. Thus, we conducted our exit poll in 14 of Utah’s 29 counties.

Once we had chosen counties in which we would be polling, we determined exactly which precincts would be included in the sample. Each precinct was weighted similarly to the above process, with their probability of selection proportionate to the number of registered voters within the precinct. After the sites had been chosen, the final step was to determine the interval that the pollsters would use to select respondents. We desired to have 100 completed surveys from each locality. We used predictions of how many would be voting at the polling location and predictions of the non-response rate to determine the interval. This systematic manner of sampling is approximately equivalent to a simple random sample of all Utahns that voted at each polling location.

The multistage stratified sample design was very effective in allowing us to make inferences about the entire voting population of the state of Utah. The surveys used to gather data were very detailed and comprehensive. Respondents could receive a white, blue, pink, yellow, or green questionnaire to fill out. Each questionnaire included various questions regarding topics ranging from concern for the environment to satisfaction with the Utah State Legislature. Thus, we were able to gather important and useful data concerning a wide variety of issues. Our research uses questions found on the green questionnaire.

Variables

An individual’s level of education is the independent variable for our research question. We define this variable as the highest level of education an
individual has attained. This definition is operationalized using the 2002 Utah Colleges Exit Poll. Question 36 on the green form of the poll asks the following question: “What was the last year of school you completed?” Respondents could pick one of six possible options: (1) Eighth grade or less; (2) Some high school; (3) High school graduate; (4) Some college; (5) College graduate; or (6) Post-graduate. This method of operationalizing level of education provides an effective means for measuring the variable. This measurement instrument is also valid and does not require a significant amount of abstraction from the concept of education.

Concern for the environment is the dependent variable. Concern for environmental issues is defined as support for not disrupting natural habitats, destroying vegetation, allowing activities that could destroy the environment, etc. We use two questions from the 2002 Utah Colleges Exit Poll to operationalize this variable. First, question 8 on the green form of the poll reads: “Please rate the following possible environmental problems in Utah as Very Serious, Somewhat Serious, or Not at all Serious.” The response section also contained a ‘Don’t Know’ option. The “possible environmental problems” listed were: (a) Water pollution in Utah; (b) Hazardous waste sites in Utah; (c) Insufficient wilderness protection; (d) Overdevelopment of local canyons; and (e) Air pollution along the Wasatch Front. Our research focuses on options (c) and (d). We do this because we do not want to measure voters’ possible latent opinions. The state government recently began a major water conservation campaign and a campaign to reduce air pollution, and there was an initiative regarding hazardous waste on the 2002 ballot. These campaigns could have produced latent opinions. We believe that if we do not use options (a), (b), and (e) in our measurement instrument, we will reduce the possibility of measuring opinions that have possibly been biased because of the intense campaigns concerning these options.

In an effort to effectively measure environmental concern, we also use question 9 on the Green form of the exit poll to operationalize this variable. Question 9 asks: “How serious do you think the following environmental problems are?” Respondents were asked to rate (a) Depletion of the ozone layer; (b) Loss of endangered species; (c) Elimination of rain forests; and (d) Global warming as “Very Serious,” “Somewhat Serious,” “Not at all Serious,” or “Don’t Know.” Thus, we use the two options from question 8 along with the four options from question 9 to measure environmental concern. This method of measuring environmental concern is valid. There is more abstraction involved with this measure than with the measure of level of education, but this method of measurement still provides accurate data about voters’ concern for the environment.

**Hypothesis**

At this stage of the analysis, it is important to mention the null hypothesis we will be testing with these variables. First, H1 states that there is a positive
correlation between Utah voters' level of education and their concern for environmental issues. Consequently, the null hypothesis, \( H_0 \), states that there is \textit{not} a positive correlation between Utah voters' level of education and their concern for environmental issues. If we find that the null hypothesis is not the case, then we can feel confident in claiming that there is a positive correlation between Utah voters' level of education and their concern for environmental issues. After determining whether we can reject the null hypothesis, we can assess the predictive power of materialist and post-materialist theories.

