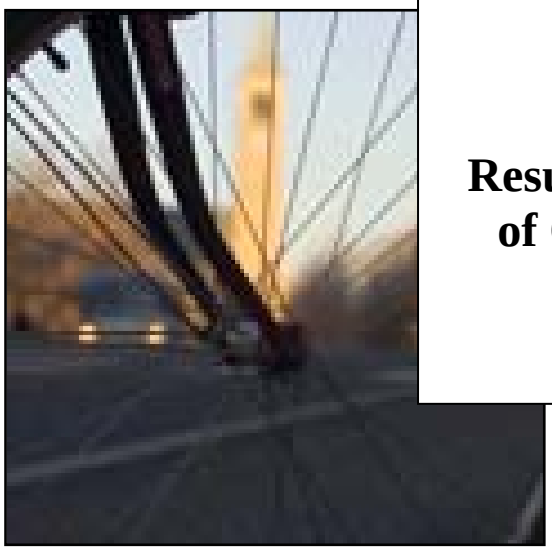
CORNELL UNDERGRADUATES' ATTITUDES TOWARD CARBON NEUTRALITY



SUMMARY REPORT

Results of a Fall 2007 Survey of Cornell Undergraduate Students

Principal Investigator: Dr. Katherine A. McComas, Department of Communication, Cornell University; Project Collaborators: Students enrolled in the Fall 2007 *Planning Communication Campaigns* (COMM 376) class and graduate Teaching Assistants, Jamie Guillory and Mu Xu. Report prepared by Katherine McComas, Jamie Guillory, and Mu Xu.

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INTRODUCTION

In March 2007, President Skorton committed Cornell University to develop a plan to become carbon neutral at some point in the future. The descriptive results presented in this report come from an online survey exploring Cornell undergraduate students' knowledge, attitudes, and behaviors related to carbon neutrality. The survey also explored students' knowledge of President Skorton's signing of the American College and University Presidents' Climate Commitment and their likelihood to accept campus-wide and personal behavior changes to contribute to carbon neutrality at Cornell University. The research questions focused on students' attitudes toward carbon neutrality and potential institutional and personal changes that will help Cornell become carbon neutral. As communication researchers, we were additionally interested in whether student support of achieving carbon neutrality corresponded with their likelihood of accepting changes, both institutional and behavioral, that will contribute to the achievement of a carbon neutral campus.

This research was conducted with the assistance of undergraduate students enrolled in COMM 376, Planning Communication Campaigns, as part of a class project. Students used these data to develop research-based communication campaign proposals, which could be implemented at some point in the future to aid in carbon neutrality efforts.[1] The research was not commissioned on behalf of any particular organization; however, the students in COMM 376 participated as part of a larger group of Cornell classes working to address issues raised by the Cornell Climate Neutrality Working Group. The Department of Communication at Cornell University provided some funds for incentives for survey respondents. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the investigators and do not necessarily reflect the views of the Climate Neutrality Steering Committee or Department of Communication.

Questions about this project should be directed to Dr. Katherine McComas, Department of Communication, 313 Kennedy Hall, Cornell University, Ithaca, New York, 14853; phone: 607-255-6508; email: kam19@cornell.edu.

METHODS

Upon our official request, the University Registrar pulled a random sample of netIDs of freshmen, sophomore, juniors, and seniors with the same gender and minority breakdown as the undergraduate population. The final sample size was 3,347, or roughly 25% of the undergraduate population. In addition to netIDs, the University Registrar provided information regarding gender, year in school, ethnicity and New York state residency.

Prior to any data collection, course approval to conduct the research was received from Cornell's Institutional Review Board (Protocol #07-09-069). The approval does not allow for any public presentation of the results by the students or instructors beyond internal use at Cornell. Permission was also sought from Susan Murphy, Vice President of Student and Academic Services.

The research team converted the netIDs into email addresses and sent introductory e-mails with a link to an online questionnaire to all potential respondents. Students who did not respond to the first e-mail received a reminder e-mail with a link to the online questionnaire one week later; those who did not respond to the second e-mail were sent a final reminder e-mail one week later with a link to the questionnaire. As an incentive to complete the survey, potential respondents were told that 30 respondents would be drawn at random to receive a $3 gift certificate to Manndible Café, Mann Library's new sustainable dining establishment..

[1] An overall summary of the "best of" the nine campaign proposals is currently underway, with completion envisioned in Spring 2008. At present, copies of individual proposals are available for review upon request.

The first round of questionnaires was mailed on October 7, 2007. Reminder e-mails were sent on October 14, 2007. A third round of questionnaires was e-mailed to all non-respondents on October 21, 2007. Data collection ended on October 25, 2007. Approximately 1% (n=35) of the e-mails were returned as undeliverable, leaving a usable sample of 3,312. Of these, 16.36% (n=542) completed the questionnaire.

