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Does Political Science Education Improve Electoral Knowledge? An Analysis on US Presidential and Texas Gubernatorial Elections

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Abstract: This paper examines the impact of political science education on college students' knowledge of the 2020 U.S. presidential and 2018 Texas gubernatorial election. Our empirical analysis based on a survey of students at Texas A&M University-Kingsville finds that political science education has a significant effect on the knowledge of the gubernatorial election but not of the presidential election. The likelihood of students being aware of the statewide election to choose the governor improves with the greater number of political science courses taken, rather than the completion of Texas politics course itself. By contrast, family members' political interest appears to be the driving force of the students' knowledge of the presidential election.

Keywords: electoral knowledge, political science education, elections, citizenship education

The traditional view in the study of education and political participation maintains that people with higher attainment of formal education are more likely to participate in elections in the United States (Patterson and Caldeira 1983; Caldeira et al. 1990; Leighley and Nagler 1992; Jackson 1996; Geys 2006; Jarvis et al. 2005; Harder and Krosnick 2008; Kahne et al. 2012; Dinensen et al. 2016). Education encourages voting because it is more likely to provide people with necessary skills to understand the “abstract subject of politics, to follow the political campaign, and to research and evaluate the issues and candidates” (Rosenstone and Hamsen 1993, 136). Education may also reduce the material and cognitive costs of voting by helping people understand various requirements regarding registration (Hillygus 2005).

At the same time, the traditional view falls

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short of explaining why the level of political participation has not kept pace with the increased number of college graduates (Berinsky and Lenz 2011). While more Americans attend college, turnout across the nation remains relatively constant. The “revisionist” view responds to this puzzle by arguing that education is only a proxy for “a series of preadult experiences and dispositions” (Dinensen et al. 2016, 2; Kam and Palmer 2008, 614; Berinsky and Lenz 2011). The likelihood of voting depends on individuals’ “early-life socialization within the family” as well as “personality traits” which develop their political interests (Dinesen et al. 2016, 2; Berinsky and Lenz 2010). For some voters, voting is a habit. Once they participate in an election, they are more likely to cast a ballot in future elections regardless of their education level (Harder and Krosnick 2008; Gerber et al. 2003).

Other studies argue that only certain aspects of college education are more likely to influence students’ political knowledge or engagement. While traditional aggregate studies treat education as a simple socioeconomic measure, more recent literature demonstrates that certain programs and activities such as social science curriculum, friendly discussion of politics, and training in verbal skills help cultivate college student’s political knowledge and engagement (Harder and Krosnick 2008; Hillygus 2005; Niemi and Hanmer 2010). Based on the analysis of over 1,000 higher learning institutions across the nation, Thomas et al. (2017) also finds a greater level of interest in voting in the 2012 and 2016 presidential elections among social science majors rather than STEM majors.

Surprisingly, little research focuses on the

relationship between political science education and political knowledge or participation. While the field of political science directly deals with the topics relating to constitutions, governmental institutions, electoral processes, and policy issues, little empirical evidence exists to indicate the impact of political science education on electoral knowledge or participation. This study therefore empirically examines this link based on a survey taken at Texas A&M University-Kingsville. Since students in the public higher education system have the opportunity to take courses on both U.S. and Texas governments, this study also provides a comparative analysis regarding the impacts of political science education on the young voter’s knowledge of two different elections: the 2020 U.S. presidential election and 2018 Texas gubernatorial election.

Our empirical analysis finds that political science education has a significant influence on the knowledge of the gubernatorial election but not of the presidential election. The likelihood of students being aware of the statewide election improves with the greater number of political science courses taken, rather than with the completion of Texas politics course itself. This result highlights the importance of political science education for young voters to be familiar with the statewide election, which may lead them to participate in such a election. By contrast, the analysis shows family members’ political interests as the key determinant of the student’s knowledge of the presidential election. Therefore, findings from these electoral cases offer empirical support for both the traditional and

revisionist views in the study of education and political participation.

