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Navigating Car Attitudes: An Analysis of Transportation Habits, Environmental Views, and Demographics

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Abstract

Transportation plays a crucial part in the daily lives of people and society worldwide. Our study examined the transportation habits and environmental attitudes of both Gettysburg College students and individuals across the United States. We conducted a comparative analysis using a sample from students on campus and a national sample collected from the crowdsourcing platform, Amazon's Mechanical Turk. Additionally, we compared our findings with two similar studies completed by an Environmental Studies capstone nine years ago. We calculated each respondent's environmental score to gauge environmental attitudes, derived explicitly from their answers to five of the 24 survey questions. Next, we developed our research questions: How do transportation habits, demographics, and environmental attitudes compare to the data collected in 2014? How do the transportation habits, demographics, and environmental attitudes compare between Gettysburg College and the United States? To investigate this, we surveyed roughly 10% of the Gettysburg College student population, 236 students, and 188 individuals on Amazon's Mechanical Turk. Our findings reveal that Gettysburg College students exhibit lower environmental concerns than the national sample. Furthermore, our research indicates Mechanical Turk respondents with higher environmental scores are more inclined to consider purchasing an electric vehicle than those with lower scores. Regarding demographics in relation to residency, the Gettysburg College sample reveals a correlation between respondents who reside in a suburban area and a lack of public transportation use. The Mechanical Turk sample also demonstrates a correlation between residing in an urban area and an increased use of public transportation. Future studies should strive for a larger sample size with an equal gender distribution.

Keywords

college campus survey, transportation habits, campus diversity, low-carbon transportation

Disciplines

Environmental Public Health | Environmental Studies

Comments

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Navigating Car Attitudes: An Analysis of Transportation Habits, Environmental Views, and Demographics

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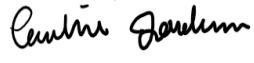
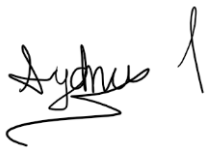
December 10th, 2023

Honor Code: *I affirm that I will uphold the highest principles of honesty and integrity in all my endeavors at Gettysburg College and foster an atmosphere of mutual respect within and beyond the classroom.*





Abstract

Transportation plays a crucial part in the daily lives of people and society worldwide. Our study examined the transportation habits and environmental attitudes of both Gettysburg College students and individuals across the United States. We conducted a comparative analysis using a sample from students on campus and a national sample collected from the crowdsourcing platform, Amazon's Mechanical Turk. Additionally, we compared our findings with two similar studies completed by an Environmental Studies capstone nine years ago. We calculated each respondent's environmental score to gauge environmental attitudes, derived explicitly from their answers to five of the 24 survey questions. Next, we developed our research questions: How do transportation habits, demographics, and environmental attitudes compare to the data collected in 2014? How do the transportation habits, demographics, and environmental attitudes compare between Gettysburg College and the United States? To investigate this, we surveyed roughly 10% of the Gettysburg College student population, 236 students, and 188 individuals on Amazon's Mechanical Turk. Our findings reveal that Gettysburg College students exhibit lower environmental concerns than the national sample. Furthermore, our research indicates Mechanical Turk respondents with higher environmental scores are more inclined to consider purchasing an electric vehicle than those with lower scores. Regarding demographics in relation to residency, the Gettysburg College sample reveals a correlation between respondents who reside in a suburban area and a lack of public transportation use. The Mechanical Turk sample also demonstrates a correlation between residing in an urban area and an increased use of public transportation. Future studies should strive for a larger sample size with an equal gender distribution.

Introduction

Transportation serves as a global connection tool, enabling individuals to reach one another despite substantial geographical distances. Across the United States, the question of understanding how people's environmental attitudes align with their daily transportation habits has gained traction (Walton et al., 2004). Individuals who claim to prioritize sustainability have found themselves deciding between continuing with high-carbon emitting transportation options or switching to environmentally friendly alternatives (Walton et al., 2004). Since vehicle emissions exacerbate the consequences of climate change, it is important to understand what factors might influence an individual's preferred transportation option (Putzig et al., 2021). Recently, more people have been changing their lifestyle habits and transportation patterns to be more sustainable to minimize their carbon footprint (Putzig et al., 2021).

In 2014, Environmental Studies students at Gettysburg College analyzed environmental attitudes and transportation habits on the Gettysburg College campus and in the United States. These researchers created a survey to study environmental attitudes, transportation habits, and demographics on the Gettysburg College campus to compare with a national sample from Amazon's Mechanical Turk (Gross et al., 2014). The Mechanical Turk platform is “an online labor market created by Amazon, which has recently become popular among social scientists as a source of… experimental data” (Paolacci & Chandler, 2014). Gross et al. performed two surveys to discern the students' and the general population's attitudes towards transportation compared to their demographics and environmental views (Gross et al., 2014). Their results reveal a potential rise in sustainable lifestyle choices, which may be attributed to people considering low-carbon transportation options. Therefore, our study aims to identify any

correlations between demographics, environmental attitudes, and transportation methods of individuals in 2023.

In the past ten years, since the 2014 study, there has been further research into analyzing travel habits, environmental attitudes, and sociodemographics worldwide. Ramos et al. identified a correlation between car use and environmental beliefs (Ramos et al., 2020). This study revealed that based on daily travel behaviors, environmental cues are often neglected, and habitual decisions take control (Ramos et al., 2020). Zhao et al. analyzed a neighborhood's attitudes towards biking through a survey, which discovered that low-income groups are unlikely to buy an automobile in the future (Zhao et al., 2018). In November 2015, the Pew Research Center conducted a study examining public transit usage by demographic in the United States (Anderson, 2016). The research concluded minimal racial and ethnic differences in public transportation users from non-urban areas but substantial differences when examining the demographics of urban passengers (Anderson, 2016). Anderson identified that one potential explanation for this result was the higher number of Black, Indigenous, and People of Color populations residing in urban areas across the United States (Anderson, 2016).

Zhang et al. performed a study examining potential correlations between demographics and electric vehicle (EV) charging habits. Their research analyzed EV charging patterns and travel habits of people with varying socio-demographics, such as gender, age, and education level (Zhang et al., 2020). Zhang et al. discovered that daily EV charging habits vary with different demographic factors (Zhang et al., 2020). Sovacool et al. determined a correlation between gender, age, and attitudes towards electric vehicles (Sovacool et al., 2018). Sovacool et al. called for additional research into people's social and demographic perspectives on EVs compared to conventional cars (Sovacool et al., 2018). Finally, Strogatz et al. also analyzed the

relationship between demographics and transportation attitudes. Strogatz et al. researched older drivers from urban, suburban, and rural areas to gain information about their potential inability to drive and their opinions on the necessity of driving (Strogatz et al., 2020). Strogatz et al. concluded that drivers living in rural areas are more likely to consider driving as highly important and view the potential termination of their driving as extremely life-altering (Strogatz et al., 2020). Overall, these findings provide background into the potential correlations between demographics, environmental views, and transportation habits, which expands the need for further research into these potential correlations.

Our project examines the relationship between Gettysburg College students' demographics, environmental views, and transportation habits. We aim to examine the relationship between the demographics and environmental opinions of a national sample collected from Amazon's Mechanical Turk to analyze how these factors compare to their transportation methods. Through our investigation, we researched the following questions: How do transportation habits, demographics, and environmental attitudes compare between Gettysburg College and the United States? How do transportation habits, demographics, and environmental attitudes compare to the data collected in 2014? The study evaluated the Gettysburg College students population and the national population. By conducting a study based on the survey questions asked nine years ago by Gross et al., we were able to determine any changes, trends, or correlations between the Gettysburg College student sample and the national sample collected through the Mechanical Turk platform. These findings potentially provide insight into consumer behavior that might counter the rising threat of climate change.

We hypothesized that the Gettysburg College student population, compared to the 2014 Gettysburg College student population, would be more environmentally concerned and

demographically diverse because of the cultural environmental attitude shifts that have occurred in the past nine years. Furthermore, we hypothesized that the Gettysburg student population and the US population would have similar perspectives on the environment. When comparing both 2023 samples to both 2014 samples, we assume environmental concern levels will be higher due to the saliency of climate change.

Methods & Research Design

In order to test our hypotheses, we created and distributed two surveys, one to a random roughly 10% sample of the Gettysburg College student population and another to a national sample through Amazon's Mechanical Turk platform.

Survey Design

Questions regarding demographic information, transportation attitudes, and environmental beliefs were included in the surveys created (Fig. 1, Fig. 2). To accomplish our objectives, we conducted a survey of 236 Gettysburg College students, which is roughly 10 percent of the Gettysburg College student population. We received 188 responses through Mechanical Turk. We used the structure and format of the previous survey conducted in 2014, keeping it divided into three sections with qualitative answers to each question. Expanding upon their survey, we also included new questions that focus on understanding more about the participants' backgrounds, transportation habits, and environmental attitudes. These new questions include inquiries about low-carbon transportation options, policies about climate change, and exploration into lifestyle habits. Our survey builds off of the 2014 survey to gather how the campus's habits and views have potentially shifted in the past nine years. Our survey was then divided into three sections, with the first part gathering the participants' demographic background. The second and third sections inquired into the participants' transportation habits

and environmental attitudes. In the third section, we also included questions relating to EVs and politics, which were adapted from questions proposed in "Survey Question Wording and Topline" ("Survey Question Wording and Topline," 2022).

