Partisan Views on Education: Analysis of Democratic and Republican voters views of College Professors and K-12 Curriculum

GitHub Repository: Lab 1 Repository

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Importance and Context

Education is a cornerstone of democratic society, playing a vital role in shaping citizens' knowledge, economic opportunities, and civic engagement. However, education policy has become a politically polarized issue in the United States. Debates over curriculum content, ideological bias in academia, and trust in educational institutions have intensified, raising questions about whether primary and secondary schooling is influenced by political affiliation. The 2024 American National Election Studies (ANES) Pilot Survey provides an opportunity to analyze partisan differences in attitudes toward education. The survey includes 941 variables, but respondents did not receive the same set of questions due to skip logic, which altered the sequence of questions based on prior responses. This means that not all individuals answered questions on education, which affects the sample sizes available for our analysis. This study investigates whether Democratic and Republican voters differ in their views on primary and secondary schooling, using two key survey questions:

1. `group_colprofs` (Thermometer rating for college professors, [0-100] scale): Measures favorability toward **college professors**, a proxy for attitudes toward higher education. This variable was chosen due to the lack of other variables that allows us to analyze directly respondents' favorability towards K-12 teachers.
2. `imp_schteach` (Importance of public school curriculum, 1-5 scale): Captures how important respondents believe **K-12 curriculum** is to education.

These variables allow us to investigate the central research question:

> **Do Democratic and Republican voters have different views on primary and secondary schooling?**

In this study, we do not directly analyze voting behavior. Instead, we examine attitudes toward education among survey respondents who are politically engaged and potentially eligible voters and identify with a political party. Following Petrocik's (2009) political identification framework, we define Democrats as respondents identifying as Strong Democrats, Not Very Strong Democrats, or Leaning Democrats and Republicans as those identifying as Strong Republicans, Not Very Strong Republicans, or Leaning Republicans. We exclude true independents, third-party voters, and respondents who are "not sure" to maintain a focused partisan comparison. Although this study does not directly measure **difficulty voting**, previous research suggests that partisan divides on **education policy** can influence **voter participation**. Issues such as **educational attainment, literacy, and access to political information** may affect one's ability to navigate the voting process.

Data and Methodology

Our data, consisting of **1,909 observations and 941 variables**, comes from the 2024 ANES Pilot Survey, a large-scale, federally funded survey designed to assess public opinion on political, economic, and social issues in the United States after every presidential election. However, since respondents did not receive identical sets of questions and due to skip logic, we focus on

three key columns: pid7 (Party Identification), group_colprofs, and imp_schteach. The final dataset consists of 1,341 respondents (703 Democrats (~52%) and 638 Republicans (~48%)); the 4% difference is small enough to justify proceeding with hypothesis testing.

Table 1: Distribution of Respondents by Party Affiliation

Party Affiliation	Number of Respondents	Percentage (%)
democrat	703	52.42
republican	638	47.58

We test partisan differences in education perceptions by comparing favorability ratings for college professors (Welch's t-test) and views on K-12 curriculum importance (Mann-Whitney U test). For group_colprofs, the null hypothesis is: Democrats and Republicans have similar favorability ratings for college professors, meaning there is no significant difference between the two groups while the alternative hypothesis is that there is a difference. For imp_schteach, the null hypothesis is: Democrats and Republicans rate the importance of K-12 curriculum similarly, indicating no meaningful difference in how they value school curriculum while the alternative is that there is a difference.

For group_colprofs, we assume thermometer ratings (0-100) have metric properties despite typically not being continuous, due to dataset limitations. We use Welch's t-test, which accounts for unequal variances and sample sizes, to assess differences in professor favorability. For imp_schteach (1-5 Likert scale), we mapped 1 = Not at All Important and 5 = Extremely Important and applied the Mann-Whitney U test, a non-parametric method comparing distributions. Before testing, we verify assumptions: Welch's t-test requires continuous data, independent groups, and approximate normality (checked via variance tests and visual inspections). The Mann-Whitney U test requires ordinal data and independent observations. A p-value < 0.05 in Welch's t-test suggests significant partisan differences in professor favorability; otherwise, no strong evidence exists. Similarly, a significant Mann-Whitney U result indicates differing views on K-12 curriculum importance, while a non-significant result suggests similar attitudes.

