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College Students' Opinions on Climate Change: Do Political Views Matter?



Honors Thesis

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Advisor: Anya Galli Robertson, Ph.D.

April 2022

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Abstract

Climate change is an ever-impending crisis and the politics surrounding the issue are as contentious as ever, especially in the United States where the political culture is extremely polarized. The polarization of the political parties in the United States makes any environmental policy extremely difficult to pass. Meanwhile, the new generation of young people entering the workforce, voting scene, and public eye are bringing new demands to current climate debates. Youth make up a large share of environmental activism participants and opinion polls show climate change is on the minds of many young people. However, there is a lack of research on youth's opinions on climate change as relating to their political affiliation. The purpose of this study is to measure young peoples' views on climate change, while identifying how or if their political identification plays a role. A survey with questions modeled off the Yale Program on Climate Change Communication survey of Climate Change in the American Mind was distributed to 27 undergraduate classes at the University of Dayton. Questions explored political identification and personal belief relating to climate change science, risk, and policy. Using quantitative methods, the results explore how students view these topics and the relationship between their opinions on the environment and their political affiliations and participation. This research is important because young people will have an impact on both the policies and actions the country takes on climate change as well as trends of Republican and Democrat parties in the United States.

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Introduction

November of 2021, the UN hosted their 26th Climate Change Conference in Glasgow, Scotland. Since 1995, these conferences have given way to global agreements for fighting climate change, including the pivotal 2015 Paris Agreement. However, instead of praise and cheers for the 2021 conference, protestors formed outside the convention building, criticizing leaders for their lack of conviction and follow-through on their agreements. These protests were headed by youth. Fridays for Future, a youth-led movement that started with Swedish teenager Greta Thunberg's school strike in 2018, organized a climate strike outside the conference. "26 years of blah, blah, blah," blared banners from protestors outside the conference accompanied by shouts of: "We are running out of time" and "System change not climate change" (Specia & Castle, 2021). The impact of youth in spurring action against climate change will no doubt be influential on politics within the upcoming years.

The battle against climate change is inescapably tied to politics. The most systemic issues (like climate change) are most effectively and thoroughly addressed through government policies. This makes progress shaky, inconsistent, and unsure because the debates and processes of politics stalls change. Climate change in particular is a topic of immense debate and has become extremely politicized. Politicians are impacted by their political party agenda, lobbyists, and the desire to gain or maintain voters. In addition, politicians debate the necessity, truth, urgency, morality, impact of climate change.

Furthermore, political polarization between political parties and issues in the United States (especially evident in the 2020 presidential election) is at an all-time high.

Politicians and people of opposite political ideologies refuse to listen to or compromise with those who disagree with them. The Pew Research Center documents this increasing polarization, reporting that Democrats and Republicans have been increasingly divided over the last five years and particularly since the 2020 presidential election on issues such as the economy, racial justice, law enforcement, and more (Dimock & Wike, 2021). This polarization is true for climate change discourse as well (Dimock & Wike, 2021). For example, whereas strong Democrats generally tend to support policies combating climate change, strong Republicans tend to deny even the existence of climate change. There is no in between. This polarization simply adds to the delay of policy creation and enactment. Accompanying this rise in political polarization has been an increase in youth protests and advocacy for climate change. Youth clearly have a different perspective on climate change. They see how it will affect them and their futures. These views differ from other generations and many current leaders, as is evident by the overall lack of major changes and fulfillment of commitments. This suggests there may be a movement towards more concern among the younger generation in the United States; climate change could be an exception to the political polarization among young people.

The purpose of this study is to measure young peoples' views on climate change, while identifying how or if their political identification plays a role. This study has practical implications because climate change is an ever more pressing issue and the United States as a country (where the survey will take place) is one of the biggest contributors to global greenhouse gas emissions, the leading cause of climate change (Friedrich, 2020). The climate change crisis will escalate in the upcoming decades, which coincides with the 18-23 age group entering the workforce, becoming elected government

officials, and a growing voting group. This population could have an impact on both the future policies and actions regarding climate change as well as the trends of the Republican and Democratic parties in the United States. They are also a major voting block (as shown by the 2020 election) that can influence who gets elected. It will be important to find if and how youth opinions differ from the general population in the U.S. and if the typical relationship between political affiliation and views on climate change exists among young people.

Literature Review

Scientific Trends

The science is clear: warming of the planet is occurring and human generated greenhouse gas emissions are the main cause (IPCC et al., 2014). According to NASA, 2020 was tied for the warmest year on record, which continues the upward trend in temperatures in recent decades (2020 Tied for Warmest Year on Record, NASA Analysis Shows, 2021). Global warming has many negative implications, including more frequent severe weather, and increased intensity of storms (IPCC, 2014). Research has shown how the warming of the planet is specifically responsible for heavy precipitation, droughts, cyclones, and wildfires (IPCC, 2014). These disasters destroy homes, devastate farmland, and kill and injure people. 2020 was a record breaking year for hurricanes (Taylor, 2021). Beyond the exaggerated severe weather and storms, the earth is undergoing other major transitions that can be attributed to human-caused warming. The sea levels are rising at an accelerating rate, caused mainly by glacial melt and expansion of water as it gets warmer (Oppenheimer et al., 2019). There is consensus among the scientific community that climate change is occurring and humans are the main cause. Studies find that 97% of

publishing climate scientists agree that climate change is occurring and caused by humans (Cook et al., 2016).

Politics and Policy

Climate change is an internationally recognized issue. Governments have been discussing climate change since the 1990s. There have been and continue to be international conferences addressing the scientific data around climate change and the responsibilities and goals of nations to tackle the issue. Nations have committed to goals for reducing the warming of the planet. The United Nations has hosted 26 Climate Change Conferences (referred to as Conferences of the Parties, or COPs), with the most recent occurring in November of 2021 in Glasgow. In 2015, countries came together for the 21st Climate Change Conference and created the Paris Agreement. Signed by 185 countries, the international treaty recognized climate change as a global emergency and set long-term goals for all nations. The biggest goal set was to reduce greenhouse gas emissions and limit the global temperature rise to two degrees Celsius (UNFCCC, 2016). In the same year, the UN released the 2030 Agenda for Sustainable Development. This agenda calls for strong global partnership and commitment working to a sustainable and equitable future. The plan includes seventeen goals which serve as a blueprint towards this future. The goals focus on climate change as well as social inequalities. Each country is graded annually based on their progress toward each goal. These international conferences and agreements show the extent of global consensus that climate change is a global concern affecting every country.

The United States as a country is one of the top contributors to greenhouse gases (Friedrich, 2020). In recent years, it has not only done nothing to reduce climate change,

but instead retracted many environmental measures. Between 2016 and 2020, the Trump administration rolled back more than 100 environmental rules, including restrictions on carbon dioxide levels and coal power plants, protections for national parks and wildlife from drilling, and water pollution restrictions (Popovich et al., 2021). The Trump administration also pulled out of the Paris Agreement. This had major significance because of the wide global acceptance of the document. 193 out of 197 internationally recognized countries signed the Paris Agreement in 2015 including every high income country (UNFCCC, 2016). Bowing out of this global agreement signaled to the American people that climate change is unimportant, while the entire global community pushed the opposite. Trump's decisions during his presidency also further politicized the issue of climate change.

The discourse changed with the election of 2020. During the presidential election of 2020, Joe Biden promised that climate change was one of his top priorities. Since Biden's inauguration there has been a major switch in policy. He reentered the Paris Agreement on day one of his term. This move signaled that the administration was again taking climate change seriously. In the fall of 2021, the administration introduced the Build Back Better Act. This bill addresses education, labor, child care, health care, taxes, immigration, and the environment (H.R.5376 - 117th Congress, 2021). Among other things, it would provide funding for energy efficiency and safe drinking water projects, electric vehicles and zero-emission, heavy-duty vehicles, wildfire prevention, drought relief, conservation efforts, climate change research, etc. (H.R.5376 - 117th Congress, 2021). In addition, it would place a fee on methane. In November of 2021, Biden also

released the goal to cut emissions in the United States by half of 2005 levels (Friedman, 2021).