The survey was developed to assess various levels of awareness and knowledge of undergraduates toward global climate change and the President's climate commitment. The study used the online survey software, Checkbox, hosted by CIT, to implement the questionnaire.

The following pages provide a descriptive summary of responses to the survey. To increase the response rate for the questionnaires, students were not required to provide answers to all items on the questionnaire. The sample sizes for each table reflect the number of students who responded to the particular questionnaire item.

RESULTS

Knowledge of Carbon Neutrality Commitment

President Skorton's signing of the American College and University Presidents' Climate Commitment acted as a primary motivator for this research project. We used one item to measure students' familiarity with the commitment. Responses to this question show that Cornell undergraduate students are unfamiliar with Cornell's carbon neutrality commitment, which means that much work remains to inform students about Cornell's commitment.

Knowledge of Carbon Neutrality Commitment	N	Mean	SD	very unfamiliar	somewhat unfamiliar	somewhat familiar	very familiar
How familiar are you with the climate commitment?	415	1.87	0.891	44.6%	26.3%	26.7%	2.4%

Knowledge of Global Warming

Another set of questionnaire items focused on students' knowledge of global warming, which may influence students' willingness to promote carbon neutrality at Cornell. Our results indicate that the majority of students recognize the processes contributing to global warming and believe that human activities, especially the emission of greenhouse gases, contribute to global warming.

Knowledge of Global Warming	N	Mean	SD	strongly disagree	disagree	neutral	agree	strongly agree
The Earth is getting warmer.	542	4.4	0.723	.7%	.4%	8.5%	38.6%	51.8%
Human activity, such as the burning of fossil fuels, is contributing to global warming.	542	4.46	0.836	1.5%	2.0%	7.6%	27.1%	61.8%
Increases in the Earth's temperature are mostly due to natural patterns in the environment.	540	2.70	1.031	8.9%	39.3%	31.5%	13.7%	6.7%
Greenhouse gases contribute to global warming.	538	4.47	0.767	.7%	1.3%	8.6%	29.4%	60.0%

Attitudes toward Global Warming

We used one questionnaire item to determine whether or not students recognized that the processes behind global warming present a serious problem. An overwhelming majority of students, almost 85%, agree or strongly agree that global warming is in fact a serious problem.

Attitudes toward Global Warming	N	Mean	SD	strongly disagree	disagree	neutral	agree	strongly agree
Global warming is a serious problem.	539	4.37	0.918	1.5%	3.5%	10.9%	24.5%	59.6%

Institutional Role

Carbon neutrality will require changes at both the institutional and personal level. We used two questionnaire items to assess student attitudes toward Cornell's role in achieving climate neutrality as an institution. There is some discrepancy between the responses to the two questions on this aspect. While over 80% students disagree that "There is not much that Cornell can do to help reduce global warming," only 70% students agree that Cornell should do more to reduce its greenhouse gas emission; 20% of students provided neutral responses concerning this question. This might be attributed to potentially ambiguous opinions about what exactly Cornell should do in order to help reduce global warming.

Institutional Role	N	Mean	SD	strongly disagree	disagree	neutral	agree	strongly agree
There is not much that Cornell can do to help reduce global warming.	541	1.81	0.995	47.0%	36.4%	8.9%	4.6%	3.1%
Cornell should do more to reduce its greenhouse gas emissions.	542	3.97	1.038	4.1%	3.7%	20.1%	35.8%	36.3%

Personal Attitudes towards Carbon Neutrality

Additional questionnaire items assessed students' perceptions of their personal roles in preventing global warming. Responses to these questions indicate that students are unsure of their personal contribution to global warming; 32% students chose "neutral" when asked whether their activities contribute to Cornell's overall greenhouse gas emission. This finding suggests that Cornell students need more information on their personal contribution to global warming.

Personal Attitudes toward Carbon Neutrality	N	Mean	SD	strongly disagree	disagree	neutral	agree	Strongly agree
I'm probably more concerned about global warming than most Cornell students.	542	3.07	1.178	10.7%	20.8%	31.9%	23.6%	12.9%
I think it's important for me to understand how I contribute to greenhouse gas emissions.	541	3.95	1.075	4.4%	5.7%	16.3%	37.2%	36.4%

I try to stay informed about global warming.	539	3.57	0.964	2.2%	10.9%	30.8%	39.5%	16.5%
People like me should do more to help Cornell reduce its greenhouse gas emissions.	540	3.81	1.036	4.1%	6.7%	20.7%	41.7%	26.9%
My activities contribute to Cornell's overall greenhouse gas emissions.	541	3.45	1.009	4.1%	12.4%	32.0%	37.7%	13.9%

Self-Efficacy

Bandura[2] defined self-efficacy as the belief that one can successfully perform a behavior to reach a certain outcome. In this study, we used one questionnaire item to assess students' perceived self-efficacy regarding their ability to reduce global warming. Over 65% of the students disagreed with the statement that "There is not much that people like me can do to affect global warming."