The rest of this paper is organized as follows: First, we discuss the role of political science education in promoting political knowledge and participation. Second, we provide our argument by explaining the possible unique effects of political science education on students' knowledge of the presidential and gubernatorial elections. This paper then proceeds to conduct an empirical analysis on the impact of political science courses on young voters' knowledge of those elections. Finally, we discuss the implication of this result for K-12 social science education and offer some avenues for further study.

Political Science Education and Electoral Engagement

Does political science education improve political knowledge or participation? One might think this is an easy question to answer. However, little empirical evidence is produced to indicate the relationship between the discipline in the academic field and political knowledge or engagement. Wilson (2008, 37) discusses that the lack of such research may be due to the view that political involvement is not a "specific discipline within the field of political science" and even "some [political science] curriculums discourage it by presenting the fields as being solely focused on the objective and analytical elements of political issues." Despite this view, there are reasons to argue that political science education promotes political knowledge and participation, and empirical evidence is needed to support the claim.

First and foremost, certain political science

courses such as a course on the federal government are designed to provide basic information about elections and policy issues. Many of these courses also intend to train students to critically think about policy issues through discussions and the readings of news articles. Some prior studies confirm the role of these courses by improving students' political knowledge. Huerta and Jozwiak (2008) show that the reading of New York Times articles improved the ability of students at Texas A&M University-Corpus Christi to make politics relevant to their lives. Similarly, based on a survey of students at the Petra University in Jordan, Althubet and Jarrar (2013) find a positive role of political science courses in improving students' political awareness. Additionally, a survey analysis based on Florida college shows that the completion of a political science course increase's political interest, although it did not lead to an increase in political participation (Wilson 2008). Political courses can be effective in encouraging student's civic engagement especially when these courses are taught by professors with active civic engagement (Hunter and Brisbin 2003).

Political science education also plays a critical role in providing "relatively free access to information about politics" (Niemi and Hanmer 2010, 304). Previous studies on political campaigns often articulate that voter's knowledge about elections is the most fundamental and is essential to democratic citizenship and participation. Voters' attainment of political information or knowledge is a necessary condition for the link between education and political participation to exist. For instance, Caldeira et al. (1990,

196) argues, “Political information is not evenly distributed among the population. Generally, those who possess the greatest amount of information about politics participate in greater measure than do those with less.” Thus, those who are in a better “position to have or gain information... increase[s] the likelihood of voting” (196). Galston (2001, 224) also points out that participation depends on the level of knowledge “not only quantitatively but also qualitatively.” “The more knowledge we have, the better we can understand the impact of public policies on our interests, and the more effectively we can promote our interests in the political process” (223). Popkin and Dimock (2000) similarly emphasize the quality of political information possessed by voters, by arguing that the likelihood of voting for individuals with low information is not as high as voters with sufficient knowledge, as they are unable to follow electoral campaigns all the way to the end.

Since learning about elections and candidates is not completely free, potential voters must allocate some of their time to search and make sense of political information. There may be a financial cost of doing so if the voters choose to participate in rallies or informational sessions by driving to the locations of those events. Political campaigns often try to reduce those costs by reaching out to potential voters through advertisement, emails, traditional and social media, phone calls, or knocking on the doors of their residence (Jackson 1996; Caldeira et al. 1990). Political science courses can act very much like these political campaigns. The cost of hunting for electoral information is mitigated while the students are presented

with materials regarding governments, electoral processes, and policy issues. There are costs of enrolling into these courses, such as taking time to register, paying tuition, and purchasing textbooks. However, these activities are ‘normal parts’ of college life. These costs are imposed on anyone who chooses to pursue higher education and not specifically on those who are enrolled in political science courses. Other than the cost of maintaining student status, political science courses are therefore capable of providing young adults with “relatively free access to information” about elections and policy issues (Niemi and Hanmer 2010, 304).