All of our group members are Institutional Review Board (IRB) trained, ensuring that this human participant research was completed ethically. Therefore, the rights and welfare of all participants in these studies were protected and contained no clear biases. The participants knew their rights and the protections available as research subjects. The research requires IRB review, so we submitted the surveys for IRB approval through the Gettysburg College's institutional review board. For our survey design, we also considered how to avoid biases by building off the 2014 Environmental Studies students' surveys. Those researchers used the book *Questionnaire Design: How to Plan, Structure and Write Survey Material for Effective Market Research* by Ian Brace for guidelines on how to order the survey questions. After reviewing the book, we implemented the same structure of the surveys to address our goal.

Survey Distribution

The surveys were distributed to two populations: Gettysburg College students and individuals on the Mechanical Turk platform, who represent a random sample of the United States population. For the Gettysburg College student survey, we used Microsoft Forms to distribute it and kept it open for ten days, starting at 8 pm on October 30th until 8 pm on November 9th. We posted the survey to the Student Digest for three days to ensure that we received an accurate sample of the student population. We emailed it to academic departments, sports programs, and clubs for distribution. We created a flyer with a QR code of the survey and placed it around each academic building and in the College Union Building. Additionally, we emailed advertiseoncampus@gettysburg.edu to have the flyer advertised digitally throughout

campus. To encourage high response rates, we had a $40 monetary incentive in the form of a Visa gift card in which the winner was randomly selected from a raffle. We gathered the participants' information through a sublink included at the end of the survey. They input their identifiable information for entrance into the raffle through the link. This separation of identifiable information from the corresponding survey answers ensured that participants' responses remained anonymous.

The Mechanical Turk survey, also created with Microsoft Forms, was published for two days from November 7th to November 9th. Aguinus et al. demonstrated how flexible, cheap, diverse, and broad the sampled participants are on the Mechanical Turk platform (Aguinus et al., 202l). The platform had a combination of requirements for the responders. One qualification required for our survey respondents was having participants with Human Intelligence Tests (HITs) approval ratings greater than or equal to 98 percent. Respondents were also required to have a number of HITs approved greater than or equal to 1000. These approval rating standards ensure that respondents are qualified and experienced with the platform. The Mechanical Turk help desk provided us with the necessary information on effective strategies for uploading surveys (*Getting Started…*, 2023). These tools informed us of the layout and construction of the survey that would be most compatible with the platform (*Getting Started…*, 2023). Additionally, the tools included tips on correctly publishing the final survey on the platform (*Getting Started…*, 2023). We also consulted the 2014 study for guidance on the process of uploading a survey to the Mechanical Turk platform (Gross et al., 2014). The Mechanical Turk individuals were compensated at $0.10 a minute. The survey took roughly 5 minutes to complete, so they earned a total of 50 cents upon completion.

Survey Analysis

We downloaded the respondents' data into Microsoft Excel, which then allowed us to create pivot tables to analyze the responses. These pivot tables allowed the data to be compared across multiple factors. We then used these pivot tables to create bar graphs to display our results. Similar to Gross et al., we assigned each respondent an “environmental score” based on their answers to the five “environmental attitudes” questions. These five environmental questions were: 1. Do you believe climate change is a threat?; 2. Do you think human action is a contributor to climate change?; 3. Do you think humans are responsible for taking care of the environment?; 4. Do you believe we can achieve environmental protection and economic growth at the same time?; and 5. Do you consider yourself environmentally friendly?". The maximum score a respondent could receive was 19, indicating the highest level of concern for the environment. The lowest score was 5, which correlates to the lowest level of concern for the environment. To calculate the environmental score, the four questions, which had five answers, were assigned numerical values ranging from 1 to 4. “Yes, a lot” was 4, “Yes, a little” was 3, “No” was 1, and “No Opinion” and “Do Not Know” were assigned a 2. The one question, “Do you believe we can achieve environmental protection and economic growth at the same time?” only had three categorical answers, “Yes,” “No,” and “Do Not Know,” differing only in that “Yes” was assigned a 3. The “No” and “Do Not Know” answers were assigned the same values as the other questions.

To answer our research questions, we created pivot tables comparing the total number of respondents that identified with each race, gender, political affiliation, and living area category for both the Mechanical Turk sample and the Gettysburg College sample. We converted the count of respondents in each category to percentage, allowing us to compare the results across

both samples despite having varied sample sizes. Then, we created pivot tables comparing one demographic factor at a time to the environmental score. We did this for each demographic factor and for both sample groups. Next, we created bar graphs to display the pivot table results, thus allowing us to compare the Gettysburg College sample to the Mechanical Turk sample. We next compared the environmental scores to five questions focused on transportation habits. In each of these graphs, we displayed both the average environmental score for each categorical response and had a color gradient from bright red to dark green corresponding with the environmental score of the respondents..

To compare our 2023 data to the 2014 data, we created tables. These tables display the average environmental score of our 2023 Gettysburg College sample and 2023 Mechanical Turk sample. These tables also included the average environmental scores for the 2014 Gettysburg College sample and the 2014 Mechanical Turk sample. Next, we created tables containing the demographic information of the 2014 Gettysburg College sample and the 2014 Mechanical Turk sample.

Results

Demographics

Our surveys included demographic questions to identify the respondent's race, gender, living area of their primary address, and political affiliation. 70% of the racial distribution of the Gettysburg College sample respondents identified as White (Fig. 3). The second largest racial category was Hispanic or Latino, with 11% of respondents identifying with this category. In addition to these leading racial categories of the Gettysburg College students we surveyed, the race distribution was roughly 11% Asian, 6% Black or African American, 1% American Indian or Alaskan Native, and 2% other races (Fig. 3). In the racial distribution of the Mechanical Turk

sample, 90% of respondents identified as White (Fig. 3). Asian was the second largest racial category with only 6% of respondents (Fig. 3). In addition to those leading racial categories, the remaining 4% of Mechanical Turk subjects also identified as Black or African American, Hispanic or Latino, and American Indian or Alaska Native, and others (Fig. 3).

Gettysburg had five categorical gendered responses, and the vast majority of respondents identified as either male or female (Fig. 4). The Gettysburg sample was predominantly female, with 64% of respondents identifying as female and 32% as male (Fig. 4). The remaining 4% identified as transgender, gender fluid, and other (Fig. 4). Mechanical Turk only had two categorical gendered responses, which were fairly even across male and female (Fig. 4). The Mechanical Turk sample was composed of about 47% female and 53% male respondents (Fig. 4).

The next demographic collected was living area. In the Gettysburg College sample, the leading category was suburban, with 64% of respondents identifying that they are from a suburban area. About 18% identified as urban and about 18% identified as rural (Fig. 5). For the Mechanical Turk sample, the leading category was urban, with 68% of respondents identifying with living in an urban area. The second largest category was suburban at 21%, and the remaining 11% of respondents identified as rural (Fig. 5).

The leading political affiliation of the Gettysburg College sample is Democrat, with 58% identifying as such (Fig. 6). The second largest category is Independent, with 28% (Fig. 6). The third largest category is Republican at 8% (Fig. 6). 6% of respondents identified as ‘Other’ (Fig. 6). Additionally, less than 1% of respondents identified as ‘None’ (Fig 6). In the Mechanical Turk sample, the leading political affiliation category is Democrat at 57%, followed by

Republican at 33% and Independent at 9% (Fig. 6). The sample also had less than 1% of respondents identifying as ‘'Other; or ‘None’ (Fig. 6).

Comparison to 2014

To address our second research question, we compared our 2023 survey results to the data collected in 2014. The 2023 Gettysburg College survey gathered 53 more responses than the study completed in 2014 (Gross et al., 2014). For the Mechanical Turk sample, we gathered 12 fewer responses than the 2014 study (Gross et al., 2014). When comparing racial demographics of our respondents, the Gettysburg College sample was less demographically White than the 2014 Gettysburg College sample (Table 1, Fig. 3). In contrast, the 2023 Mechanical Turk sample was more demographically White than the 2014 Mechanical Turk sample (Table 1, Fig. 3). The Mechanical Turk survey respondents from 2014 were about 75% White, 10% Asian or Pacific Islander, and the other 15% of respondents were African American, Hispanic, Native American, and other races (Table 1). The 2023 Mechanical Turk sample is 15% more White than in 2014 (Table 1, Fig. 3).

In terms of gender demographics, the 2014 Gettysburg College student respondents were predominantly female, with around 75% identifying as female and 25% identifying as male (Table 2). The 2023 sample had 64% of respondents identifying as female, displaying a clear gender bias towards female respondents in both Gettysburg College samples (Table 2, Fig. 4). In 2023, the Mechanical Turk sample was more evenly distributed across male and female respondents than in 2014 (Table 2, Fig. 4). The Mechanical Turk survey respondents from 2014 were about 40% female, 60% male, and less than 1% gender queer (Table 2). In 2023, the Mechanical Turk sample was about 52% male and 48% female (Fig. 4). Therefore, there was a

greater number of male-identifying respondents in both of the Mechanical Turk samples, displaying a male gender bias (Fig. 4).

