Knowledge and Transportation: Education on Climate Change, and Health Related to the Use of Public Transportation

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Background

- ❑ 29% of total U.S. greenhouse gases (GHG) emissions are attributed to transportation
- ❑ The WHO reports physical inactivity has increased to 70% in some countries
- ❑ Knowledge, social/personal norms, and emotional responses impact behavioral decision which makes knowledge about climate change (CC) crucial for motivating behaviors towards active commuting
- ❑ There is a current gap in research involving the relationship between knowledge and education on CC and utilized methods of transportation

Objectives

- ❑ Measure the perceived level of CC knowledge and education of UCSD students
- ❑ Measure utilization of different modes of transportation methods
- ❑ Determine if there is a positive or negative correlation between knowledge and education about CC, on utilized methods of transportation

Methods

Target Population: UCSD Undergrad Students Living Off-Campus

Participants were given an option via social media (Apr. 30th – May 15th) to take our anonymous Qualtrics Survey which included the following criteria to be self-reported:

Demographic characteristics of population:
  - ❑ Age, Gender, Major, Class level

Key exposures evaluated:
  - ❑ Perceived Knowledge Level of CC

Key outcomes evaluated:
  - ❑ Types of Transportation Used

Results

Sample Size: 51 Off-Campus Living UCSD Students

72% female
28% male

Results

Demographics:

Figure 1. Distribution of Respondents' Age

- 18 or under — 2%
- 19-21 — 37%
- 22-24 — 59%
- 25 and above — 2%
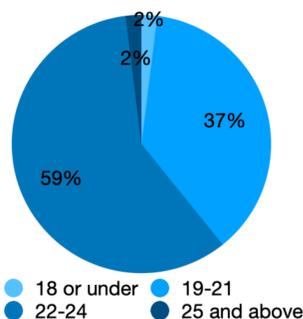
Figure 2. Distribution of Respondents Class Level

- Second-year — 25%
- Third-year — 2%
- Fourth-year — 69%
- Fifth-year — 4%
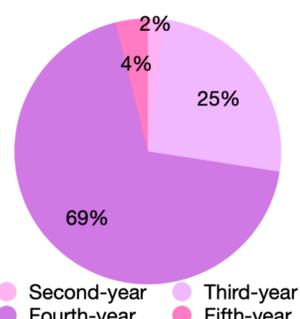
Table 1. Distribution of Respondents' Major

Participants' Major	Counts
Engineering	31
Mathematics	28
Physiology/Biology	10
Social Science	6
Humanities	9
Double Major	12

Results:

Table 2. Respondents Choosing Environmental Concern Or Healthy as a Reason for the Transportation Methods They Choose

Modes of transportation	Total Count	Count Choosing Environmental Concern	Percentage Choosing Environmental Concern	Count Choosing Healthy	Percentage Choosing Healthy
Bus	36	18	50%	10	28%
Trolley	18	9	50%	5	28%
Carpool	4	1	25%	2	50%
Driving	30	3	10%	5	17%
Walking	3	1	33%	2	67%

Figure 3. Whether Respondents Believe Individual Actions Can Influence Climate Change by Transportation Modes

- Bus: Believe 75.0%, NOT Believe 25.0%
- Trolley: Believe 72.2%, NOT Believe 27.8%
- Carpool: Believe 75.0%, NOT Believe 25.0%
- Driving: Believe 66.7%, NOT Believe 33.3%
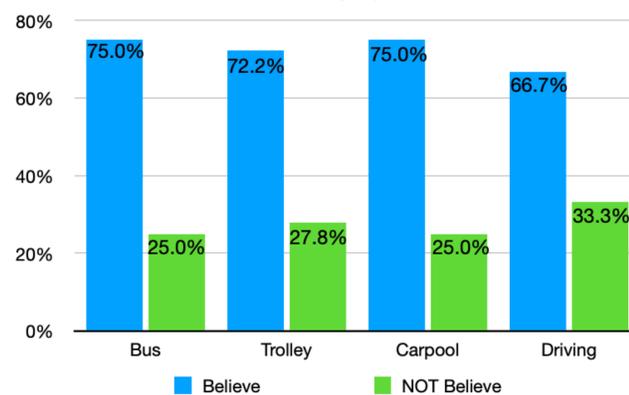
Table 4. Mean of Self-Reported Climate Change Knowledge Score for Each Transport Method

	Mean Score	Frequency
Bus	8.5	36
Trolley	8.5	18
Carpool	8.8	4
Driving (alone)	8.6	30
Scooter	8.9	1
Walking	8.6	2

These scores were obtained from self-reported familiarity with climate change-related terminology, such as GHG, melting ice, and aerosols. Higher familiarity levels correspond to higher scores.

Figure 4. Whether Respondents Believe Climate Change Is a Severe Issue That Must Be Dealt With by Transportation Modes

- Bus: Believe 69.4%, NOT Believe 30.6%
- Trolley: Believe 72.2%, NOT Believe 27.8%
- Carpool: Believe 50.0%, NOT Believe 50.0%
- Driving: Believe 66.7%, NOT Believe 33.3%
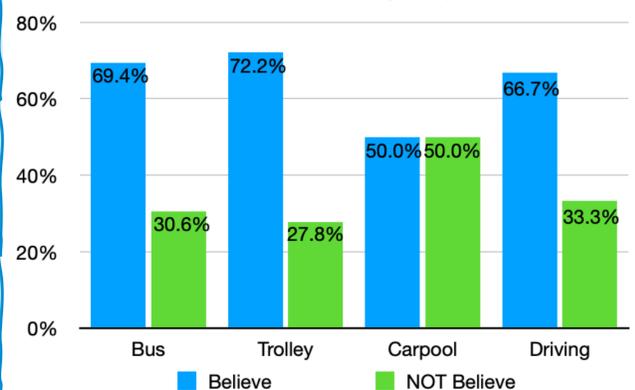
Respondents who believe that individual actions can impact CC and CC is a severe issue that must be dealt with prefer sustainable transportation methods, such as bus and trolley, compared to driving alone.

Conclusions

- ❑ Sustainable Choices based on Higher Awareness: Respondents who chose public transport were more likely to believe their individual actions impacted CC and CC is a severe issue
- ❑ Preference for Environmental Concern and Keeping Healthy: Environmental Concern and Healthy were the top 2 most common reasons for choosing sustainable transport methods
- ❑ No Significant Association Between the Choice of Sustainable Transport and Higher Awareness of CC: participants using various modes of transportation exhibit similar levels of self-reported CC knowledge, with a mean score of 8.6

Policy Implications

- ❑ Required Climate Education: 12 units of mandated climate education related to the students' interest
- ❑ Outreach: Education focused outreach implementation method of sustainability programs on campus
- ❑ Incentivize Public Transport: Add additional stops, shorter wait times, and longer operational hours could all contribute to the decreased cost and increased convenience incentivizing students to use public transport

Acknowledgements

References

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