Political science education may even play a better role in informing young adults about elections than campaigns, given the tendency of young voters to be passive consumers of political information. Nickerson (2007) conducts an experimental study and shows that emails sent by political campaigns have no significant bearing on voter turnout. Moeller et al. (2014) tests the role of online media in providing information and demonstrates that online news sources do not improve first-time voters’ political efficacy, which is defined as one’s self-evaluation of their abilities to effectively understand and participate in politics. Online sources are only effective when young voters are actively engaged in the process of retrieving information. If they are passive consumers of information, online media sources do not significantly improve their ability to understand politics. Hill and Lachelier (2014) find a greater difficulty in mobilizing U.S. college students than older adults, even

with a face-to-face effort to boost turnout. These studies suggest that information given to young voters by political campaigns through online or off-line media might not be received in a way that effectively improves their knowledge or generates their interest in elections. When campaigns can only ask voters to voluntarily look through information about their candidates and policies, young voters are unlikely to make electoral decisions based on the information given to them. By contrast, political science courses can require students to focus on the materials presented to them and get tested on those materials, unless students choose to fail.

Furthermore, politics classes taught by instructors with post-graduate degrees can be perceived as trusted sources of information about elections. Nickerson (2007, 371) argues that a “communication from a trusted source” can elevate “the perceived importance of voting and thereby boost turnout.” Therefore, political science courses at accredited universities and colleges can act as an effective tool of transmitting electoral information to young voters. To summarize, the existing literature suggests that political science education has a positive and significant role in improving college students’ electoral knowledge as well as promoting political participation.

Presidential vs. Gubernatorial Elections

We assess the impact of political science education on students’ knowledge of two different elections—the 2020 U.S. presidential election and 2018 Texas

gubernatorial elections. We do so since undergraduate students at public college and universities in Texas have the unique opportunity to complete six credit hours of coursework covering topics of both U.S. and Texas Constitutions and governmental institutions.[1] Due to data availability, most election studies are conducted based on national elections. Geys (2006) finds that among 83 aggregate-level studies from 1968 to 2004, there are only four studies dealing with gubernatorial elections. However, there are reasons to believe that the impact of political science education could vary on the national and state levels.

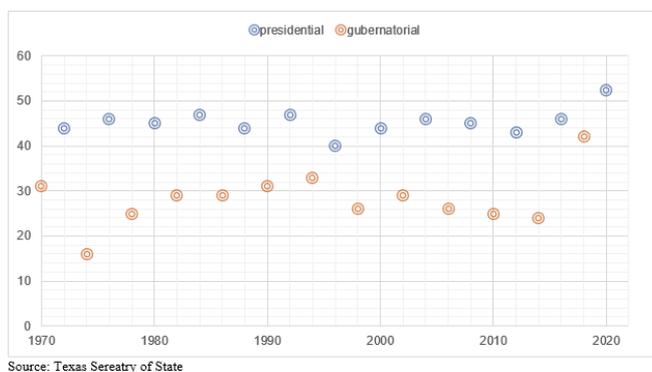
We argue that the effect of political science education is stronger on student’s knowledge of gubernatorial elections. As it is clear from turnout (see Figure 1), less people participate in the state election than the presidential election. According to the data recorded by the Texas Secretary of State, the average turnout compared to the voting-age population for U.S. presidential elections from 1972 to 2016 in Texas is 45.34%, whereas the average turnout for the Texas Gubernatorial Elections from 1970 to 2018 is 28.15%. It has been postulated that this is because voters tend to be less familiar with candidates running in state or local elections due to limited media coverage and lack of interest in local affairs (Ardoin et al. 2015).

Ardoin et al. (2015) also points out that young voters, especially college students, may be less interested in voting in local elections since some of them only

[1] The Texas Education Code requires students at the public universities and colleges to complete six credit hours of courses covering the topics of the federal and state governments, but the law does not specify how these topics are covered in the required hours of coursework.

temporarily reside in the college towns and do not feel the importance of influencing local affairs. Their study then finds that more college students chose to participate in the 2008 U.S. presidential election, but not in the lower-level local elections. Geys (2006) makes a similar point that it takes a longer period for voters to be familiar with local issues and candidates. Consequently, the cost of voting is higher for temporary residents like college students, and the stronger role of political science education is expected to bring down the greater cost of voting for gubernatorial elections. By contrast, since information about the national election is widely available through news networks, social media, and advertising, coursework on political science may have little impact to enhance the presidential knowledge of students.