In 2014, the Gettysburg College sample had 20% of respondents from urban areas, 10% from rural areas, and 70% from suburban areas (Table 3). The 2023 Gettysburg College sample is roughly 18% urban, 18% rural, and 64% suburban (Fig. 5). The 2014 Mechanical Turk sample was about 30% urban, 20% rural, and 50% suburban (Table 3). The 2023 Mechanical Turk sample is 68% urban, 11% rural, and 21% suburban (Fig. 5). Both of the Mechanical Turk samples have fewer respondents from suburban areas than the Gettysburg College samples (Table 3, Fig. 5).

In 2014, the Gettysburg College sample had roughly 37% of respondents who identified as Democrat, roughly 27% of respondents identifying as Independent, 17% identifying as Republican, and roughly 19% identifying as 'other' (Table 4). The 2023 Gettysburg College sample is 58% Democrat, 28% Independent, 8% Republican, and roughly 6% 'other' (Fig. 6). The 2014 Mechanical Turk sample is roughly 42% Democratic, roughly 35% Independent. Roughly 13% were Republican, and 10% 'other' (Table 4). The 2023 Mechanical Turk sample is 57% Democrat, 33% Republican, and roughly 9% Independent (Fig. 6). Both the 2023 Gettysburg College and Mechanical Turk samples have increased percentages of democratic identifying respondents.

Transportation Habits and Demographics

To compare demographic factors and transportation habits, we cross-examined modes of transportation and living area. When comparing these factors, the Gettysburg College sample shows a correlation between respondents who reside in a suburban area and their lack of public transportation use (Fig. 7). In Figure 7, we see that respondents from a suburban area are more

likely to answer ‘No’ and are second most likely to answer ‘Yes, a little’ regarding how frequently they use public transportation in comparison to their rural and urban counterparts. The Mechanical Turk sample revealed a correlation between residing in rural and urban living areas and increased use of public transportation (Fig. 7). Figure 7 demonstrated that nationally, urban residents largely use public transportation compared to rural and suburban respondents (Fig. 7).

To compare demographic factors and transportation habits, we also cross-examined preferred modes of transportation and gender. The Gettysburg College sample had the highest percentage of individuals preferring to travel ‘By Foot’ at roughly 84% (Fig. 8). There was a higher percentage of females who preferred traveling ‘By Foot’ (Fig. 8). However, we see no clear gender preference between male and female, and see that respondents from each gender preferred each categorical option (Fig. 8). There are roughly even male and female percentages for the categories of ‘Personal Automobile,’ ‘Bicycle,’ and ‘Carpool’ (Fig. 8). In the Mechanical Turk sample, there was a roughly even percentage of respondents that prefer to travel ‘By Foot,’ ‘Personal Automobile,’ ‘Public Transportation,’ and ‘Bicycle’ (Fig. 8). The sample also had respondents from each gender identity preferring each of the categorical options, with no clear correlation between a specific gender identity and a particular mode of transportation (Fig. 8).

Environmental Concerns

The first comparison regarding environmental concern is between environmental score and political affiliation demographics. In the Gettysburg College sample, Democrats had a higher average environmental score than Independents and Republicans (Fig. 9). Democratic respondents had an average environmental score of 15.83, whereas Independents had an average score of 15.22, and Republicans had an average score of 13.35 (Fig. 9). However, in the Mechanical Turk sample, Republicans had a higher average environmental score at 16.71,

followed by Independents at 16.18, and then lastly Democrats at 15.67 (Fig. 9). Therefore, the Gettysburg College sample Republicans had an average environmental score that was 3.36 points lower than the Mechanical Turk Republicans (Fig. 9). There is no correlation between environmental score and political affiliation in either of the samples (Fig. 9). These results also demonstrate a range of environmental scoring individuals identifying with all these categories (Fig. 8). In the Gettysburg College sample, the average environmental scores ranged 4.15 points, indicating no clear correlation between a particular environmental score and a particular political affiliation (Fig. 9). In the Mechanical Turk sample, the average environmental score only ranged 1.04 points, indicating there is no correlation between a particular environmental score and a political affiliation (Fig. 9).

The second comparison regarding environmental concern is between environmental score and respondents' willingness to pay more for an environmentally friendly high mileage (fuel-efficient) car (Fig. 10). For both the Gettysburg College and Mechanical Turk samples, respondents identified the most common additional price they are willing to pay is $2,000 and $3,000 (Fig. 10). There is not a large difference between the average environmental score of each categorical answer for both of the samples (Fig. 10). In fact, the range of the average environmental score for both was under 1.3 points, indicating no correlation between environmental score and a particular categorical preference (Fig. 10).

The third comparison regarding environmental concern is between environmental score and public transportation usage. We analyzed responses to the question “In a given week, do you often use public transportation?” in comparison to an individual’s environmental score (Fig. 11). Within the Mechanical Turk sample, respondents with a higher environmental score had a greater response rate to ‘Yes, a lot’ than ‘Yes, a little’ (Fig. 11). In the national sample, a higher

environmental score correlates with an increased frequency of public transportation use (Fig. 11). The highest average environmental score of 16.68 is in the ‘Yes, a lot’ column (Fig. 11). Additionally, the bar graph indicates that there are more people who use public transportation within the Mechanical Turk sample than the Gettysburg College sample. For the Gettysburg sample, the higher environmental score does not correlate with a particular response category, which contrasts the Mechanical Turk sample (Fig. 11). Instead, the higher the average environmental score, the lower the frequency of public transportation usage (Fig. 11). Additionally, within the Gettysburg College sample, we do not see a correlation between any environmental score and categorical response, therefore suggesting no correlation between these two factors (Fig. 11).

The fourth comparison regarding environmental concern is between environmental score and car purchasing habits. The results of the Mechanical Turk sample reveal that the higher the environmental score, the greater the likelihood is that an individual will purchase an EV (Fig. 12). Therefore, the graph suggests that there is a correlation between environmental score and the likelihood of purchasing an EV (Fig. 12). Within the Gettysburg College student sample, the highest environmental-scoring respondents largely identified with the categorical response of ‘not expect[ing] to purchase a vehicle’ (Fig. 12). The individuals with the average lowest environmental scores answered they were ‘somewhat likely’ to purchase an EV (Fig. 12). Across both surveys, respondents of varied environmental scores identified with a variety of categorical responses, therefore indicating no correlation between a particular response category and a particular environmental score level (Fig. 12).

The fifth comparison regarding environmental concern is between environmental score and vehicle ownership and usage. In the Gettysburg College sample, there was roughly an even

number of respondents who answered ‘Yes’ compared to those who answered ‘No’ when asked if they own or drive a vehicle on a regular basis (Fig. 13). The Mechanical Turk respondents demonstrated a much less even distribution in responses (Fig. 13). For the Mechanical Turk sample, about 14% of respondents answered ‘No’ and about 86% responded ‘Yes’ (Fig. 13). In the Gettysburg College sample, students who answered ‘Yes’ had a slightly lower average environmental score, 15.24, than those who answered ‘No’ at 15.76 (Fig. 13). The Mechanical Turk sample revealed the opposite since respondents who answered ‘Yes’ had a slightly higher average environmental score, at 16.10, than those who answered ‘No,’ at 15.81 (Fig. 13). The difference in average environmental score for both of the samples was very minimal, under a 0.6 point range (Fig. 13).

The sixth comparison regarding environmental concern is between environmental score and ideal transportation method in a city. The Gettysburg College sample respondents preferred to travel by rail, followed by the bus, then bike, car, and finally walking (Fig. 14). The Mechanical Turk sample respondents most preferred to use a car followed by bike, bus, rail, walking, and lastly taxi (Fig. 14). In the Gettysburg College sample, the lowest average environmental score was associated with cars at 14.34 (Fig. 14). In the Mechanical Turk sample, the average environmental score of respondents who preferred traveling by car was higher than the individuals who preferred either taxi or walking (Fig. 14). Throughout both of the samples, it is apparent that there is a fairly even distribution of environmental scores throughout all the categorical options. Therefore, there is no correlation between any environmental concern level and a particular categorical option (Fig. 14).

The final comparison regarding environmental concern is between environmental score and respondents’ opinion on the phasing out of gasoline vehicle production. The Mechanical

Turk respondents who answered ‘Excited’ had a slightly higher average environmental score than those who answered ‘Neutral’ and ‘Upset’ (Fig. 15). In the Gettysburg College sample, students who answered ‘Neutral’ had a higher average environmental score followed by ‘Upset’ and then ‘Excited,’ which had the lowest average environmental score of the three responses (Fig. 15). In comparison, a higher percentage of respondents in the Mechanical Turk sample answered ‘Excited’ than in the Gettysburg College sample (Fig. 15).

Discussion

Demographics

Overall, Gettysburg College is more racially diverse in 2023. The Gettysburg College students we sampled were 20% less White compared to the 2014 survey, which was 90% White (Fig. 3, Table 1). These findings support our hypothesis that the Gettysburg College sample would be more demographically diverse than the 2014 sample. Additionally, these findings are supported by data collected by the US Census Bureau, which found that college campuses across the United States have become more racially diverse since 2010 (US Census Bureau, 2020).