However, there is speculation as to whether that will be possible amongst the divide of Congress. This divide between parties has delayed meaningful environmental policies. For example, as of January 2022, the Build Back Better Act, which included funding for clean energy development and climate change adaptation, remained stalled in the Senate. This is why the Biden administration - like the Trump administration before it - will have to rely on executive orders and regulations. But even so, Republicans and the rule of judges has counteracted some of Biden's orders. In June of 2021, Republican attorneys brought Biden to court arguing he did not have the authority to pause new oil and gas leases and the federal judge sided with the Republicans (Friedman, 2022). It is thus clear that any climate policy is extremely difficult to pass because of the current state of polarization (Friedman, 2021). Beyond the political polarization, so much attention has been dedicated to the COVID-19 pandemic and its consequences, such as distributing vaccines and passing stimulus packages for Americans, that climate change has not been the top issue. This has put limitations on the progress on environmental issues during Biden's term

Much of the debate over climate change policy revolves around the economy. The Republican agenda prioritizes economic growth and argues that environmental measures will harm the economy. Data from the Pew Research Center's American Trends Panel show that Republicans prioritize economic considerations when asked about proposals to deal with climate change (Tyson, 2021). "About two-thirds of Republicans (65%) say increasing jobs and economic growth is a very important consideration to them in

proposals to reduce the effects of climate change, and 61% say the same about keeping consumer costs low” (Tyson, 2021). Furthermore, although some Republicans are open to some forms of climate policy, when it comes to restrictions on power plant emissions, taxes on corporations, and fuel efficiency standards, the support declines (Tyson, 2021). The economy has been reliant on coal and fossil fuels for so long it has become associated with economic growth. Additionally, lobbyists play a big role in influencing politicians. The major oil companies in the United States, Exxon Mobil, Chevron, Shell, and BP, for instance, employed an average of 40 lobbyists each year and spent a total of 374.7 million on federal lobbying since 2011 (House Committee on Oversight and Reform, 2021). This vast power and money has influenced many Republicans to vote for and create legislation that favor the business of the fossil fuel companies.

The divide among political parties is difficult when lasting and impactful legislation is an integral part of making progress for the environment. This barrier is another reason why studying college students will be meaningful as they will be the populations that will replace these seats in the future. Studying trends among this population will be important for the future of our country.

Public Opinion

However, the issues of climate change are not only caused by governmental decisions. American opinions, lifestyles, and resistance in advancing sustainability contribute greatly to the problem. Climate change is well known among the public. The Yale Climate Change Opinion Study reported in 2020 that 63 percent of Americans were worried about climate change and 72 percent believed it was happening (Howe et al., 2021). Yet, among the same study, 60 percent of adults believed President Trump should

do more about it. This survey was taken during Trump's presidency when the administration had significantly retracted environmental measures. Polarization is evident in the public population as well. In the 2020 presidential election, only 11 percent of those who supported Donald Trump said climate change was important to their vote. In contrast, 68 percent of Joe Biden supporters said climate change was a very important issue (Tyson, 2021).

The Yale Program on Climate Change Communication publishes annual national survey data on opinions on climate change, climate policy, and risk perceptions surrounding climate change. They ask a range of questions, from whether or not climate change is happening to whether or not schools should teach about global warming. They collect data nationally through survey distribution which they have been collecting since 2014. The data comes from a large national dataset with over 25,000 respondents (Howe et al., 2021). Their data from the most recent survey in 2020 found that 57% believe global warming is caused mostly by human activities; 63% are worried about global warming; and 52% believe global warming should be a high priority for the President and Congress.

Researchers have found that lack of worry about climate change is not attributed to lack of knowledge or understanding on the issue. Rather, opinions on climate change as an issue are primarily formed based on one's own experiences and values consistent with groups they are part of (Kahan et al., 2012). For instance, the location someone lives has been shown to be an indicator of their views on climate change. Areas along the coast have higher concentrations of people who believe in climate change as compared to regions in the south, for example (Howe et al., 2021). Additionally, gender is an

indicator. Women in general have been found to have higher risk perceptions of climate change and are more likely to be worried about the harm it will cause to themselves, the country, the environment, and future generations (Ballew et al., 2018). Racial minorities have been found to be more concerned about climate change than whites.

Hispanics/Latinx were the racial group found to be the most alarmed with global warming, then African Americans, followed by whites (Ballew et al., 2019) This evidence shows how different factors and characteristics of a person influence their views.

Survey data also consistently shows there are significant contrasts between different political identification when it comes to climate change. The Yale Program on Climate Communication found that while 91 percent of registered Democrats believe global warming is happening, only 52 percent of registered Republicans do (Mildenberger et al., 2020). And while 85 percent of Democrats agree that environmental protection is more important than economic growth, 52 percent of Republicans agree (Mildenberger et al., 2020). There are some questions in the survey where the percentages between responses are closer, but never less than 10 percentage points and most are over 20 percentage points. This shows the extent to which climate change is a partisan issue, not just among politicians, but among the American public as well.

Age is another important indicator of climate opinion, although data on the views of young people are fairly limited. The United States Conference of Mayors National Youth Poll of 2020 revealed climate change to be one of two defining issues for the Millennial and Gen Z generation (the other being gun violence). The survey revealed that 80 percent of youth believe climate change is a major threat to human life (U.S.

Conference of Mayors, p. 5). Three out of five try to reduce their carbon footprint every day or think about it in big decisions (U.S. Conference of Mayors, p. 5). And 58 percent agree that climate change warrants bold measures as opposed to inaction (U.S. Conference of Mayors, p. 9). However, other surveys reveal youth voters are still divided on climate change politically. Data from the 2021 Harvard Youth Poll found that 60 percent of youth Democrats say climate change has already impacted their local community while just 23 percent of Republicans agree. When controlling for geographic location, the gaps between political identification persist. However, across the board, a majority of youth (55 percent) believe that the U.S. government is not doing enough to address climate change (Harvard Kennedy School, 2021). But the differences based on political party remain; 71 percent of Democrats do not believe the government is enough while just 27 percent of Republicans do not think the government is doing enough (Harvard Kennedy School, 2021). These discrepancies point to the fact that there is a lack of knowledge and need for further research, especially among conservative youth, to gain a more comprehensive understanding of where youth stand.

Ongoing research on public opinion of climate change in the United States is important to understand exactly *what* makes people concerned about climate change. Social science research has explained much of how people think about and vote on climate change. However, researchers are still grappling with what in people's experiences, education, and formed beliefs make them more inclined to care about the environment. The current data is unable to answer if some people (such as the younger generations) have a different experience with climate change than others. The Yale Program on Climate Change Communication surveys all adults over the age of 18 and the

data presented in their climate opinion maps is not divided across age groups.

Researchers have yet to analyze the responses of 18-23 year-olds compared to older groups. This study pinpoints young adults to explore their climate views and provide a sample to compare to national survey data.

The Importance of Youth

There are several reasons why studying young people and their views about climate change is especially important. First, there has been much evidence of an increase in youth movements related to climate change in recent years. Around 4 million people took part in the Fall 2019 global climate strike worldwide, which was largely organized by youth (Hauck, 2019). Strikes occurred in cities across the United States, particularly at schools and on college campuses. The entire New York City school district excused their students from class so they could participate (Hauck, 2019). This evidence suggests that younger generations are concerned about climate change. Studies have backed this assumption. A 2018 poll by Gallup found that 70% of young adults (ages 18 to 34) say they worry about global warming compared to 56% of adults 55 or older (Reinhart, 2021). Another study found that young Americans may be more inclined to make climate issues a voting priority (Ballew et al., 2019).