Figure 1.
Percentage of turnout compared to voting-age populations in Texas (1970-present)



Research Design

We utilize logistic regression models based on survey data to examine the impact of political science education on student’s knowledge of the presidential and gubernatorial elections. During the Fall 2018 semester, we asked over 200 undergraduate students at Texas A&M University-Kingsville

to answer a set of questions about their experience and interest in voting in elections as well as their individualistic characteristics such as academic major, income level, and employment status. Among the students who were asked and at least started the survey, we obtained 86 completed and reliable responses. As we discuss later, we have tested the results of running logit models with penalized maximum likelihood estimators to ensure that the results are not sensitive to the relatively small sample size.

The survey was completely anonymous and distributed to students as an online survey or a hard copy. We used several methods to recruit students, such as sending out emails, going into classrooms, and speaking to students in person. Most classrooms we visited were lower-level political science and history courses. Since these courses are a state-mandated requirement for all students, these courses consist of students with different backgrounds and majors, ranging from social science, business, education, to science, technology, engineering, and math (STEM). The average age of the respondents is 22.1, ranging from 18 to 47.2. The breadth of student respondents in our survey includes all four undergraduate classes, with the average value of 2.6 (where 1= Freshman, 2=Sophomore, 3=Junior, and 4=Senior).

Many respondents included in our survey are native to the South Texas region. Cities and major geographic areas of the respondents’ hometowns include the following: 1) the city of Kingsville where the campus is located, 2) the Coastal Bend

cities such as Corpus Christi and Alice, 3) the Greater Houston area including the cities of Houston, Victoria, and Baytown, and 4) the Rio Grande Valley area near the U.S. Southern Border with Mexico including the cities of McAllen and Brownsville. A few students are from other states, such as California and Louisiana. We believe the limited variation in hometowns is an insignificant issue. Some previous studies based on survey data are also tied to certain regions but successfully provided valuable insights into the studies of political participation and public opinion (e.g., Drury et al. 2010; Huerta and Jozwiak 2008).

We employ two dependent variables in our logistic regression models. The first dependent variable is a dichotomous measure which takes the value of 1 if the respondent was aware of the 2020 U.S. presidential election at the time of being asked, and zero (0) otherwise. The second dependent variable is also a binary measure which records a value of 1 if the respondent was aware of the 2018 Texas gubernatorial election at the time of taking the survey and zero (0) otherwise.

The main independent variable measures the level of political science education taken by respondents at the time of completing the survey. The variable takes the value of 1 if the student responded to have taken only a state-mandated lower-level American Politics course and takes the value of 2 if the student responded to have taken only a state-mandated lower-level Texas Politics course. The variable takes the value of 3 if the student responded to have taken both courses mentioned above and the value of 4 if the student has taken more than the two required courses in the field of Political Science. If students have not taken any

political science courses, the value of zero (0) is recorded.

The analysis includes various control variables representing individual characteristics and socioeconomic status of the young adults at Texas A&M University-Kingsville. The variable called "Male" takes the value of one (1) if a student is male and zero (0) for a female respondent. Gender is believed to affect the level of political participation, although the effect seems to vary depending on the time of analysis (Harder and Krosnick 2008; Marcelo et al. 2008; Garber et al. 2003; Leighley and Nagler 1992). The "Income" variable reflects the estimated amount of income available for students to spend. The variable ranges from 1 to 7, where the lowest value of 1 indicates an income less than \$25,000 and the highest value of 7 reflects an income of \$125,000 or more. The variable called "Employment Status" reflects students' status of work (0 = unemployed, 1 = part-time work, and 2 = full-time work). The previous literature consistently finds that wealthier people are more likely to turn up on election days (Harder and Krosnick 2008). Studies also argue that working students are more likely to be interested in politics (Marcelo et al. 2008; Jervis et al. 2005). Additionally, we include a variable called "College Level," which reflects the status of the undergraduate students at the public university (1 = Freshman, 2 = Sophomore, 3 = Junior, and 4 = Senior). This variable might affect the levels of students' knowledge since more years of education are expected to improve political participation.