**Summary of the Data**

*Cross-tabulations*

We analyzed the data from questions 8, 9, and 36 through the use of cross-tabulations. Because the number of respondents who marked “Don't Know” as their response for questions 8 and 9 was very small, we did not include them in our analysis.

*Question 36 and Question 8c*

The first cross-tabulation dealt with question 36 (level of education) and question 8c (rating the possible environmental problem of “Insufficient wilderness protection”). Figure 2 illustrates the results.

![Figure 2](image)

This figure shows that as education increases, the proportion of voters who thought this issue was somewhat serious also increases. Furthermore, this same type of pattern holds for those individuals who said that “Insufficient wilderness protection” was very serious. The “Not Serious” category also had similar results to the “Somewhat Serious” and “Very Serious” categories. Without taking statistical significance into account, this figure seems to show that as education increases concern for the environment also increases.
Question 36 and Question 8d

After completing the first cross-tabulation, we moved on to analyzing the next environmental question against level of education. This question asked individuals to rank “Overdevelopment of local canyons.” Figure 3 illustrates our results from the cross-tabulation. Upon cross-tabulating this question with level of education, it appears that more education indicates more concern for environmental issues.

Figure 3

![Graph of Overdevelopment of local canyons]

Question 36 and Questions 9a, b, c, and d

We also created cross-tabulations for question 36 with questions 9 a, b, c, and d; Figures 4, 5, 6, and 7 illustrate the relationships we found.

Figure 4

![Graph of Depletion of the Ozone Layer]
Figure 5

Loss of Endangered Species

![Bar chart showing the percentage of responses for the loss of endangered species across different levels of seriousness and education levels.]

Figure 6

Elimination of Rain Forests

![Bar chart showing the percentage of responses for the elimination of rain forests across different levels of seriousness and education levels.]

Figure 7

Global Warming

![Bar chart showing the percentage of responses for global warming across different levels of seriousness and education levels.]

SIGMA 91
It is interesting to note that, as concern for the environment moves from not serious to very serious, the proportion of college graduates usually increases where the proportion of high school graduates usually decreases. Furthermore, it seems that post-graduates' concern for the environment can change drastically from issue to issue. We discuss possible explanations for this relationship later on in the paper.

**Statistical Significance**

Because the design of our survey included clustering, we could not use the Chi Square test to evaluate the statistical significance of the relationship between level of education and concern for the environment. Consequently, we compared the confidence intervals for each relationship discussed in this paper. When confidence intervals overlap significantly, the relationship between the variables is not statistically significant. However, if there is little or no overlap in the confidence intervals, then the relationship is statistically significant. We performed tests to determine statistical significance at the .05 level. Upon comparing the confidence intervals, we found that there was not a statistically significant relationship between level of education and concern for the environment for those individuals who said the environmental issues were very serious. Furthermore, in the “Not at all Serious” category, the only statistically significant relationships are those between the high school and some college or the high school and college graduate categories. Lastly, statistical significance exists for every level of education in the “Somewhat Serious” category. Figure 8 graphically depicts the statistical significance of these relationships.
Analyzing the Findings

Our findings indicate that we can reject the null hypothesis in the category of "Somewhat Serious." The relationship between level of education and concern for the environment was statistically significant for every level of education. Furthermore, the findings in this category suggest that high school graduates are less concerned about the environment than are college graduates. This finding begins to substantiate our prediction and demonstrate the predictive power of Inglehart's theory.

The relationship between level of education and concern for the environment in the "Not at all Serious" category is also statistically significant. Once again, there is an apparent difference in the concern for the environment high school graduates have compared to that of college graduates. However, postgraduates do not have more concern for the environment than college graduates. Thus, we can only reject the null hypothesis when evaluating high school graduates and college graduates.