Second, climate change disproportionately impacts the young. The last decades have been warmer than the 20th century average (Borenstein, 2018). People under 25 do not know the world before these major climate changes. They have been growing up having only ever experienced inconsistent climate conditions and they have been disproportionately exposed to climate disasters. They have also grown up witnessing the increase in disasters, extreme weather, rising sea levels, disease, and extinctions. A

survey across 10 countries including the United States found that almost 60 percent of young people felt worried or extremely worried about climate change and two-thirds felt sad, afraid, and anxious (Harrabin, 2021). This study shows the extreme eco-anxiety (defined by the American Psychological Association as “a chronic fear of environmental doom”) felt by young people (Schreiber, 2021). There may be several reasons for this. Perhaps younger people are more inclined to see how this issue will directly impact their futures than others. While the lives of middle aged and older adults may not necessarily be impacted as drastically, the young must think about how they will deal with a changing climate. Another added pressure is the idea that climate change will be *their* problem to solve. Youth report feeling “confused,” “abandoned, and betrayed” by governments’ failure to act (Harrabin, 2021). This anxiety can have a deep impact on physical and mental health. As the climate crisis grows worse, these problems will only increase. The heavy anxiety and worry young people feel today is perhaps more than previous generations had to deal with. This is another reason why youth need to be researched on this topic, to see how they are contemplating these changes.

Third, climate change is a more pressing issue for youth so much so that they are taking action against it. This is another important reason to study youth trends. One study found that 45% of undergraduate students in the United States viewed climate change as a morally pressing issue (Markowitz, 2012). Youth have had major presences at environmental protests everywhere. Greta Thunberg is a Swedish teen who has become the figure of the youth climate change movement. Thunberg started skipping school to protest at the Swedish parliament building, pressuring them to meet carbon emissions targets. Since then, she has inspired massive youth protests globally and started the

Fridays for Our Future Movement (Kraemer, 2021). Furthermore, college campuses have been the sight of many climate strikes and movements to pressure administrations to take more serious sustainability measures. In general, studies and evidence shows that youth think about climate change as an important issue, one big enough that many even feel the urge to take personal action.

And finally, the heightened concern among youth could imply an incoming shift in voting trends in the near future. In response to the 2020 election, Director of the Harvard Institute of Politics Mark Gearan stressed the impact of youth in future elections: he stated that “young Americans proved with their record-shattering turnout that they are a formidable voting bloc and eager to make their voices heard. Our political leaders on both sides of the aisle would benefit tremendously from listening to the concerns that our students and young voters have raised about the challenges facing our democracy and their genuine desire for our parties to find common ground on solutions.” (Harvard Kennedy School, 2021). This push from youth could create the necessary bipartisan support to get effective environmental policies passed. Also, the new generations entering the workforce are more likely to hold concern for climate change. These studies contribute to the research question’s legitimacy in asking about a trend shift caused by this population. It also points toward the necessity to conduct this project because there is a lack of research on connection to political opinion and comparison to the majority opinion, or older generations.

Methodology

What are college aged adults' opinions on climate change and how do their political views fit in? The purpose of this study is to measure these specific views among

young adults and to identify how or if their political identification plays a role. The aim was to survey a target population of young adults around the ages of 18-25. The population this study used were undergraduate students at the University of Dayton (UD). UD is a mid-sized private Catholic university in southwest Ohio, with a total of 8,285 undergraduates (as of the Fall 2021 semester). The vast majority of students are white, making up 79% of total enrolled (both undergraduate and graduate students) (UD, 2021). The vast majority of students come from Ohio or neighboring Midwestern states, including Illinois, Pennsylvania, Michigan, and Indiana. Because a major portion of UD (51 percent, according to UD's Office of Budget and Planning) students are from Ohio, it is important to note Ohio is a swing state. In the 2020 and 2016 presidential elections, the state voted Republican in electoral votes, but in the 2012 and 2008 presidential elections, they voted Democrat (270towin.com, 2020). And additionally, the city of Dayton is in a swing county. It voted Democrat in 2020, but Republican in 2016 (Hulsey, 2020).

The university has made numerous commitments to sustainability. They established the Hanley Sustainability Institute in 2014 which develops innovative and transdisciplinary sustainability projects for the campus as well as the city. They have a campus wide composting program, are a certified Fairtrade university, and have recently developed an academic major for sustainability. UD also published a plan to become completely carbon neutral by the year 2025 which includes switching to fully renewable energy sources (Gokavi, 2020). In addition, the university maintains its identity as a Catholic Marianist university through commitments to the common good and social justice. This makes this particular university interesting to study because its sustainability policies are more progressive than many other peer institutions in the Midwest.

The research is conducted through a mainly quantitative survey, with questions modeled off the Yale Program on Climate Change Communication survey of Climate Change in the American Mind. This survey asks specific questions about views, voting patterns, and opinions regarding climate change. Questions about political affiliation and parents' political affiliations were added in. The respondents were also asked to identify their age, race, and gender. With this data, connections between opinions on climate change and age, as well as political stances can be drawn.

A survey is the best option for this particular study because it can be sent to a large number of people and collect data efficiently. It is also fitting because the dimensions of the study can be developed into straightforward questions that require little to no explanations. The measurement of data will occur through mainly close-ended questions. The close-ended questions collect straight-forward data, such as asking "yes or no" questions. Questions also ask respondents to indicate the level to which they agree with statements using a Likert scale. The questions are exhaustive and mutually exclusive in order to produce accurate data. Because close-ended questions are quantitative, they will be easiest to analyze. Only one open-ended question is included in the survey. This question is coded quantitatively based on common themes.

The survey was sent to 27 CMM 100 (Introduction to Communications), SSC 200 (Social Science Integrated), and senior capstone classes at the UD in the Fall of 2021. I chose to survey students in CMM 100 and SSC 200 because they are requirements for every UD student, regardless of major. Thus, the groups of students are less likely to be biased one way. There are a variety of majors and experiences in each class. This strategy collects a strong sampling group that is somewhat representative. I emailed every

professor of each section of CMM 100 in Fall 2021 and received 11 responses (out of 55 total). Similarly, for SSC 200, out of 33 sections, I received nine responses. I went to as many classes as I could to introduce the survey. This increased the response rate of the classes.

The drawback of these courses is that they are majority first and second year students. After I had surveyed these classes, the majority of respondents were under the age of 21. In order to even out the age distribution, I reached out to senior capstone classes of a variety of different majors. The capstone classes I surveyed were English, Engineering school, Human Rights Studies, Communications, and Business school. These specific classes were surveyed in an attempt to maintain representation across majors, but also because I had connections to teachers in these departments and knew I could get responses. The total number of classes surveyed were 27 (and a total of 846 students were given the option to take the survey). 385 responses were collected in total; the response rate was 45.74%. The survey is designed to protect respondents. The survey does not collect any identifiable information. Additionally, there are no questions that could harm the participants. Consistent with ethical considerations, the participants could stop taking the survey at any time if they choose. This way, if they feel in any way uncomfortable, they can stop. This survey investment and procedures were approved by the IRB. I collected data through Qualtrics and compiled my data into SPSS. I ran basic descriptives on several survey questions. I then used one sample T Tests to compare the answers from the UD data set to the national averages from the Yale data. And finally, I conducted crosstabs and chi squares, comparing the answers of liberals, conservatives, and moderates.

Results

Descriptive statistics

The results in this section describe the overall distribution of respondents' answers to the survey questions.