The variable named "Experience in voting" records the number of time respondents

have voted, regardless of the type of election. This variable is included because previous studies show that voting can become a “habitual behavior” and that those who voted in previous elections are more likely to do the same in the future elections (Harder and Krosnick 2008, 537; Niemi and Hanmer 2010; Garber et al. 2003). Thus, the likelihood of respondents being familiar with the presidential and gubernatorial elections may increase with more previous experience in voting. The analysis also includes a binary measure called “Presidential 2016,” which takes the value of one (1) if a student has voted in the previous U.S. presidential election at the time of being asked and zero (0) otherwise.

According to the previous literature, the cost of voting is one of the most prominent factors affecting political participation. The lower cost of voting imposed on voters leads to the greater turnout in an election (Glenn and Grimes 1968; Caldeira et al. 1990; Leighley and Nagler 1992; Jackson 1996 Niemi and Hanmer 2010 Harder and Krosnick 2008). The cost of voting refers to various hurdles and challenges voters may face, such as a complex registration process, various registration requirements, as well as a wide range of physical, emotional, and financial burdens in getting to polling sites and casting a ballot. The cost of voting also includes the potential voters’ time spent to learn about policy issues and the candidates prior to the election.

Niemi and Hanmer (2010, 302) argue that college students face a unique set of voting costs, including deciding whether they should vote in their hometown or the location of their universities. Glenn and Grimes (1968, 564) go further and contend that young adults, who are “more

geographically mobile as a whole than older people, are more often disenfranchised by a failure to meet the length of residency requirements.” College students may also choose not to learn about the candidates or even the election because they feel that the candidates are unlikely to represent the voices of young adults (O’Toole et al. 2003). Moreover, some young voters perceive politics as “dirty,” which pushes them away from wanting to learn about politics and participating in any election (Dalton and Crosby 2008, 2). To measure the cost of voting incurred through many of these different factors, we include a variable which broadly assesses the degree of stress students feel about voting. In the survey, students are asked whether they feel overwhelmed to vote (=3), feel somewhat overwhelmed to vote (=2), or do not feel overwhelmed to vote (=1). Based on the previous literature, this variable is expected to negatively affect students’ political knowledge of those elections. Students may be more familiar with the presidential and gubernatorial elections when they feel less stressed about voting.

Finally, the analysis includes two variables measuring political interest. The first variable reflects a student’s self-evaluation of the level of their political interest. Students are asked to score 4 if they think they are “very much interested” in politics, 3 if they believe they are “somewhat interested,” 2 if they are “somewhat not interested,” and 1 if they believe that they are “not at all interested.” The second variable reflects a student’s self-evaluation of the level of their immediate family members’ political interest. The variable is measured in the same way, ranging from 1 to 4. The previous literature shows that

their family’s opinions on politics strongly influences their political ideology and decision to vote. The discussed revisionist view particularly posits education as a proxy for individual’s “early-life socialization within the family” as well as “personality traits” that develop their own interests in politics and a sense of responsibility to vote (Dinesen et al. 2016, 2; Berinsky and Lenz 2010; Kam and Palmer 2008).

Empirical Results

Table 1 shows the results of running three logistic regression models, which examine the effects of political science education and other factors on students’ knowledge of the 2020 presidential election and 2018 gubernatorial election.

Table 1
Logistic Regression Results

Variables	Base Model	US Model	Texas Model
Political Science courses	0.42 (0.28)	0.18 (0.25)	0.55*** (0.16)
Experience in voting	0.39 (0.51)	0.15 (0.16)	0.73 (0.54)
Cost of Voting	-0.82*** (0.23)	-0.61* (0.31)	-0.59*** (0.18)
Interest Level	0.81 (0.78)	0.27 (0.57)	0.2 (0.57)
Family Interest Level	1.81*** (0.32)	1.51*** (0.49)	0.66 (0.44)
Presidential 2016	0.64 (0.72)	1.13 (0.73)	-0.31 (1.04)
Gender	0.5 (1.03)	0.82 (0.58)	-0.52 (0.46)
Income	0.22 (0.28)	0.21 (0.14)	0.21** (0.11)
Employment Status	1.18** (0.59)	1.01* (0.53)	0.72*** (0.26)
College Level	-0.33 (0.37)	-0.09 (0.41)	0.12 (0.35)
Constant	-8.91** (3.94)	-9.98*** (2.72)	-7.06** (2.23)
Observations	86	86	86
R-Squared	0.3994	0.3261	0.2953