Visualizing the Distribution

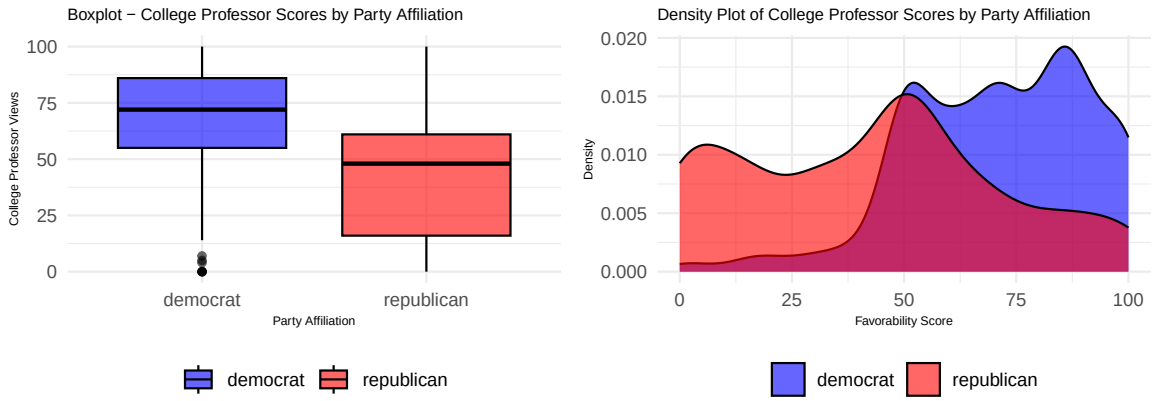

Figure 1: Voter view on College Professors .

Democrats have a higher median favorability toward professors, indicating more consistently positive views. In contrast, Republicans show greater variability in ratings, with a wider spread of opinions.

Since normality is not a strict requirement for our statistical tests, we instead conduct a Statistics Summary, examine the mean, median, and variance across groups to assess differences in responses.

For college professor favorability, Democrats rate professors more favorably than Republicans, with a mean score of 71.06 compared to 43.00 and a median score of 72 for Democrats vs. 48 for Republicans. Republicans also exhibit greater variability in ratings (variance = 817.22) than Democrats (variance = 414.97).

For K-12 curriculum importance, Republicans assign slightly higher importance than Democrats, with a mean score of 4.35 vs. 3.71 and a median score of 5 for Republicans vs. 4 for Democrats. The variance is lower for Republicans (1.04) than for Democrats (1.49). The sample sizes are 703 Democrats and 638 Republicans in both cases.

Welch's t-test Results: College Professor Favorability

We use Welch's t-test for comparing college professor favorability ratings between Democrats and Republicans since the means and variances are unequal. This test is appropriate for metric data, and the 0-100 favorability scale meets this requirement. The data is assumed to be independent (IID) from the ANES survey. While normality is not strictly required for large samples, Welch's t-test remains robust even with some skewness.

Table 2: Welch's t-test Results: College Professor Favorability

Group	Median	IQR	Count
Democrats	72	31	703
Republicans	48	45	638

Welch's t-test (t = 20.509, p < 2.2e-16) confirms Democrats rate professors **28.1 points** higher (95% CI: 25.37, 30.74). We reject (H_0).

Wilcoxon rank-sum test: K-12 Curriculum Importance

When we create a density plot of score views on past curriculum we see that the data is not normally distributed, but since normality is not crucial here, we focus on examining the mean and variance to determine the appropriate test. The summary statistics shows that while the mean and variance are not equal, they are relatively close.

Since the data is ordinal rather than metric, a non-parametric test is more appropriate. The density plot suggests similar distributions between groups, justifying the use of the Mann-Whitney U test (Wilcoxon Rank-Sum test). This test assumes ordinal data and an independently and identically distributed (IID) sample, which aligns with the ANES survey design.

The Wilcoxon rank-sum test with continuity correction (W=152010, p < 2.2e-16) indicates a statistically significant difference in the perceived importance of K-12 curriculum between Democrats and Republicans. Since the p-value is < 0.05, we reject the null hypothesis, H_O: location shift = 0), which suggest the distributions are not identical between groups.

Conclusion

Our analysis highlights significant partisan differences in attitudes toward education. Democrats rate college professors 25-31 points higher than Republicans ($t = 20.509$, $p <$ 2.2e-16), suggesting a strong divide in trust toward higher education. The effect size is significant, reinforcing concerns about ideological polarization in academia.

Regarding K-12 education, Republicans assign slightly greater importance to school curriculum content than Democrats ($W = 152010$, $p <$ 2.2e-16), with a 0.40-point difference on a 1-5 scale. While statistically significant, this effect size suggests a more moderate practical difference.

These findings support the broader notion that education remains a politically charged issue, with ideological divisions shaping public perceptions of both higher education and K-12 curriculum priorities. Future research should explore regional variations, demographic influences, and policy implications, particularly how these attitudes translate into education policy debates and electoral decisions.