Table 1
Demographics

Variable	Frequency	Percent
Respondent Age		
17	1	0.3
18	60	15.8
19	175	46.2
20	72	19.0
21	37	9.8
22	20	5.3
23	14	3.7
Respondent Gender		
Male	196	50.9
Female	184	47.8
Non-binary	5	1.3
<i>Total</i>	385	100.0
Respondent Racial Identity		
Asian	5	1.3
Black or African American	18	4.7
White	343	89.1
Other	16	4.2
Prefer not to say	2	0.5
<i>Total</i>	384	100.0

N=385

Table 1 shows the demographics of the respondent population. Overall, 46.2% of respondents were nineteen years old. 50.9% were males and 47.8% were females. Most respondents identified as white (89.1%).

Table 2*Political ID/Views*

Variable	Frequency	Percent
Political Identification		
Liberal	147	38.6
Moderate	86	22.6
Conservative	148	38.6
<i>Total</i>	<i>381</i>	<i>100.0</i>
Political party		
Republican	120	31.3
Democrat	101	26.4
Independent	44	11.5
Other party	8	2.1
I do not identify with a political party	95	24.8
Not applicable/don't know	15	3.9
<i>Total</i>	<i>383</i>	<i>100.0</i>

N=385

Table 2 displays the frequencies for respondents' political identification and political party. Overall, the same number of students (38.6%) identified as liberal as they did conservative. However, when asked to identify their political party, a slightly higher number of respondents reported being Republicans (31.3%) compared to Democrats (26.4%). Another significant number was the percentage of students who chose not to identify with a political party (24.8%).

Table 3 combines all survey questions related to voting. This table includes how many respondents are registered to vote, how many voted in the 2020 presidential election, how many plan to vote in upcoming elections, and how important the issue of climate change is in determining who they vote for. The majority of respondents were registered to vote, 86%, while 69.9% voted in the 2020 election. In terms of future voting behavior, 68.5% said they are either very likely or likely to vote in upcoming elections. A

majority of respondents (73.7%) said climate change was either the single most important or one of several important issues in determining who they will vote for.

Table 3

Voting

Variable	Frequency	Percent
Registered to Vote in the U.S.		
Yes	331	86.0
No	49	12.7
Not eligible	4	1.0
Other	1	0.3
<i>Total</i>	385	100.0
Voted in Presidential Election		
Yes	269	69.9
No	87	22.6
Not eligible	29	7.5
<i>Total</i>	385	100.0
How likely are you to vote in upcoming state and federal elections?		
Very likely	145	37.7
Likely	118	30.6
Unsure—don't know	88	22.9
Unlikely	24	6.2
Very unlikely	8	2.1
Not applicable/not eligible to vote	2	0.5
<i>Total</i>	385	100
How important will a candidate's views on global warming be in determining your vote in future state and federal elections?		
The single most important issue	5	1.4
One of the several important issues	241	65.7
Not an important issue	88	24.0
Not applicable/don't know	33	9.0
<i>Total</i>	367	100.0

N=385

Table 4
Thoughts on Global Warming

Variable	Frequency	Percent
Global warming is happening		
Yes	345	93.5
No	8	2.2
Don't know	16	4.3
<i>Total</i>	369	100.0
Assuming global warming is happening, do you think it is caused by...?		
Human activities	281	75.9
Natural changes in the environment	48	13.0
It is not happening	2	0.5
Other	20	5.4
Don't know	19	5.1
<i>Total</i>	370	100.0
How worried are you about global warming?		
Very worried	109	29.5
Somewhat worried	165	44.6
Not very worried	43	11.6
Not at all worried	15	4.1
Unsure	38	10.3
<i>Total</i>	370	100.0

N=385

Table 4 shows the distribution of answers to survey questions concerning respondents' thoughts and beliefs on global warming. The vast majority, 93.5%, responded they believe global warming is happening. The majority, 75.9%, also responded they believe human activities are the main cause of global warming. And 74.1% said they are either very or somewhat worried about climate change.

Table 5 compares respondents' personal beliefs on climate change to their perception of how they believe others around them think on the issue. A majority responded that their beliefs are similar to each group of people. 59.7% said their beliefs were either very similar or somewhat similar to their parents and close family members.

74.4% said their beliefs were very or somewhat similar to other students at the University of Dayton. And 90% said their views were very or somewhat similar to their close friends.

Table 5

Social Differences in Environmental Views

Variable	Frequency	Percent
How closely do your views on environmental issues/climate change align or differ from:		
...your parent(s) or close family members?		
Very similar	56	15.6
Somewhat similar	158	44.1
Somewhat different	45	12.6
Very different	23	6.4
Unsure—don't know	76	21.2
<i>Total</i>	<i>358</i>	<i>100.0</i>
...most other students at UD?		
Very similar	22	6.1
Somewhat similar	123	34.4
Somewhat different	45	12.6
Very different	5	1.4
Unsure—don't know	163	45.5
<i>Total</i>	<i>358</i>	<i>100.0</i>
...your close friends?		
Very similar	116	32.4
Somewhat similar	138	38.5
Somewhat different	24	6.7
Very different	4	1.1
Unsure—don't know	76	21.2
<i>Total</i>	<i>358</i>	<i>100.0</i>

N=385

Table 6 compiles all the questions relating to friends and family. Overall 59.7% said their political views are similar to their parents and close family members. 34.4% said they discuss global warming at least occasionally with friends and family, while the largest amount, 45.5%, said they were unsure.

Table 6*Friends and Family*

Variable	Frequency	Percent
How closely would you say your political views align or differ from your parent(s) or close family members?		
Very similar	78	20.4
Somewhat similar	189	49.5
Somewhat different	67	17.5
Very different	27	7.1
Unsure—don't know	21	5.5
<i>Total</i>	352	100.0
How often do you discuss global warming with your friends and family?		
Often	25	6.8
Occasionally	133	36.2
Rarely	138	37.6
Never	66	18.0
Unsure—don't know	5	1.4
<i>Total</i>	385	100.0

N=385

Table 7 combines questions relating to education and climate change. The largest group, 62.6%, said they had learned about climate change in junior high and/or high school. And the vast majority (92.6%) responded they agree global warming should be taught in schools.

Table 7*Education*

Variable	Frequency	Percent
Has climate change been covered in your education?		
Elementary school		
Yes	65	16.9
No	320	83.1
<i>Total</i>	385	100.0
Junior high/high school		
Yes	241	62.6
No	144	37.4
<i>Total</i>	385	100.0
College		
Yes	161	41.8
No	224	58.2
<i>Total</i>	385	100.0
None of the above/don't know		
Yes	74	19.2
No	311	80.8
<i>Total</i>	385	100.0
School should teach global warming?		
Strongly agree	220	59.9
Somewhat agree	108	29.4
Somewhat disagree	26	7.1
Unsure—don't know	13	3.5
<i>Total</i>	385	100.0

N=385

Table 8*Do you think the following should be doing more or less to address global warming?*

Variable	Frequency	Percent
Corporations and Industry		
More	323	88.5
Less	6	1.6
Doing enough	26	7.1
Don't know	10	2.7
<i>Total</i>	<i>365</i>	<i>100.0</i>
The President		
More	272	76.4
Less	14	3.9
Doing enough	50	14.0
Don't know	20	5.6
<i>Total</i>	<i>356</i>	<i>100.0</i>
Congress		
More	280	78.2
Less	13	3.6
Doing enough	41	11.5
Don't know	24	6.7
<i>Total</i>	<i>358</i>	<i>100.0</i>
Your governor		
More	247	68.8
Less	9	2.5
Doing enough	68	18.9
Don't know	35	9.7
<i>Total</i>	<i>359</i>	<i>100.0</i>
Local officials		
More	234	64.8
Less	8	2.2
Doing enough	79	21.9
Don't know	40	11.1
<i>Total</i>	<i>361</i>	<i>100.0</i>
Citizens		
More	280	77.8
Less	2	0.6
Doing enough	64	17.8
Don't know	14	3.9
<i>Total</i>	<i>360</i>	<i>100.0</i>

N=385

Table 8 table combines the responses to questions about who should be doing more or less to address global warming. For these questions, I collapsed response categories into single variables. The responses “much more” and “more” were combined into a single measure of “more.” In the same way, “much less” and “less” were combined into a single measure of “less.” The responses “doing enough” and “don’t know” were kept in their same categories. 88.3% said they think corporations and industry should be doing more to address global warming. 74.3% said the President should do more. 76.5% said Congress should do more. 67.5% said their governor should do more. 64.1% think their local officials should do more. And 76.5% said citizens should do more to address global warming. For each of these questions, it is important to note that the respondents who answered “don’t know” or “doing enough” reached as high as 30.9%.