Our survey concluded no significant correlation exists between gender identity and transportation attitudes. The Gettysburg College survey reveals that female and male-identifying respondents were both likely to choose transportation options that reduced greenhouse gas emissions (Fig. 8). Specifically, ‘By Foot’ was the most preferred mode of transportation selected by both male and female respondents within the Gettysburg College sample (Fig. 8). Additionally, female respondents were only slightly more likely to choose traveling by ‘Personal Automobile’ than male respondents (Fig. 8). Therefore, it is clear that there is no significant correlation between a particular gender identity and a preferred mode of transportation.

These findings contradict previous research conducted in 2019. In 2019, Desrochers et al. concluded that females are more likely to engage in sustainable behaviors than male respondents, which contradicts our survey's findings. However, our results could be biased, as we are on a college campus. A study conducted by Li et al. found that college campuses have high levels of walkability, which is the ability to walk distances safely (Li et al., 2016). Additionally, Gettysburg College has a walkability score of 88 out of 100, and anything over 70 is considered a 'very walkable area' ("Gettysburg, PA," 2023). Therefore, because of this factor, the results could have been biased toward transportation alternatives rather than the personal automobile, which could account for the more equal gender distribution present towards the more sustainable transportation options.

Environmental Attitudes at Gettysburg College and the Mechanical Turk Samples

Surprisingly, most students at Gettysburg College are less environmentally conscious than the national sample (Table 4). At Gettysburg College in 2023, students had an average environmental score of 15.48, and the national sample had an average environmental score of 16.06 (Table 4). This result supports our hypothesis, as we hypothesized that the Gettysburg College student population and the US population have roughly the same viewpoints on the environment, which is demonstrated by the fact that they have less than a one-point difference in environmental scores. However, these findings did not support a portion of our hypothesis. We hypothesized that when comparing the data of the US population from 2023 to 2014, greater environmental concern levels would be more widespread. Therefore, this portion of our hypothesis is rejected since our findings indicate that in 2023, the national average environmental score is 0.5 points lower than in 2014 (Table 4). The 2014 survey found that the

Gettysburg College sample had a greater average environmental score, at about 16.43, compared to the national survey average of about 15.56 (Table 4).

One potential cause for this is that Gettysburg College as an institution has strong regulations in place to make the school sustainable such as the STARS report and Climate Action Plan. The Sustainability Tracking, Assessment, and Rating System (STARS) reporting process is a self-reporting tool used by colleges and universities to measure and report their sustainability performance ("About STARS " 2023). The Climate Action Plan lays out the goals the college is willing to achieve, the ways in which they are going to complete them, and the financial benefits or burdens related to implementation (*Sustainability at Gettysburg*, 2023). In 2023, Gettysburg College received a gold rating on the STARS report (*Sustainability at Gettysburg*, 2023). Therefore, these programs ensure that the school remains competitive in the sustainable sphere to enhance its national ranking and marketability to new students (Ho, 2021). Furthermore, Business Insider says, “Experts say these institutions have a responsibility to be leaders in sustainability…” (Ho, 2021). This often relieves students from taking individual actions because there is a belief that the institution is leading the way.

Additionally, there are financial benefits that align with institutions taking sustainable actions, which is even more of an incentive to stay sustainable. According to Ho, “Universities and colleges are an important part of the US economy, and they're increasingly seen as key players in the global race to reduce greenhouse gas emissions” (Ho, 2021). Therefore, this might be one reason why Gettysburg College students’ average environmental score is lower than the national average, as they leave the responsibility to the larger entity, their school, rather than relying on individual action.

Environmental Score and Willingness to Pay More for Environmentally Friendly Vehicles

There is no correlation between environmental score and willingness to pay more for an environmentally friendly (fuel-efficient) vehicle. The Gettysburg College survey found that a respondent's environmental score did not factor into their willingness to pay more for an environmentally friendly vehicle. This is demonstrated as some respondents who had an environmental score of 18 reported that they would be willing to pay less than an additional $1,000 for an environmentally friendly car (Fig. 6). The Mechanical Turk survey found that some respondents who had the highest environmental score at 19, responded with a variety of answers, ranging from $1,000 to $5,000 (Fig. 7). Therefore, these findings reject our hypothesis that the Gettysburg College students would be more environmentally conscious than the 2014 Gettysburg College students and the 2014 Mechanical Turk respondents. Our findings also indicate that across the Gettysburg College campus and in the 2023 national sample, there is no correlation between someone's environmental attitudes and their consumption habits.

These results are promising. When taking steps to combat climate change, it is helpful when plans can target everyone regardless of their environmental attitudes rather than people of a specific environmental perspective. Instead, individuals of all environmental views can be targeted if environmental attitudes are not an indicator of an individual's openness to environmental change or consumer behavior. By recognizing that environmental attitudes may not be the only indicators of an individual's openness to environmental change or consumer behavior, mitigation methods and policies can be designed for broad audiences. This can lead to increased cooperation and engagement from diverse perspectives, which benefit the efforts to minimize the effects of climate change by allowing for widespread efforts to address environmental challenges.

Living Area vs Public Transportation Use

The Gettysburg College and Mechanical Turk samples showed correlations between living area demographics and public transportation use. We hypothesized that the Gettysburg College student population and the US population would have similar perspectives on the environment and, therefore, have similar transportation habits. For the Mechanical Turk sample, 36.7% of respondents were from urban areas, and of that, 56.38% answered 'Yes, a lot.' about their public transportation usage (Fig. 7). In contrast, in the Gettysburg College sample, 40% of the "No" category identified to be from a suburban area (Fig. 7). Therefore, illustrating a correlation between a large use of public transportation for urban residents nationally and a correlation between suburban residents on Gettysburg College and no transportation use. Thus, we reject our hypothesis.

In 2019, the American Public Transportation Association studied transportation accessibility throughout the United States. The study found that 45% of Americans do not have access to public transportation ("Public Transportation Facts," 2023). In 2021, the US. The Census Bureau found that 70% of the nation's public transportation commuters reside in one of the seven biggest metropolitan areas in the United States ("New Census Report…," 2021). This explains the potential correlation between residing in an urban area and having an increased level of public transportation usage. Additionally, in 2015, only 6% of suburban residents regularly relied on public transportation (Anderson, 2016). Therefore, this explains the potential correlation in the Gettysburg College sample between suburban residents' reduced frequency of public transportation and why the Mechanical Turk sample had a correlation between living in an urban area and having an increased use of public transportation when compared to other locations.

Environmental Score and Frequent Use of Public Transportation

In the Mechanical Turk sample, there is a higher percentage of people who use public transportation nationally compared to the Gettysburg College sample (Fig. 11). In the national sample, the 'Yes, a lot' category was associated with the highest percentage of respondents in correlation with the highest env score at 16.68. This correlates with a greater frequency of public transportation use (Fig. 11). Within the Gettysburg College sample, there is a correlation between environmental score and frequency of public transportation use, but it is the inverse of the correlation that is depicted in the Mechanical Turk sample (Fig. 11). The largest average environmental score, within the Mechanical Turk sample, is 16.23 in the 'No' categorical option (Fig. 11). Again, we reject our hypothesis that the Gettysburg College student population and the US population would have similar perspectives on the environment since the samples have inverse correlations.

The demographic living area likely accounts for this difference between samples because the Gettysburg College student sample was composed of a high percentage of respondents from suburban areas in contrast to the high percentage of national respondents living in urban areas (Fig. 11). Therefore, these differing living areas likely account for the opposing trends that we identified.

Throughout the United States, public transportation infrastructure is not as developed outside urban areas as in city centers. In an article about the environmental footprint of suburban areas, the MIT Climate Portal revealed that "while many cities are designed at least partly around public transit, suburbs were built around cars" (*How Can We Reduce the Climate Footprint of the Suburbs?*, 2023). Since so many Gettysburg students are from suburban areas with limited public transportation infrastructure, they lack the comfortability and accessibility of using it. A

2018 study found that 83% of Americans drive a car at least several times a week (Brenan, 2018). This indicates that individuals are typically more familiar with using cars rather than public transportation, explaining why people from suburban areas, who have limited public transportation access, typically do not use it, thus explaining the potential correlation.

Environmental Score and Political Affiliation

In the Mechanical Turk and Gettysburg College samples, we compared the environmental score of the respondents with their political affiliations. Again, we reject our hypothesis that the Gettysburg student population and the US population would have similar perspectives on the environment as we found no correlation between these two factors.

One potential reason for this contrast is that individuals often believe that all of their individual perspectives completely align with the views expressed by their political party. One example of this phenomenon is the idea of voting along party lines, where individuals often cast ballots solely supporting candidates due to their political affiliation without seriously considering further exploration into each candidate and issue. Recently, party-line politics have become very mainstream due to polarization trends ("Political Polarization in the American Public," 2014). Even though they think they have an idea that political affiliation is associated with environmental views, it is not always the case. In fact, it was not until the mid-1990s that environmental issues became a partisan issue divided between Democrats and Republicans (Jones, 2016). While the media often spreads misinformation and disinformation, trying to further divide the country on issues like climate change, there are more factors in the picture.