Robust standard errors (clustered by age) in parentheses || ***p<.01, ** p<.05, *p<.1

The first model is what we call a “base model,” which estimates the effect of the political science courses on the students’ knowledge of either the national or state election. The “US model” examines the

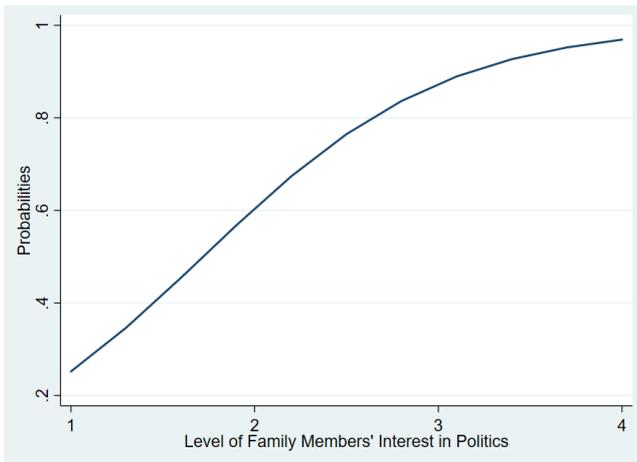
same impact only on the young voter’s knowledge of the presidential election, and the “Texas model” analyzes the impact on their knowledge of the gubernatorial election.

The case of the 2020 U.S. presidential election presents a similar result. In the “US model,” the estimated coefficient of the cost of voting is statistically significant and negative at the 90% level. The estimated coefficients of the family’s political interest level and student’s employment status are statistically significant and positive at the 99% and 90% levels respectively. The effect of the level of family’s political interest appears to be the strongest. Students who responded to have close family members who are “very much” interested in politics are more likely to have the knowledge of the national election. Table 2 and Figure 2 visualize the changing probabilities of students’ knowledge about this election, depending on how students rated their family members’ interests in politics. The predicted probability of students being familiar with the election is 0.97 when they evaluated their family members to be “very much” interested in politics. The predicted probability is only 0.25 for those students who perceived their family members as “not at all” interested in politics.

Table 2
Predicted Probabilities of Being Aware of the 2020 Presidential Election

Responses	
Not at all interested =1	0.2519
Somewhat not interested=2	0.6044
Somewhat interested =3	0.8739
Very much interested =4	0.9692

Figure 2
Probabilities of Students Being Aware of the 2020 US Presidential Election



The “Texas model” shows a different result. The estimated coefficient of the cost of voting variable is statistically significant and negative at the 99% level. Similar to the “US model,” this suggests that a greater cost of voting prevents young voters from learning about the gubernatorial election. The estimated coefficients of the employment status and income variables are statistically significant and positive at the 95% and 99% levels respectively. These outcomes suggest that students who are wealthier and employed full-time are more likely to be knowledgeable of the gubernatorial election. While these students live as independent adults, they may be more interested in the state affairs which affect their financial status with tax policies.