Table 8 compiles responses on questions regarding to support of different climate policies. For these questions, I also collapsed several response categories into single variables. The responses “fully support” and “somewhat support” were combined into a single measure of “support.” In the same way, “somewhat oppose” and “fully oppose” were combined into a single measure of “oppose.” The responses “indifferent” and “unsure” were also collapsed into a single variable “indifferent/unsure.”

Table 9*Policy Support*

Variable	Frequency	Percent
Funding of renewable energy		
Support	334	91.0
Oppose	12	3.3
Indifferent/unsure	21	5.5
<i>Total</i>	<i>367</i>	<i>100.0</i>
CO2 regulations		
Support	296	80.9
Oppose	17	4.6
Indifferent/unsure	53	14.5
<i>Total</i>	<i>366</i>	<i>100.0</i>
Setting strict CO2 limits on coal fired power plants		
Support	276	75.4
Oppose	24	6.6
Indifferent/unsure	66	18.0
<i>Total</i>	<i>366</i>	<i>100.0</i>
Requirement for fossil fuel companies to produce at least 20% of their electricity from renewables		
Support	238	64.9
Oppose	60	16.3
Indifferent/unsure	69	18.8
<i>Total</i>	<i>367</i>	<i>100.0</i>
Tax rebates for energy-efficient vehicles or solar panels		
Support	260	71.0
Oppose	40	10.9
Indifferent/unsure	66	18.0
<i>Total</i>	<i>366</i>	<i>100.0</i>
Expansion of offshore drilling for oil and natural gas off US coast		
Support	76	20.7
Oppose	148	40.3
Indifferent/unsure	143	39.0
<i>Total</i>	<i>367</i>	<i>100.0</i>

N=385

Table 9 shows that the majority of respondents answered yes to these policy questions. 91% said they support the funding of renewable energy. 80.9% said they are in favor of carbon dioxide regulations. 75.4% are in favor of setting strict carbon dioxide limits on coal fired power plants. 64.9% are in favor of requiring fossil fuel companies to produce at least 20% of their electricity from renewables. 71% are in favor of tax rebates for energy efficient vehicles and solar panels. And in regards to drilling in the Arctic National Wildlife Refuge, 56.4% said they oppose more drilling. And 40.3% said they were either somewhat or fully opposed to the expansion of offshore drilling for oil and natural gas. A large amount, 28.9%, said they were indifferent.

Comparisons with national survey data

I compared the UD survey data to the Yale program on Climate Change Communication 2021 survey dataset through one sample T tests. This test compares the means of the answers from the two datasets. I first recoded the answers in the UD data to only look at those who responded “yes” or were in favor of climate policies, etc. This is because the means from Yale that I would be comparing the UD data to were only the percentages of people who responded yes or in favor.

Table 10 compares the means of a group of four key survey questions. All of these relationships measured highly statistically significant, meaning there are significant differences between this data and the Yale data. The biggest difference in this table was between the amount who said they are worried about climate change. 40.4% more respondents in this dataset said they are worried about climate change compared to the national data from Yale. The other questions also showed significant differences. 30.2% more people in the UD dataset said they think global warming should be a high priority

for the next President and Congress. 21.4% more said they believe global warming is happening. And 18.9% more said they believe global warming is caused by human activities. All of these relationships are highly statistically significant, meaning there are significant differences between the means of the two datasets.

Table 10

Comparisons to Yale's National Survey Data: Beliefs, Risk Perceptions, and Policy

Support

	Difference in Means	t	df	Sig (2-tailed)
Global warming is happening	.21496	16.722	368	<.001***
Global warming is caused mostly by human activities	.18946	8.515	369	<.001***
Worried about global warming	.40405	15.324	369	<.001***
Global warming should be a high priority for the next President and Congress	.30286	10.486	366	<.001***

Table 11 compares the survey questions regarding who is most responsible for addressing climate change. The biggest differences here concern the President and corporations. 22.3% more people from the UD dataset said the President should do more compared to the Yale data. And 18% more think corporations and industry should do more. All except one are highly statistically significant in this table. The only question that does *not* differ significantly from the Yale dataset are about local officials doing more. This means about the same percentage of respondents from the UD dataset and the Yale dataset believe local officials should do more.

Table 11*Comparisons to Yale's National Survey Data: Responsibility for Climate Action*

	Difference in Means	t	df	Sig (2-tailed)
Corporations and industry should do more	.18251	10.829	365	<.001***
President should do more	.22317	9.759	365	<.001***
Congress should do more	.15503	6.986	365	<.001***
Your governor should do more	.10486	4.277	365	<.001***
Local officials should do more	.05110	2.032	364	.043
Citizens should do more	.11503	5.183	365	<.001***

Table 12 combines the survey questions regarding policy. The biggest differences here are support for renewable energy funding and carbon dioxide regulations. 14% more from the UD dataset support funding of renewable energy than the Yale dataset. And 18.1% more support carbon dioxide regulations. 9.4% more also supported creating carbon dioxide regulations on coal fired power. These three questions measured highly statistically significant differences. The bottom four questions in this table show levels that are about even with the Yale data, with support for renewable energy goals for fossil fuel companies and energy efficiency tax rebates having no meaningful differences between the datasets.

Table 12*Comparisons to Yale's National Survey Data: Policy Support*

	Difference in Means	t	df	Sig (2-tailed)
Support funding for renewable energy	.14008	9.368	366	<.001***
Support CO2 regulations	.18164	4.311	365	<.001***
Support CO2 limits on coal fired power	.09410	4.175	365	<.001***
Support renewable goals for fossil fuel companies	-.01150	-.461	366	.645
Support energy efficiency tax rebates	-.05962	-2.511	365	.012
Support drilling for oil in the Arctic	-0.15286	-8.255	366	<.001***
Support expanding offshore drilling	-0.28292	-13.357	366	<.001***

Comparing climate concern across political identification

The next set of tests are crosstabulations and chi squares. Tables 13 through 19 show how different groups of political identification (conservative, moderate, and liberal) answered survey questions. Then, the chi square test measures how strong the relationship between the political categories and the answers are.

Table 13*Crosstabs of "Global Warming is Happening" and Political Views*

Global warming is happening		Political Views		
		Liberal	Conservative	Moderate
Yes	Count	143	123	76
	% within political views	99.3%	87.9%	92.7%
No	Count	1	17	6
	% within political views	0.7%	12.1%	7.3%

Chi-Square=15.284 (p=<.001), df=2, N=366

Table 13 combines the political identification with belief of whether global warming is happening. 99.3% of those who identified as liberals said global warming is happening,

compared to 87.9% of conservatives and 92.7% of moderates. The chi square is highly statistically significant with a value of 15.284. This shows there is a strong relationship between political views and belief about global warming.

Table 14

Crosstabs of "Cause of global warming" and Political Views

Cause of global warming		Political Views		
		Liberal	Conservative	Moderate
Human activities	Count	135	75	69
	% within political views	93.8%	53.6%	83.1%
Natural changes	Count	3	36	8
	% within political views	2.1%	25.7%	9.6%
Global warming is not happening/other/don't know	Count	6	29	6
	% within political views	4.2%	20.7%	7.2%

Chi-Square=66.472 (p=<.001), df=4, N=367

Table 14 shows 93.8% of liberals and 83.1% of moderates said global warming is caused by human activities, compared to 53.6% of conservatives. The chi square test shows this is highly statistically significant with a value of 65.840.