Environmental Score and Likelihood of Purchasing an Electric Vehicle

Lastly, we compared environmental scores with car purchasing habits. For the Mechanical Turk sample, there is a correlation between environmental score and the likelihood

of purchasing an electric vehicle, yet this correlation is not present within the Gettysburg College sample. One potential explanation for this lack of correlation demonstrated in the Gettysburg College sample is probably due to students' financial barriers. At the end of our survey we had an open comment section. Multiple Gettysburg College students felt inclined to share comments about their financial situation to justify their responses. One anonymous respondent wrote "I am too poor to seriously consider an electric vehicle at the time. If there was an affordable used one for sale, I would think about it, but as it stands, they are all too expensive for me to think about." This quote clearly demonstrates why so many Gettysburg College respondents' environmental scores do not correlate with their environmental attitude as they did for Mechanical Turk respondents due to financial barriers.

These findings about Gettysburg College students are supported by a study performed in 2012 that concluded environmental consciousness motivates consumers to make greener purchasing decisions (Patricia, 2012). Therefore, the higher someone's environmental score, the more willing they are to pay for a vehicle. A factor for the insignificant results could be that the Gettysburg College survey only collected college students' responses. In 2022, the American College Health Association found that 46.8% of college students report struggling financially (American College Health Association, 2022). This, therefore, could explain why there was no significant correlation between Gettysburg College students' willingness to pay more for an electric car and their environmental score.

A study conducted by Witek and Kuźniar in 2020 found that consumers in better financial situations are more likely to buy more sustainable products than individuals in worse financial situations (Witek & Kuźinar, 2020). Therefore, this potentially explains both the Gettysburg College Survey and the Mechanical Turk Survey since respondents could be

struggling financially, making them less likely to buy more sustainable products like an EV if they have less disposable income.

Our results indicate that while EVs and environmentally friendly cars are available in the market, there are factors beyond solely their availability that are affecting individuals' access to these technologies. This indicates that a multistrategy approach is necessary to increase individuals' willingness to embrace emerging green technology. In the auto industry, advancing green tech is likely not enough to meet the emission reduction goals necessary to curb the effects of climate change. Our findings support that lowering the negative environmental impact of the transportation industry requires a mix of strategies that focus on human behavior, such as transportation habits and environmental attitudes, as well as changes to the national transportation infrastructure itself by reducing car dependency for all.

Limitations & Future Studies

The primary limitation of this study is the fact that the sample sizes were small. This is a limitation, as the Mechanical Turk sampled 188 respondents, which might not accurately capture the entire nation's perspectives. It is also important to note that according to the Pew Research Center, there are concerns about the high rate at which Mechanical Turk respondents are exposed to surveys and experiments ("Turkers in this canvassing," 2016). This high level of exposure to academic surveys could potentially condition the workers to become overly familiar with the formatting and types of questions in such surveys thus potentially influencing the results ("Turkers in this canvassing", 2016).

We also could not ensure that every single student at Gettysburg College had the equal opportunity to take the survey, which could again limit the ability to accurately represent the campus's demographics, environmental attitudes, and preferred mode of transportation. Another

limitation was that each survey did not have an equal gender distribution of respondents, which might present a gender bias towards females since, in both surveys, more participants identified as female than any other gender. An additional limitation is that we could not access the raw data from 2014. Due to this constraint, we often had to approximate their results based on the information available to us from their research paper, which lacked precise data points.

Future research should further explore demographics and transportation habits. Future surveys should also aim to have a large sample size with an equal gender ratio. Specifically, studies should specifically explore the potential correlation between an area's walkability and preferred mode of transportation, which might have influenced our survey results. Other studies should explore the potential correlation between an individual's economic status in comparison to environmental views and consumption habits. While our survey also explored environmental attitudes and transportation habits an area to expand upon would be including additional questions that indicate a respondent's environmental attitudes compared to their environmental behavior.

Conclusion

Overall, our results suggest correlations between demographics, environmental attitudes, and transportation habits. Specifically, within the national sample, there is a correlation between higher environmentally concerned individuals and a greater willingness to purchase an electric vehicle. Despite increased coverage of climate change and environmental degradation, we found that environmental attitudes are, on average, lower on the Gettysburg College campus than the national sample, and both of the studies were performed nine years ago. Additionally, we found that gender does not impact one's preferred mode of transportation. Furthermore, we determined that the Gettysburg College respondents are more racially diverse than the national respondents

and the respondents in both of the 2014 surveys. In Gettysburg College, we revealed that respondents from suburban areas have decreased levels of public transportation usage compared to respondents from other living areas. In contrast, in the national sample, we determined a correlation between residents living in an urban area and increased public transportation usage. Ideally, an increased sample size could more accurately represent the Gettysburg College and national opinions.

Future studies should aim to include a larger sample size to more accurately determine the participants' attitudes and transportation habits. Additionally, future studies should aim to better understand the potential correlation between gender and environmental views, how environmental attitudes have changed in the past decade, and the potential financial barriers that impact an individual's willingness to pay an additional cost for a more environmentally friendly vehicle.

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Appendix

Tables

Table 1: 2014 Racial demographics of the Gettysburg College sample and Mechanical Turk sample.

Respondents	White	Asian or Pacific Islander	Black or African American	Hispanic or Latino	American Indian or Alaskan Native	Middle Eastern	Native American
Gettysburg Percentage	~92	~1	~2	~2	~1	~1	~1
Mechanical Turk Percentage	~75	~10	~5	~5	~2	~2	~1

Table 2: 2014 Gender demographics of the Gettysburg College sample and Mechanical Turk sample.

Respondents	Male	Female	Gender Queer
Gettysburg Percentage	~25	~75	~0
Mechanical Turk Percentage	~60	~40	~1

Table 3: 2014 Living area demographics of the Gettysburg College sample and Mechanical Turk sample.

Respondents	Suburban	Urban	Rural
Gettysburg Percentage	~70	~20	~10
Mechanical Turk Percentage	~50	~30	~20

Table 4: 2014 Political Affiliation demographics of the Gettysburg College sample and Mechanical Turk sample.

Political Affiliation	Democrat	Independent	Republican	Other	None
Gettysburg Percentage	~37	~27	~17	~19	~0
Mechanical Turk Percentage	~42	~35	~13	~10	~0

Table 5: Average environmental score per sample size per year.

Sample	Average Environmental Score
2023 Gettysburg College	15.48
2023 Mechanical Turk	16.06
2014 Gettysburg College	~16.43
2014 Mechanical Turk	~15.56

Figures

First Section

1) What is your race?

Drop Down Options: White, Black or African American, American Indian or Alaskan Native, Asian, Native Hawaiian or Other Pacific Islander, or Other (which would then generate a “write in” box for them to specify

2) What is your gender?

Drop Down Options: Male, Female, Transgender, Gender Fluid, Other (which would then generate a “write in” box for them to specify)

3) Is your primary address in an urban, suburban, or rural area?

Urban Suburban Rural

4) What is your political affiliation?

Republican Democrat Independent Other: _____

Second Section

1) What is your preferred mode of transportation on campus?

Circle one: by foot bicycle personal automobile public transportation ridesharing service carpooling

2) Have you ever used public transportation in Gettysburg (freedom transit or rabbit transit)?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

3) Do you own a vehicle or drive a vehicle on a regular basis?

Circle One: Yes No

If you answered “no”, skip parts a-c and go to question 4.

a) Do you currently have an electric or hybrid vehicle?

Electric Hybrid Neither

b) Do gas prices impact how much you drive?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

c) How much more would you be willing to pay for transportation costs to lower your greenhouse gas emissions?

A lot A little None No opinion

4) How would you feel about the U.S. phasing out the production of new gasoline vehicles?

Excited Upset Neutral

5) The next time you purchase an automobile, how likely are you to consider purchasing an electric vehicle?

Very likely Somewhat likely Not too likely Not at all likely I do not expect to purchase a vehicle

6) To what extent do the following influence your potential to purchase an electric vehicle

a. To save money on gas: Major influence Minor influence Not an influence

b. To help the environment: Major influence Minor influence Not an influence

c. To keep up with the latest trends in vehicles: Major influence Minor influence Not an influence

7) How much more would you be willing to pay for a more environmentally friendly car with high gas mileage (around 45 miles per gallon)?

a) Less than $1,000 b) $1,000 c) $2,000 d) $3,000 e) $4,000 f) $5,000 g) Over $5,000

8) Imagine you live in a city with extensive, safe bike lanes and sidewalks. Public transportation, including bus and rail systems, is efficient and clean, and roads for automobile traffic are well maintained. Which form of transportation would you prefer to use in this ideal transportation world for daily short-distance trips of about 5 miles?

Bike Bus Car Rail Taxi Walk

<u>Third section</u>

1) Do you believe climate change is a threat?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

2) Do you think human action is a contributor to climate change?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

3) Do you think humans are responsible for taking care of the environment?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

4) Do you believe we can achieve environmental protection and economic growth at the same time? Yes No Do not know.