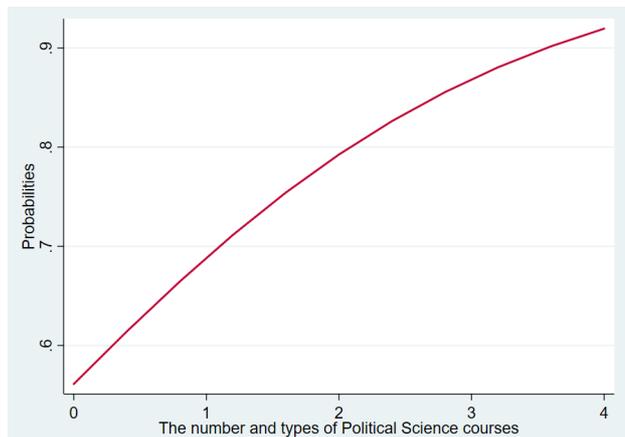
More importantly, the estimated coefficient of political science education is statistically significant and positive at the 99% level. The result supports our argument that political science education is more likely to improve the college students’ knowledge of the statewide election. The analysis also demonstrates an increasing likelihood of students being aware of the election with the greater number of political science courses

taken, rather than with the completion of just the Texas politics course itself. Table 3 and Figure 3 show the predicted probabilities of the student’s knowledge of the gubernatorial election based on the level of their political science education. The probability is the highest (0.9194) when students have taken more than the two state-mandated courses. By contrast, when students have taken none of the politics classes, the probability declines to 0.5612. Perhaps unsurprisingly, the probability of students being aware of the gubernatorial election is higher for those who have taken Texas politics (0.7925) than that of those who have only taken American politics (0.6885). This is because the state politics course covers topics directly related to the Texas Governor and the executive branch of the state government in Austin, while U.S. politics courses focus on the federal government in Washington D.C.

Table 3
Predicted Probabilities of Being Aware of the 2018 Gubernatorial Election

Responses	
Never taken = 0	0.5612
American Politics =1	0.6885
Texas Politics =2	0.7925
Both courses = 3	0.8685
Both courses plus more = 4	0.9194

Figure 3
Probabilities of Students Being Aware of the 2018 Texas Gubernatorial Election



Sensitivity Analysis

We utilized a couple measures to check the robustness of our results. Particularly, we wanted to ensure that empirical evidence is not sensitive to changes in the specifications of standard errors and sample size. First, since more than half of respondents included in this analysis are 18 to 22 years old, we followed Niemi and Hanmar (2010) in the use of clustered standard errors by age and confirmed that the result was the same regardless of the treatment. We also understand the possible concern with the relatively small sample size of our analysis. Therefore, we have followed the work by Rainey and McCaskey (2021) and double-checked our results by using penalized maximum likelihood (PML) estimators. According to the authors, the PML estimators offer “a substantial improvement in small samples (e.g., 50 observations)” in terms of the possible biases of the statistical results (Rainey and McCaskey 2021, 549). Table 4 compares the estimated coefficients and associated significance levels of US and Texas models with and without the PML treatment. Although some of the variable’s significance levels did change, the impact of the level of family’s political interest on students’ knowledge of the 2020 U.S. presidential election is confirmed at the 95% level even when the PML estimator is used. The significant effect of political science education on students’ knowledge of the 2018 Texas gubernatorial election is also confirmed at the 95% level after the PML treatment. On the other hand, the significance of the cost of voting, income, and employment status disappears after using the PML estimators. This result indicates the less reliable effects of these variables but at the same time affirms the strong bearing of family’s political interest and political science education on students’

knowledge of the national and state elections respectively.

Table 4

Estimated Coefficients and Significance of US and Texas Models

	US Model	US PML Model	Texas Model	Texas PML Model
Political science education	0.18	0.17	0.55***	0.46**
Experience in voting	0.15	-0.01	0.73	0.55**
Cost of voting	-0.61*	-0.37	-0.59***	-0.45
Interest level	0.27	0.15	0.2	0.15
Family interest level	1.51***	1.12**	0.66	0.56
Presidential election 2016	1.13	0.88	-0.31	-0.22
Gender	0.82	0.50	-0.52	-0.51
Income	0.21	0.17	0.21**	0.17
Employment status	1.01*	0.65	0.72***	0.54
College level	-0.09	-0.13	0.12	0.07

***p<.01, ** p<.05, *p<.1

Discussion

This empirical analysis offers important implications for the research of education and participation as well as K-12 social science education. First, despite using the data tied to a specific region, this analysis has provided empirical support for both the traditional and revisionist views of the literature on education and participation. The finding from the presidential case is very much consistent with the revisionist view, arguing that education is likely to serve as a proxy of the “early-life socialization within the family” which grows one’s political interest and may lead to the decision to attend college (Dinesen et al. 2016, 2; Berinsky and Lenz 2010). By contrast, the finding from the gubernatorial case represents the traditional view stating that education matters. The result suggests that learning about constitutions, political institutions, and policy issues surrounding young voters plays an important role in promoting their political knowledge, which could lead them to participate in future elections.