Table 15 shows that 93.1% of liberals and 75.9% of moderates are worried about climate change, compared to 53.6% of conservatives. The chi square shows there is a strong relationship between political views and worry about global warming, with a value of 61.481 and a highly statistically significant p value.

Table 15*Crosstabs of “Worry About Global Warming” and Political Views*

Worry about global warming		Political Views		
		Liberal	Conservative	Moderate
Worried	Count	134	75	63
	% within political views	93.1%	53.6%	75.9%
Not Worried	Count	4	44	10
	% within political views	2.8%	31.4%	12.0%
Unsure	Count	6	21	10
	% within political views	4.2%	15.0%	12.0%

Chi-Square=61.481 (p=<.001), df=4, N=367

Table 16 shows that 94.5% of liberals said global warming should be a very high or high priority for Congress and the President. None said they were unsure. Just 36% of conservatives said it should be a very high or high priority. The chi square test said this relationship was highly statistically significant with a value of 155.505.

Table 17 shows that 68% of liberals said they discuss global warming either often or occasionally with family and friends, while 32.5% of moderates and 23.9% of conservatives said they discussed global warming either often or occasionally. The chi square is highly statistically significant with a value of 68.693.

Table 18 shows only 5% of respondents consider a candidate’s views on global warming to be the *single* most important issue in determining who they vote for in future elections. Moderates had the biggest amount in this category, with 3.6%. 92.4% of liberals said global warming was *one* of several important issue in determining their vote. 57.8% of moderates and 42.8% of conservatives said it is one of several important

issues, while 49.3% of conservatives said it was not an important issue at all. The chi square test showed these relationships are highly statistically significant, with a value of 114.269.

Table 16

Political Views and Policy Priority Opinions

Global warning should be a _____ priority for the President and Congress		Political Views		
		Liberal	Conservative	Moderate
Very high	Count	92	11	20
	% within political views	63.9%	8.0%	24.1%
High	Count	44	39	39
	% within political views	30.6%	28.3%	47.0%
Medium	Count	7	58	22
	% within political views	4.9%	42.0%	26.5%
Low	Count	1	23	1
	% within political views	0.7%	16.7%	1.2%
Unsure—don't know	Count	0	7	1
	% within political views	0.0%	5.1%	1.2%

Chi-Square=155.505 (p=<.001), df=8, N=365

Table 17*Political Views and Frequency of Discussing Global Warming*

How often do you discuss global warming with your friends and family?		Political Views		
		Liberal	Conservative	Moderate
Often	Count	16	3	6
	% within political views	11.1%	2.2%	7.2%
Occasionally	Count	82	30	21
	% within political views	56.9%	21.7%	25.3%
Rarely	Count	37	68	31
	% within political view	25.7%	49.3%	37.3%
Never	Count	8	34	24
	% within political views	5.6%	24.6%	28.9%
Unsure—don't know	Count	1	3	1
	% within political views	0.7%	2.2%	1.2%

Chi-Square=68.693 (p=<.001), df=8, N=365

Table 18

Crosstabs of “Voting Based on Candidates’ Views on Global Warming” and Political Views

How important will a candidate’s views on global warming be in determining your vote in future elections?		Political Views		
		Liberal	Conservative	Moderate
The single most important issue	Count % within political views	2 1.4%	0 0.0%	3 3.6%
One of the several important issues	Count % within political views	133 92.4%	59 42.8%	48 57.8%
Not an important issue	Count % within political views	5 3.5%	68 49.3%	15 18.1%
Not applicable/don’t know	Count % within political views	4 2.8%	11 8.0%	17 20.5%

Chi-Square=114.269 (p=<.001), df=6, N=365

Table 19 shows that 93% of liberals said they have at least some knowledge about environmental issues and climate change. None said they had no knowledge. 73.2% of moderates and 79.4% of conservatives said they have at least some knowledge. The biggest group who said they were not knowledgeable were moderates, with 25.6%. The chi square test is significant at the .009 level and the value is 23.631, showing there is a strong relationship between political ideology and knowledge on climate change.

Table 19 shows that 94.4% of liberals, 79.5% of moderates, and 67.4% of conservatives are in support of carbon dioxide regulations. The biggest group other than support is the 22.5% of conservatives who responded they are unsure or indifferent about this policy.

Table 19

Crosstabs of “Knowledge levels on environmental issues and climate change” and Political Views

What would you say is your level of knowledge of environmental issues and climate change?		Political Views		
		Liberal	Conservative	Moderate
Knowledgeable	Count	133	108	60
	% within political views	93.0%	79.4%	73.2%
Not knowledgeable	Count	10	27	21
	% within political views	7.0%	19.9%	25.6%
Unsure—don’t know	Count	0	1	1
	% within political view	0.0%	0.7%	1.2%

Chi-Square=17.589 (p=.001), df=4, N=361

Comparing policy views across political identification

Table 20

Crosstabs of Policy: Regulate carbon dioxide

How much do you support or oppose regulations on carbon dioxide as a pollutant?		Political Views		
		Liberal	Conservative	Moderate
Support	Count	135	93	66
	% within political views	94.4%	67.4%	79.5%
Oppose	Count	1	14	2
	% within political views	0.7%	10.1%	2.4%
Unsure/indifferent	Count	7	31	15
	% within political views	4.9%	22.5%	18.1%

Chi-Square=36.756 (p=<.001), df=4, N=364

Tables 20-22 show the crosstabs and chi squares of how each political group feels about different types of environmental policy.

Table 21.

Crosstabs of Policy: CO2 limits on coal fired power plants

How much do you support or oppose CO2 limits on coal fired power plants?		Political Views		
		Liberal	Conservative	Moderate
Support	Count	131	82	61
	% within political views	91.0%	59.9%	73.5%
Oppose	Count	1	20	3
	% within political views	0.7%	14.6%	3.6%
Unsure/indifferent	Count	12	35	19
	% within political views	8.3%	25.5%	22.9%

Chi-Square=43.926 (p=<.001), df=4, N=364

Table 21 shows that 91% of liberals are in favor of carbon dioxide regulations for coal powered power plants. 73.5% of moderates and 59.9% of Republicans are also in favor. A large number of conservatives, 25.5%, and moderates, 22.9%, said they were unsure or indifferent about this policy.

Table 22*Crosstabs of Policy: Energy-efficient tax rebates*

		Political Views		
		Liberal	Conservative	Moderate
How much do you support or oppose energy tax rebates for purchases of energy-efficient vehicles or solar panels?				
Support	Count	123	77	58
	% within political views	85.4%	56.2%	69.9%
Oppose	Count	4	29	7
	% within political views	2.8%	21.2%	8.4%
Unsure/indifferent	Count	17	31	18
	% within political views	11.8%	22.6%	21.7%

Chi-Square=35.997, (p=<.001), df=4, N=364

Table 22 shows that 85.4% of liberals, 69.9% of moderates, and 22.6% of conservatives support energy efficiency tax rebates. 21.2% of conservatives oppose energy efficiency rebates. And 22.6% of conservatives and 21.7% of moderates said they were unsure or indifferent about this policy.

How climate change impacts the lives of respondents

Table 23

Major themes from responses to the question: “Do you think climate change impacts your personal life? In what ways?”