Despite the statistically significant relationships in the "Somewhat Serious" and "Not at all Serious" categories, there is not a statistically significant relationship between level of education and concern for the environment in the "Very Serious" category. All of the confidence intervals in this category overlap. Thus, we cannot reject the null hypothesis when referring to this level of concern. Consequently, according to the data, we must conclude that there is not a relationship between level of education and concern for the environment in the "Very Serious" category.

We can conclude that several of the relationships we observe in the data are in the direction our theory predicts. As we mentioned, the theory predicts that as an individual's level of education increases, his or her concern for the environment also increases. Our data show that this is the case in several instances. Furthermore, most of these instances are indeed statistically significant. Therefore, we can confidently say that materialist and post-materialist theories have some predictive power regarding Utah voters' level of education and their concern for environmental issues.

Only Somewhat Accurate Predictions

As mentioned, the predictions of our theory are only somewhat accurate at best. It is true that Utah voters possessing only high school degrees are less likely to be concerned about the environment than those who have college degrees. However, this same pattern does not exist between Utah voters who are only college graduates and Utah voters who have post-graduate degrees. The theories of materialism and post-materialism seem to predict that post graduates will be more concerned about the environment than college graduates. Why is it that this prediction did not come true?

One possible explanation for the theories' failure to predict the relationship is that there were few post-graduates in our sample. In total, there were almost twice as many college graduates than post-graduates. Thus, the difference in
numbers could account for the reason why more college graduates are located in each of the categories. Following this line of reasoning, we could argue that because the number of post graduates is low, we can focus our attention on the difference between college graduates and high school graduates. However, despite the apparent strength of this argument, we must note that our theories would predict that more post-graduates would be in the “Very Serious” category than the other two. This was not the case, so it seems something besides the small number of post-graduates is causing this result in the data.

An alternate, and somewhat stronger, explanation is the idea that there is a lurking variable influencing post-graduates’ concern for the environment. Under this idea, another factor, such as party identification, is influencing post-graduates. Laura M. Lake’s study of education level and concern for the environment substantiates the lurking variable explanation. Lake states that after controlling for all other possible independent variables, such as party identification, religion, ethnicity, and socioeconomic status, the relationship between level of education and concern for the environment became more significant (Lake 1983, 231). Thus, the possibility of a lurking variable influencing the relationship between level of education and concern for the environment is a viable explanation for our findings concerning post-graduates.

Conclusion

Our data analysis seems to show that materialist and post-materialist theories have some predictive power. The findings of this analysis provide evidence for a positive correlation between Utah voters’ level of education and their concern for the environment. This relationship is apparent and statistically significant when comparing high school graduates to college graduates. College graduates tend to be more concerned about environmental issues than high school graduates. Materialist and post-materialist theories predict and explain this relationship. High school graduates most likely assign economic values to environmental resources while college graduates most likely assign aesthetic values to environmental resources. Although our predictions did not hold true for post-graduates, we feel confident that there could still be a statistically significant relationship if we were able to control for possible lurking variables. Thus, we can conclude that materialist and post-materialist theories are valuable for explaining the relationship between Utah voters’ level of education and their concern for environmental issues.

We must emphasize that our findings are not conclusive. Our findings do not completely substantiate materialist and post-materialist theories. To the contrary, our findings suggest that more testing of these theories is essential. We believe that it would be beneficial to study the relationship between Utah voters’ level of education and their concern for environmental issues while controlling for such variables as academic discipline or occupation. Controlling for these factors may help illustrate why post-graduates did not fit into the predictions of the theory. Consequently, using these control variables may show that materialist
and post-materialist theories actually have more predictive power. Our means did not allow us to control for the variables we have mentioned. Therefore, we believe that this type of analysis would be valuable to this subject area. Regardless, we have provided a brief glimpse into the predictive power of materialist and post-materialist theories concerning Utah voters' level of education and their concern for environmental issues.

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Works Cited