Our finding of the different effects of political science education on the national and state level also offers partial support for the idea that the cost of voting varies between national and local elections. While information regarding U.S. presidential candidates is widely available through large-scale campaigns, traditional news sources, and social media, potential voters are likely to be familiar with the national election without doing much research to learn about candidates. On the other hand, the voters would likely have to hunt for information about state and local elections and candidates. This means that the cost of voting is greater for state and local level elections, and this analysis has partially demonstrated the significant influence of the cost of voting in the case of the Texas election. We say ‘partially demonstrated’ since the significant bearing of the variable disappeared with the PML treatment.

What does this result mean for K-12 social science education? The positive influence of primary and secondary education on political engagement is not a novel concept in the literature. Traditional studies on political participation have often defined educated individuals as those who have attained high school diploma, though more recent studies believe college education is important for young voters to make “reasoned and deliberative” decisions (Burden 2009, Hillygus 2005, 27; Leighley and Nagler 1992; Patterson and Caldeira 1983). As such, we believe that this result is encouraging for those who wish to be social science teachers in primary and secondary education because this work has once again validated the importance of coursework at educational institutions which makes a difference in the level of students’ political knowledge. Just like political science education at college, coursework on

government at primary and secondary institutions can not only provide relatively free information about elections to students, who are likely to be passive consumers of information. But it can also serve as trusted sources taught by certified teachers. The process of political socialization through family is also confirmed in the presidential case, and therefore this work is a good reminder for teachers to encourage students at primary and secondary educational institutions to discuss the importance of elections and policies with their family. Further research is certainly needed to assess whether the results would be the same for the case of students at various levels of K-12 institutions. We need to consider the fact that data will be different in terms of age, financial, and employment status, as well as the level of experience in voting, which may be zero for all. Further research should also consider offering a comparative analysis regarding the impact of the higher and K-12 education on students’ political knowledge.

Concluding Remarks

Does political science education improve students’ knowledge of U.S. presidential and gubernatorial elections in Texas? Our central argument maintains that political science education is more likely to improve college students’ knowledge of the statewide election, but not the presidential election. While more information is freely available about the presidential candidates, voters must hunt for information about the statewide election. This means that the discipline in the academic field is much needed to bring down the greater cost of voting especially in the case of the state election. Our empirical analysis based on a survey of

students at Texas A&M University-Kingsville confirms our argument. The analysis shows the significant impact of political science education on students' knowledge of the 2018 Texas gubernatorial election, but not on the 2020 U.S. presidential election. The likelihood of students being aware of the statewide election to choose the Texas Governor improves with the greater number of political science courses taken, rather than the completion of the Texas politics course itself. This finding indicates the greater importance of political science education for young voters to be familiar with non-presidential elections, which may lead them to participate in these elections that usually have lower turnout than presidential elections. By contrast, family members' political interest appears to be the driving force of the students' knowledge of the presidential election.

Further research is needed to address the limitations of this research. For example, any future research should include a larger sample size and extend the geographic areas of surveying. Research in the future should also consider other factors that are not included in this analysis, such as one's ideology. As previously mentioned, it would also be imperative to develop a comparative analysis between college and K-12 institutions. Finally, any future research should analyze the effect of political science education on both political knowledge and participation. Although one's ability to possess relevant political information is a necessary condition for voting, the focus in the research on education and participation has always been whether people cast their ballots in elections, which ultimately matter to make a difference in politics. Therefore, to make a greater contribution to the existing

literature, future research should analyze the relationship of education with both knowledge and participation, and it would be valuable to provide insight on how the effects may vary and explain why.

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