Code	Description	Frequency
1. <i>Future</i>	Not now, but will impact me in the future; will impact future generations; will impact me more in the future	60
2. <i>Weather Patterns</i>	Changes in weather, temperature, and season	55
3. <i>No</i>	Responses of either “no,” “not very much” or “not right now” or related	47
4. <i>Climate Disasters</i>	Increase in climate disasters, unusual events, or extreme changes; includes, but not limited to: flooding, sea levels rising, hurricanes, drought, fires, etc.	39
5. <i>Simple Yes</i>	Responded yes, but did not include much detail	30
6. <i>Anxiety/Worry</i>	Anxiety and/or worry about climate change and/or the future	21
7. <i>Family & Future Family</i>	Concerns about how climate change is impacting their current family and/or how it will impact their future family, including future children (debates about whether or not to have kids)	19
8. <i>Environment</i>	Talk about the health or concern of the environment OR that climate change will impact/change the environment	16
9. <i>Not sure</i>	Responded “not sure,” “don’t know,” “maybe,” or related responses	14
10. <i>Uninhabitable Earth</i>	Climate change will impact/damage/ruin the beauty/health of the earth; planet will not be habitable soon; we won’t be able to live on this earth	13
11. <i>Health & Wellbeing</i>	All responses relating to how climate change will harm the health and wellbeing of individuals, including	12
12. <i>Resources</i>	Talk about the scarcity or availability of resources (in general or more specific, such as food)	12
13. <i>Economical Concerns</i>	Climate change will increase/impact the cost of food, gas, cost of living, etc.	12
14. <i>Air & Water Quality</i>	Climate change impacts the quality of air, water	12

There was only one open ended question included in the survey, “do you think climate change impacts your life? In what ways?” For this question, I read through all of the responses people and recorded the major reoccurring themes. I went back through a second time and tallied how many times the themes were mentioned. This table shows those themes in order of the most frequent. All of those included in the table had over ten repetitions. Some of the most notable categories are concern for the future, responses that climate change does *not* impact their personal life, weather changes, and increase in climate disasters.

Discussion

The analysis for this project begins with the political party and political identification data. This is key to the second step of the two-part analysis, which compares respondents’ political identification with their answers to survey questions. There was an even number of liberals and conservatives in the respondent pool and only slightly more who identified as Republicans than Democrats. An important number to address is the large number of respondents, just over 36% who identified as Independent or selected they do not to identify with a political party. This number is larger than both the group who identified as Democrats (26.4%) and Republicans (31.3%). This is consistent with the 2022 national data, where 28% of Americans identify as Republicans, 40% as Independent, and 30% as Democrats (Gallup, 2022). The similarity between the UD survey data and these representative surveys suggests a relatively proportional representation of youth in Ohio. The large number of independents could indicate some frustration or divergence with the current political parties or agendas, possibly a response to the exaggerated polarization. It shows this population of young voters could shift the

trends of the political parties in coming years, if a large group continues to remain party-less. However, despite this new trend, crosstabs and chi square tests show that there is still significant polarization between liberals and conservatives, which, in contrast, is consistent with the current trends in the country. Future research should analyze the differences among political parties, focusing in on the unique views of those who identify as Independent or those who do not identify with a political party.

A major part of this research is to find if young people truly are more civically active and whether the youngest voting block will impact elections. Based on survey data, 69.9% of respondents voted in the 2020 presidential election, which is slightly higher than the national percentage of all citizens who voted in 2020, 66.8% (US Census, 2020). Furthermore, 68.3% are either very likely or likely to vote in upcoming state and federal election. This suggests, from the small pool of respondents surveyed, that they are overall more civically active than the average US citizen. This is reflective of the overall more active voting that was seen in both the 2018 and 2020 elections among young voters. About 50% of voters under 30 voted in the 2020 election, which is 11% higher than the 2016 election and likely one of the highest rates among new voters in the US ever (Tufts, 2021). Also significant is despite that this increase in youth voting varied among states, no state saw a decline in youth voter participation (Tufts, 2021).

Overall, levels of concern were higher among survey respondents compared to the national Yale data: 40% more respondents said they are worried about climate change compared to the national average, and 30% more said global warming should be a top priority for the government. Across the board, respondents said everyone needs to be doing more to address global warming, including 22% more who said the President

should do more and 18% more who said corporations and industry should do more. These answers show the higher levels of prioritization and recognition that global warming is a current issue among young voters. Research has shown that voting habit is likely to persist throughout lifetime, meaning this large block of youth will likely continue to vote in the future and will thus have great potential to shift trends and impact election outcomes (Tufts, 2021).

Further, the results from youth opinions on climate policy show particularly interesting results. Respondents showed the highest levels of support for funding for renewable energy and carbon dioxide regulations, which are the hardest policies to get passed. They are also more impactful policies. Carbon dioxide emissions account for 80% of total U.S. generated greenhouse gases (EIA, 2021). And the majority of carbon emissions in the U.S. comes from transportation (36%) and industry (29%) sectors which would be directly targeted with these policies. Funding renewable energy would begin the transition away from fossil fuel energy. And carbon dioxide regulations target fossil fuel companies directly.

Conversely, respondents showed the same level of support as the national data for energy efficiency rebates and requirements for fossil fuel companies to generate 20% of their energy from renewables. Tax rebates are already in place in many states (Casey, 2015) and are also less impactful on the large scale. They impact mainly residential sources of greenhouse gases, which only accounts for 20% of carbon dioxide emissions (as compared to the 65% from transportation and industry) (EIA, 2021). Likewise, requirements on fossil fuel companies to produce 20% of their energy from renewables does not shut them down or transition away from them, but simply places an

inconvenience on them. This shows that these policies are either not well known among young people or that they know the more aggressive policies, such as direct regulations on carbon dioxide, would be more impactful. These answers are particularly important because overall these results show young voters favor stricter policy and policy is perhaps the most important part of climate change mitigation. Future research should include the option to write in explanation with these answers, so as to gain a better idea of the thought process and understanding of these individual policies.

The hypothesis of this study predicted less overall polarization on the issue of global warming. However, the cross tabs and chi square tests show this was not the case. The chi squares on every table were either highly significant or significant, showing there is a strong relationship between political affiliation and opinions on climate change. This means that global warming is indeed a divider between political groups, even among young voters. Conservatives were still the largest group to say global warming is not happening, were the least worried, the least likely to say it needs to be a high priority for the government, and least to say it is an important factor in determining who they vote for. The voting question in particular shows major differences. While 93.8% of liberals said it is the single most or one of several important issues in determining who they vote for, only 42% of conservatives said it was one of several important issues. None said it was the single most important issue. This is telling because voting is an action that has impact, whereas simple beliefs and opinions alone do not have major impact.

Another meaningful example from the data are the differences among liberals and conservatives in response to the cause of global warming. While only 2.1% of liberals said global warming is caused by natural changes, 25.7% of conservatives said it was

caused by natural changes. This is regardless of the well-publicized, overwhelming scientific research proving that human activities are the cause (IPCC et al., 2014). This is also striking when looking at the small number of moderates (9.6%) who said it is caused by natural changes. This shows a meaningful divide exists between opinions on global warming and political identifications.

Based on the literature, there is evidence that much of the political debate over climate change policy revolves around the economy. While 85% of liberal Democrats think clean energy policy will *positively* impact the economy and jobs, 71% of conservative Republicans think they will have a *negative* impact, a huge divide in opinion that seems nearly insurmountable to find middle ground (Leiserowitz et al., 2021). Conservatives are most concerned about economic impacts when it comes to environmental policy. One clear example of this is within support of different forms of policy. For example, conservatives are least likely to support restrictions on power plant emissions, taxes on corporations, and fuel efficiency standards (Tyson, 2021). Thus, it is important to look at how conservatives measured in this study and see if these trends are also true for the younger generation. And indeed, there were significant differences between political identifications and their support on these particular policies. While 94% of liberals favored regulations on carbon dioxide, a significantly smaller number of liberals, 67.4% agreed. Next, 91% of liberals favored carbon dioxide regulations for coal fired power plants, compared to the 59.9% of conservatives who agreed. And 85.4% of liberals supported energy efficient tax rebates, while just 22.6% of conservatives did. These results show that the large-scale polarity surrounding economic related climate policies exists among young voters as well. However, it is important to note the high

numbers of conservatives and moderates who responded “unsure/indifferent” to these policies (all over 20% for each policy). Choosing this answer could mean they simply do not understand what the policy does. This means there is a potential to sway these groups in either direction.