5) Do you consider yourself environmentally friendly?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

6) In your daily life, do you consider the environmental impacts when deciding what mode of transportation to use?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

7) Do you consider the potential environmental impacts when deciding what products to consume?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

8) In a given week on campus, do you consider alternative options (reusable cups, reusable water bottles, drinking fountains) to single-use plastic bottles?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

9) Overall, do you think the Biden administration's policies on climate change are taking the country in the right or wrong direction? Right Direction Wrong Direction Don't know

Any additional comments? _____

Figure 1. Survey instrument distributed to Gettysburg College student sample.

First Section

Demographic and personal information background:

1) Where are you from?

Country: _____ State: _____ City: _____

2) Age: 18-22, 23-30, 31-40, 41-50, 51-60, 61-70, Over 70

3) What is your race?

Drop Down Options: White, Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or Other Pacific Islander, or Other (which would then generate a "write in" box for them to specify

4) What is your gender?

Drop Down Options: Male, Female, Transgender, Gender Fluid, Other (which would then generate a "write in" box for them to specify)

5) Is your primary address in an urban, suburban, or rural area?

Urban Suburban Rural

6) What is your political affiliation?

Republican Democrat Independent Other: _____

<u>Second Section</u>

1) What is your preferred mode of transportation?

Circle one: by foot bicycle personal automobile public transportation

ridesharing service carpooling

2) In a given week, do you often use public transportation?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

3) Do you own a vehicle or drive a vehicle on a regular basis?

Circle One: Yes No

If you answered "no", skip parts a-c and go to question 4.

a) Do you currently have an electric or hybrid vehicle?

Electric Hybrid Neither

b) Do gas prices impact how much you drive?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

c) How much more would you be willing to pay for transportation costs to lower your greenhouse gas emissions?

A lot A little None No opinion

4) How would you feel about the U.S. phasing out the production of new gasoline vehicles?

Excited Upset Neutral

5) The next time you purchase an automobile, how likely are you to consider purchasing an Electric vehicle?

Very likely Somewhat likely Not too likely Not at all likely I do not expect to purchase a vehicle

6) To what extent do the following influence your potential to purchase an electric vehicle

a. To save money on gas Major influence Minor influence Not an influence

b. To help the environment: Major influence Minor influence Not an influence

c. To keep up with the latest trends in vehicles: Major influence Minor influence Not an influence

7) How much more would you be willing to pay for a more environmentally friendly car with high gas mileage (around 45 miles per gallon)?

a) Less than $1,000 b) $1,000 c) $2,000 d) $3,000 e) $4,000 f) $5,000

g) Over $5,000

8) Imagine you live in a city with extensive, safe bike lanes and sidewalks. Public transportation, including bus and rail systems, is efficient and clean, and roads for automobile traffic are well maintained. Which form of transportation would you prefer to use in this ideal transportation

world for daily short distance trips of about 5 miles?

Bike Bus Car Rail Taxi Walk

Third section

1) Do you believe climate change is a threat?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

2) Do you think human action is a contributor to climate change?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

3) Do you think humans are responsible for taking care of the environment?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

4) Do you believe we can achieve environmental protection and economic growth at the same time?

Yes No Do not know.

5) Do you consider yourself environmentally friendly?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

7) Do you consider the potential environmental impacts when deciding what products to consume?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

8) In a given week, do you consider alternative options (reusable cups, reusable water bottles, drinking fountains) to single-use plastic bottles?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

9) In your daily life, do you consider the environmental impacts when deciding what mode of transportation to use?

Yes, a lot. Yes, a little. No. No opinion. Do not know.

10) Overall, do you think the Biden administration's policies on climate change are taking the country in the right or wrong direction? Right Direction Wrong Direction Don't know

Any additional comments? _____

Figure 2. Survey instrument distributed to Amazon Mechanical Turk national sample.

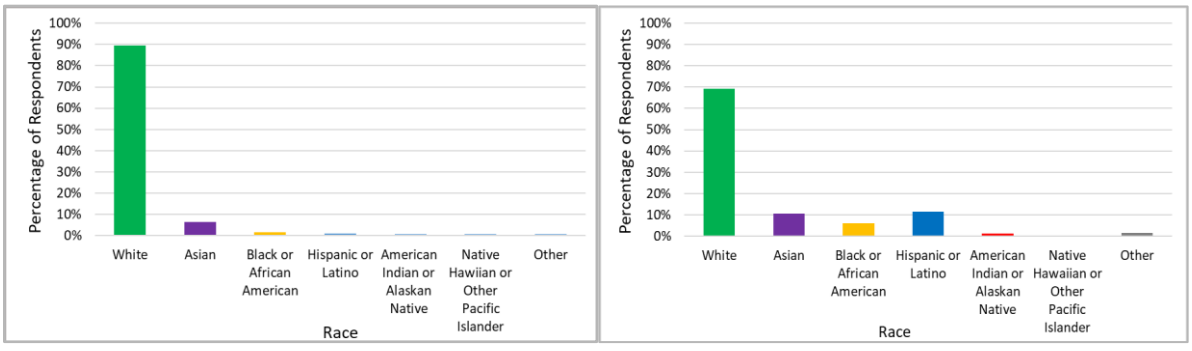

Figure 3. The racial distribution of the Amazon Mechanical Turk sample (left). The racial distribution of the Gettysburg College sample (right).

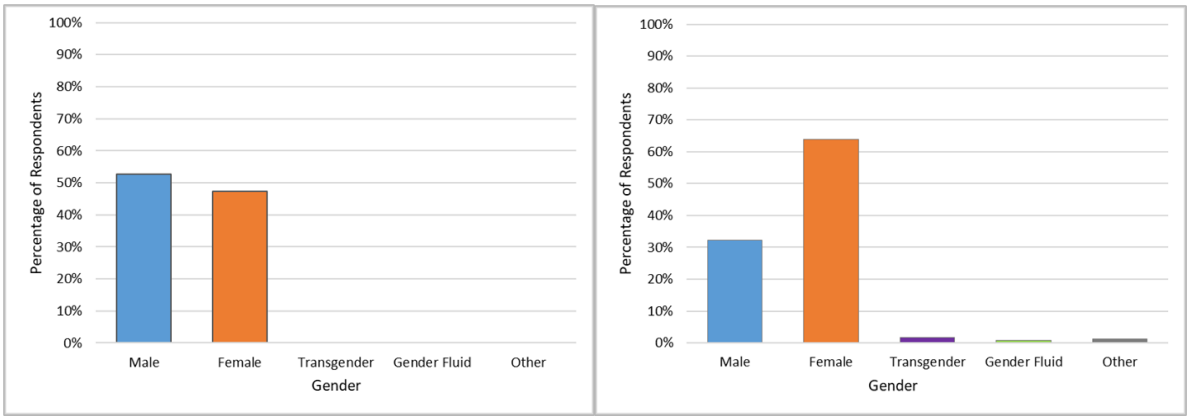

Figure 4. The gender distribution of the Amazon Mechanical Turk sample (left). The gender distribution of the Gettysburg College sample (right).

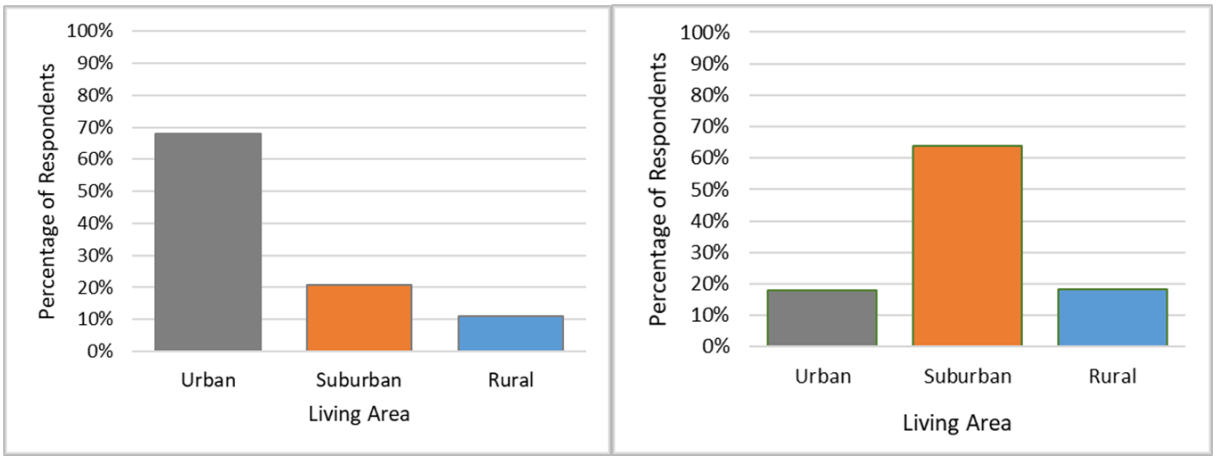

Figure 5. The distribution of respondents' primary address for the Amazon Mechanical Turk sample (left). The distribution of respondents' primary address for the Gettysburg College sample (right).

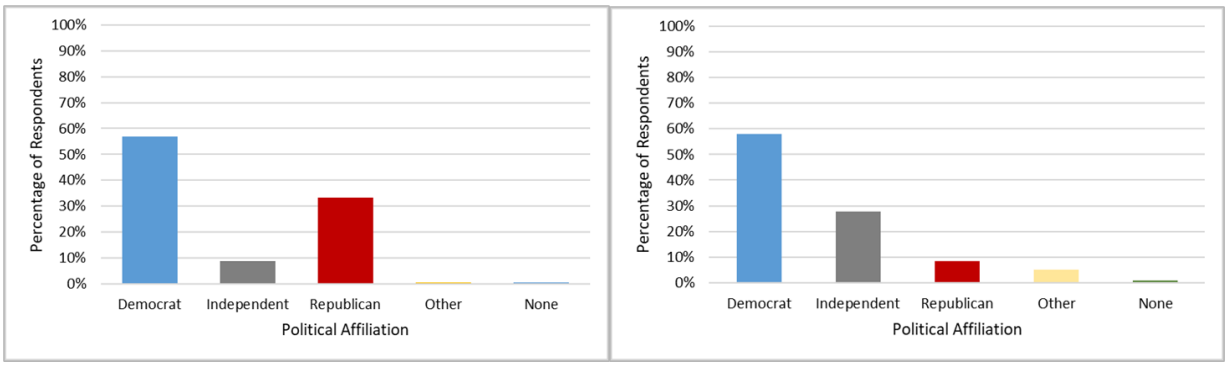

Figure 6: The distribution of respondents' political affiliation for the Amazon Mechanical Turk sample (left).The distribution of respondents' political affiliation for the Gettysburg College sample (right).

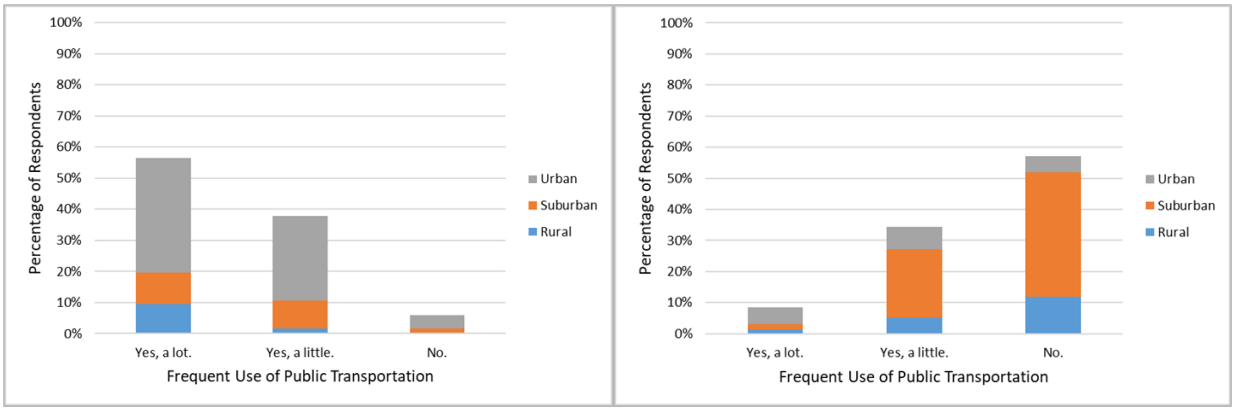

Figure 7: Respondents' frequency of public transportation use compared to respondents' primary living address for the Amazon Mechanical Turk sample (left). Respondents' frequency of public transportation use compared to respondents' primary living address for the Gettysburg College sample (right).

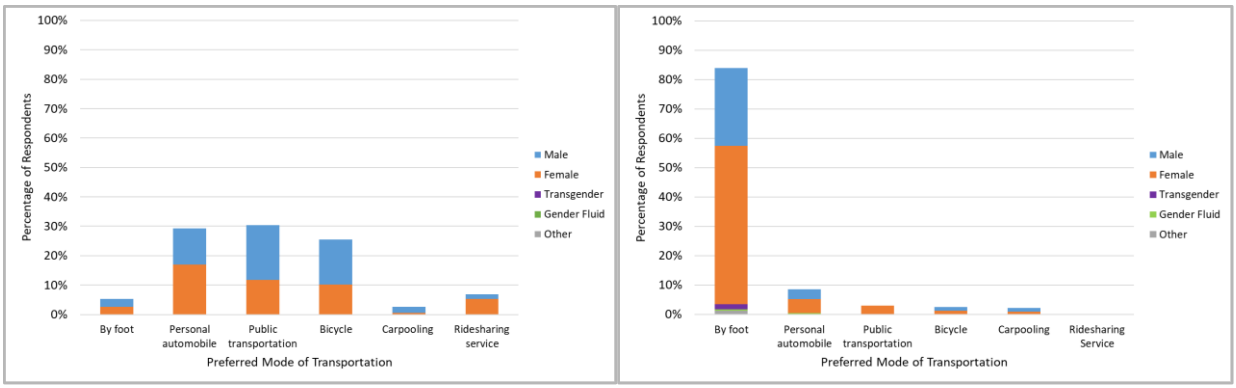

Figure 8: Respondents' gender compared to their preferred mode of transportation for the Mechanical Turk sample (left). Respondents' gender compared to their preferred mode of transportation for the Gettysburg College sample (right).

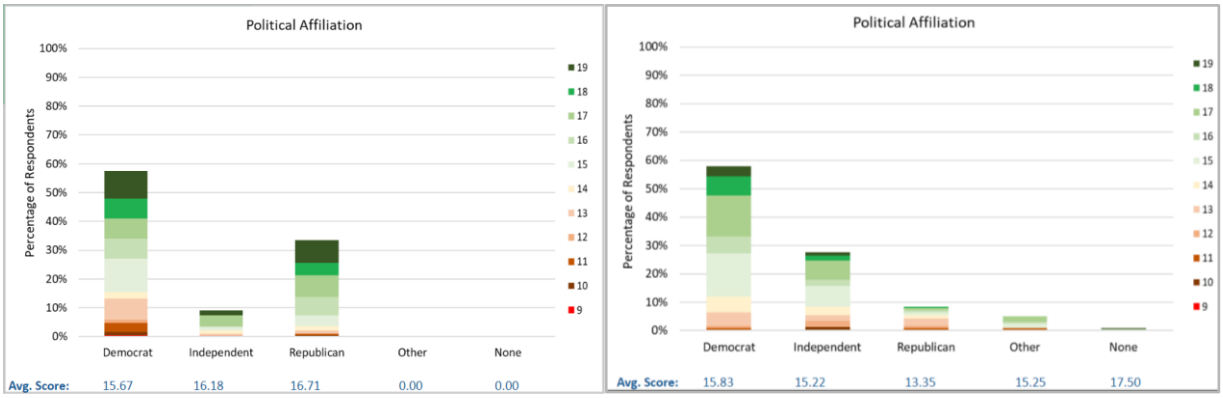

Figure 9. Respondents' political affiliation compared to their individual environmental score for the Mechanical Turk sample (left). Respondents' political affiliation compared to their individual environmental score for the Gettysburg College sample (right).

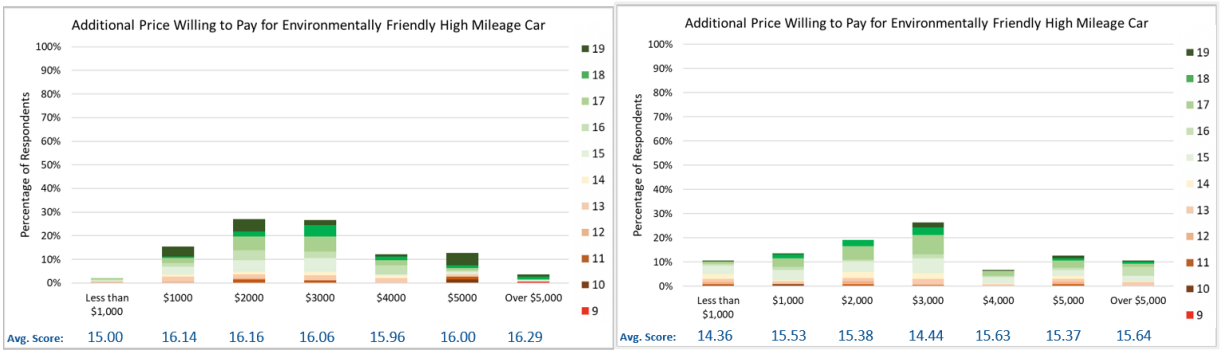

Figure 10. Respondents' willingness to pay for an environmentally friendly high mileage (fuel-efficient) car compared to respondents' environmental score for the Amazon Mechanical Turk sample (left). Respondents' willingness to pay for an environmentally friendly high mileage (fuel-efficient) car compared to respondents' environmental score for the Gettysburg College sample (right).