There are also interesting findings regarding respondents’ levels of knowledge of global warming and their frequency of discussion about the topic. Conservatives were also the largest group to say they do not discuss global warming frequently. And nearly 13% more conservatives than liberals said they have little knowledge about global warming. These findings show that at the same time that conservatives collectively showed lesser levels of care about global warming, they also simply know much less about it. This suggests a correlation between education on global warming and care about or prioritization of it. Learning comes from both education and conversation and they ranked low on both of those questions. Interestingly, more moderates than conservatives (25.6%) said they were not knowledgeable but about 10% more said they discuss it often or occasionally. This could suggest that conversing about the issue is more likely to make someone care as opposed to actually understanding the science of the issue. However, it is also important to note that the mean age of respondents was 19 years, meaning most are only in their first or second year of college. The data could look different if there were majority third- and fourth-year students or a more even spread of grade levels because there is a significant amount of learning and growth to be done in the latter half of college. However, in general, based on the current data, it is evident that the national trends of political polarization exist among the younger voter population and climate change is no exception. These findings run counter to the original hypothesis of this

study, that young adults are overall more concerned about climate change and that it is more of a bipartisan issue for this age group.

There were several limitations in this study. First, this is a small survey pool, with only 385 respondents. Second, most of the respondents were in their first or second year of college. The mean age was 19. This could be significant because the answers of juniors and seniors could potentially vary very differently. Thus, the data cannot be generalized for all students at UD. Furthermore, UD is a small Catholic, predominantly white university in the Midwest, which means the data cannot be representative of the country's demographics and thus cannot be generalized for all college students. Finally, the survey mainly consisted of only quantitative questions. This limits the depth of information, and in this case, the reasoning behind respondents' beliefs and opinions. However, overall these findings are still useful and the study could be more accurate if repeated on a larger scale, especially if it were to include a few different universities across different geographical areas in the U.S. This is important because climate opinions have been shown to vary greatly depending on the geographic location a person lives (Howe et al., 2021).

Conclusion

This study has practical implications because climate change is an ever more pressing issue and the United States as a country is one of the biggest contributors to global greenhouse gas emissions (the leading cause of climate change). It will be important to take action and continue to be cognizant of the issue in the next decades, which correlates with the younger population becoming leaders, entering the workforce, politics, and voting in upcoming elections. After analyzing the data, it is clear this surveyed

population of college students at the University of Dayton are active voters and hold overall greater concerns about global warming. If young voters across the country hold at all similar views, the population could have an impact on both the policies and actions the country takes on climate change as well as the political party trends in the United States in the near future.

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Appendix

Survey Questions

Page 1: Preliminary questions

1. What is your age in years?
 1. Write in
2. What is/are your major(s)?
 1. Write in
3. What, if any, is/are your major(s)?
 1. Write in
4. What, if any, is/are your minor(s)?
 1. Write in
5. What best describes your gender identity?
 1. Male
 2. Female
 3. Non-binary
 4. Prefer to self describe
 5. Write in
6. What best describes your racial identity?
 1. American Indian or Alaska Native
 2. Asian
 3. Black or African American
 4. Native Hawaiian or Pacific Islander
 5. White
 6. Other
 1. Write in
 7. Prefer not to say

Page 2: Voting/Political Views

7. Are you registered to vote in the United States?
 1. Yes
 2. No
 3. Not eligible to vote

4. Other
8. Did you vote in the 2020 presidential election?
 1. Yes
 2. No
 3. Not eligible to vote
 4. Other
 9. How likely are you to vote in upcoming state and federal elections?
 1. Very likely
 2. Likely
 3. Unsure—don't know
 4. Unlikely
 5. Very unlikely
 6. Not applicable
 10. Which aligns most closely to your political views?
 1. Very liberal
 2. Liberal
 3. Lean liberal
 4. Moderate
 5. Lean conservative
 6. Conservative
 7. Very conservative
 8. Prefer not to say / Don't know
 11. Which best describes your identification with a political party?
 1. Republican
 2. Democrat
 3. Independent
 4. Other party
 5. I do not identify with a political party
 6. Prefer not to answer / Don't know
 12. How closely would you say your political views align or differ from: your parent(s) or close family members?

1. Very similar
2. Somewhat similar
3. Unsure—don't know
4. Somewhat different
5. Very different
6. Prefer not to answer / Don't know

Page 3: Questions from the Yale Climate Change in the American Mind Survey (Belief, Risk Perceptions, and Policy Support)

13. Do you think global warming is happening?

1. Yes
2. No
3. Don't know

14. Assuming global warming is happening, do you think it is...?

1. Caused mostly by human activities
2. Caused mostly by natural changes in the environment
3. None of the above because global warming isn't happening
4. Other
5. Don't know

15. How worried are you about global warming

1. Very worried
2. Somewhat worried
3. Unsure—don't know
4. Not very worried
5. Not at all worried

16. [checkbox grid] Do you think the following should be doing more or less to address global warming? (Likert scale: much more / more / doing enough / less / much less / unsure)

1. Corporations and Industry
2. The President
3. Congress
4. The Government

5. Local Officials

6. Citizens

17. [checkbox grid] The United States government has taken several different approaches to counter the effects of climate change. The policy options listed below are some of the recent initiatives that have been included in laws, discussion, and debates surrounding government action to preserve the environment.

1. How much do you support or oppose the following policies? (Likert scale: fully support / somewhat support / indifferent / somewhat oppose / fully oppose / unsure)
 1. Fund research in renewable energy sources, such as solar and wind power
 2. Regulate carbon dioxide (the primary greenhouse gas) as a pollutant
 3. Set strict CO₂ limits on existing coal-fired power plants
 4. Require fossil fuel companies to produce at least 20% of their electricity from wind, solar, or other renewable energy sources, even if it costs the average household an extra \$100 a year
 5. Provide tax rebates for people who purchase energy-efficient vehicles or solar panels
 6. Drill for oil in the Arctic National Wildlife Refuge
 7. Expand offshore drilling for oil and natural gas off the U.S. coast

18. How much do you agree or disagree with the following statement...? Schools should teach our children about the causes, consequences, and potential solutions to global warming

1. Strongly agree
2. Somewhat agree
3. Somewhat disagree
4. Strongly disagree

5. Unsure—don't know
19. Global warming should be a _____ priority for the President and Congress.
1. Very high
 2. High
 3. Medium
 4. Low
 5. Unsure—don't know
20. How important will a candidate's views on global warming be in determining who you vote for in future state and federal elections?
1. The single most important issue
 2. One of several important issues
 3. Not an important issue
 4. Not applicable / Don't know
21. How often do you discuss global warming with your friends or family?
1. Often occasionally
 2. Rarely
 3. Never
 4. Unsure—don't know

Page 4: Personal Views and Lifestyle

22. [check grid] How closely would you say your views on environmental issues and climate change align or differ from: (Likert scale: very similar / somewhat similar / unsure-don't know / somewhat differ / very different)
1. Your parent(s) or close family members
 2. Most other students at UD
 3. Your close friends
23. What would you say is your level of knowledge on environmental issues and climate change?
1. Very knowledgeable
 2. Knowledgeable
 3. Some knowledge
 4. Not very knowledgeable

5. Not knowledgeable
6. Unsure—don't know

24. How much of your awareness of climate change impacts the choices you make on a daily basis?

1. Impacts most all my choices
2. Impacts many of my choices
3. Impacts some of my choices
4. Rarely impacts my choices
5. Does not impact my choices
6. Unsure—don't know

25. Has climate change been covered in your schooling education? Please check all that apply:

1. Elementary school
2. Junior high / high school
3. College
4. None of the above / Don't know

26. Do you think climate change impacts your life? In what ways?

1. Write in