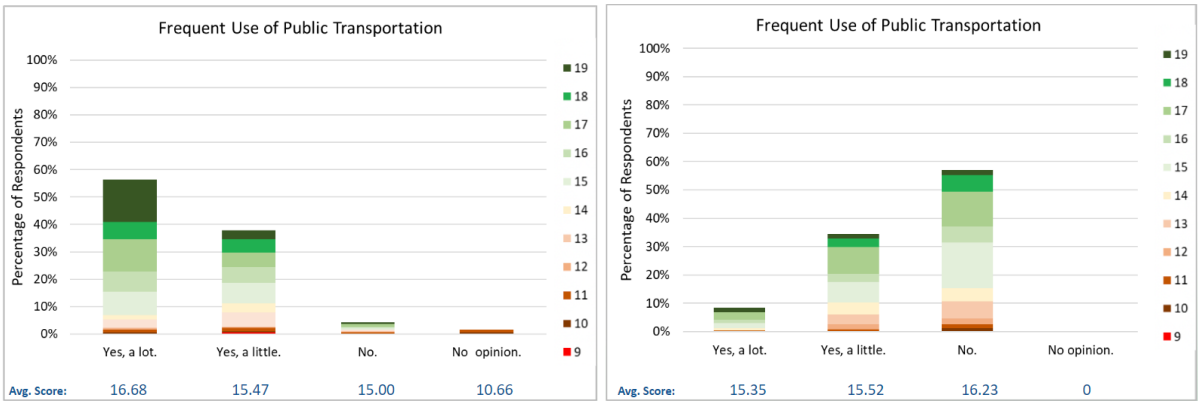

Figure 11. Respondents' frequent public transportation usage compared to their individual environmental score for the Amazon Mechanical Turk sample (left). Respondents' frequent public transportation usage compared to their individual environmental score for the Gettysburg College sample (right).

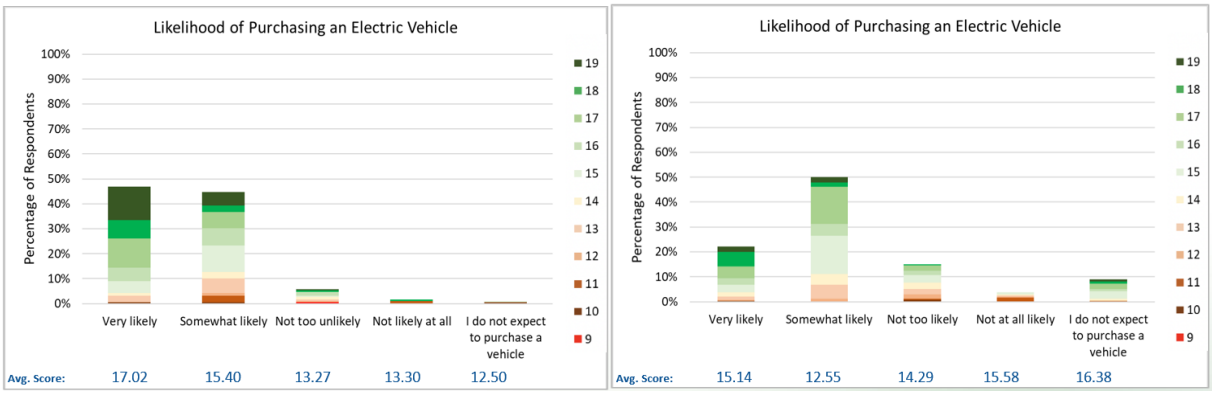

Figure 12. Respondents' likelihood of purchasing an electric vehicle compared to their individual environmental score for the Amazon Mechanical Turk sample (left). Respondents' likelihood of

purchasing an electric vehicle compared to their individual environmental score for the Gettysburg College sample (right).

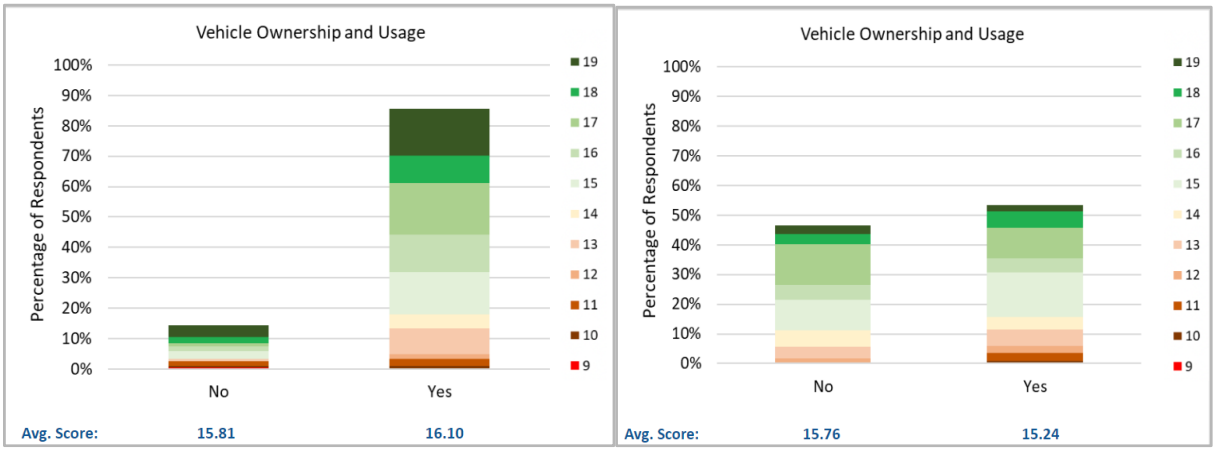

Figure 13. Respondents' vehicle ownership and usage compared to their environmental score for the Mechanical Turk sample (left). Respondents' vehicle ownership and usage compared to their environmental score for the Gettysburg College sample (right).

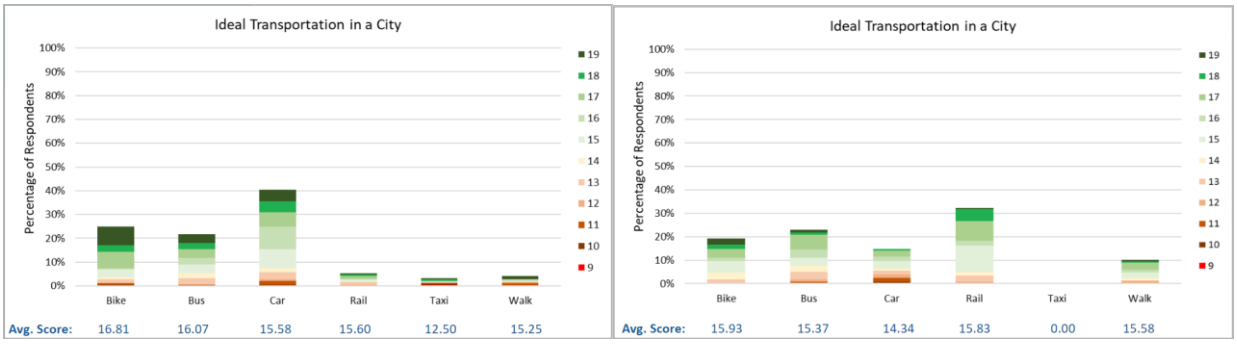

Figure 14. Respondents's ideal mode of transportation in a city compared to their environmental score for the Mechanical Turk sample (left). Respondents' ideal mode of transportation in a city compared to their environmental score for the Gettysburg College sample (right).

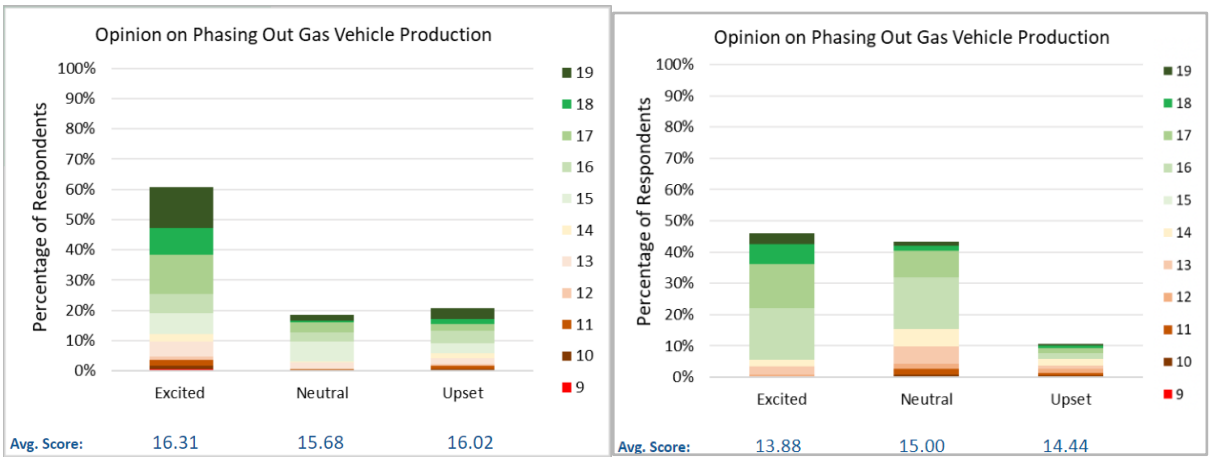

Figure 15. Respondents' opinion on phasing out the production of gas powered vehicles compared to their environmental score for the Mechanical Turk sample (left). Respondents' opinion on phasing out the production of gas powered vehicles compared to their environmental score for the Gettysburg College sample (right).