Self -Efficacy	N	Mean	SD	strongly disagree	disagree	neutral	agree	Strongly agree
There is not much that people like me can do to affect global warming.	539	2.23	1.071	27.6%	38.8%	20.6%	9.1%	3.9%

Attitudes toward Other Individuals' Roles

We also asked the students about their perception of other individuals' roles in achieving climate neutrality at Cornell. While almost 70% students agree that people need to make changes in their lifestyle to reduce global warming, only 34% of students think that people who are important to them want them to keep informed about global warming. Additionally, less than 28% of students think that Cornell students are concerned about global warming. This finding indicates that although students are familiar with global warming and realize that it is a problem, it is not perceived as a serious concern for other undergraduate students.

Attitude toward Other Individuals' Roles	N	Mean	SD	strongly disagree	disagree	neutral	agree	strongly agree
To reduce the effects of global warming, people will have to make major changes in their lifestyles.	540	3.93	1.129	2.8%	11.5%	16.5%	28.9%	40.4%
People who are important to me are concerned about global warming.	537	3.52	1.144	4.8%	14.5%	28.1%	28.7%	23.8%
People who are important to me want me to keep informed about global warming.	540	3.08	1.086	7.8%	21.7%	36.1%	24.1%	10.4%

[2] Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191-215.

Most Cornell students are concerned about global warming.	539	3.03	0.862	3.5%	21.2%	47.5%	24.1%	3.7%

Institutional Changes (Student-Related)

We used a variety of questionnaire items to determine students' support levels of institutional changes that would contribute to climate neutrality. A first set of items assessed students' support of institutional changes that relate directly to students' daily activities. Students show strong resistance to those changes that would cost them time and money, such as taking a course on sustainability or paying a tax for using excessive energy in dorm rooms. Almost 90% students find it acceptable or very acceptable if free bus passes could be provided to students living on campus.

Institutional Changes (Student-Related)	N	Mean	SD	Very unacceptable	2	3	4	Very acceptable
Require all new students to complete a 3-credit course on sustainability for graduation.	542	2.82	1.372	23.1%	20.7%	22.3%	19.2%	14.8%
Limit student use of personal vehicles on campus	541	3.07	1.368	16.1%	20.5%	24.6%	17.6%	21.3%
Provide free bus passes to students who live on campus	541	4.56	0.809	.9%	2.6%	7.0%	18.5%	71.0%
Give rebates to students in the dorms who use less energy than a "per student minimum"	540	4.04	1.205	6.7%	6.1%	12.4%	26.5%	48.3%
Require students who use more energy in their dorms than a "per student minimum" to pay a carbon tax	541	2.79	1.445	26.4%	19.4%	20.5%	15.7%	17.9%
Add an optional $30 student activity fee that students could elect to pay to help Cornell invest in more energy efficient technologies	540	3.62	1.303	10.4%	9.1%	21.9%	25.9%	32.8%

Institutional Changes (Non-Student-Related)

We used a second set of questionnaire items to assess student support of institutional changes that would not directly relate to students' daily activities. Students showed much greater support for these changes, in contrast with institutional changes that would require some personal cost such as time (i.e., "Require all new students to complete a 3-credit course on sustainability for graduation.") or money (i.e., "Require students who use more energy in their dorms than a 'per student minimum' to pay a carbon tax.").

Institutional Changes (Non-Student-Related)	N	Mean	SD	Very unacceptable	2	3	4	Very acceptable
Keep dorms 2 degrees cooler in winter	541	3.93	1.199	5.4%	9.6%	14.4%	27.7%	42.9%
Keep dorms 2 degrees warmer in the summer	540	3.77	1.301	8.1%	11.3%	15.9%	24.8%	39.8%
Install light sensors in dorm bathrooms so that lights turn off when no one is present	541	4.73	0.656	.6%	1.5%	3.9%	12.4%	81.7%
Require the use of compact fluorescent light bulbs or other energy efficient lighting in all campus-owned buildings	541	4.57	0.837	1.8%	1.5%	7.2%	16.6%	72.8%
Increase recycling on campus	542	4.67	0.716	1.1%	1.1%	4.6%	15.9%	77.3%
Require composting at all cafeterias and food serving establishments on campus	542	4.48	0.857	1.1%	2.8%	9.2%	20.7%	66.2%
Install low flow showerheads in dorm bathrooms	539	3.56	1.276	7.4%	15.4%	21.9%	23.9%	31.4%
Purchase more solar power even if it costs more than current energy sources.	538	3.67	1.157	5.8%	9.9%	24.9%	30.9%	28.6%
Purchase more solar power even if it costs more than current energy sources.	541	3.66	1.151	5.7%	9.4%	26.2%	30.3%	28.3%
Monitor student energy use in dorms	541	3.24	1.315	13.1%	16.5%	25.3%	23.7%	21.4%
Purchase more nuclear power	537	3.08	1.118	9.9%	17.1%	40.6%	20.3%	12.1%
Purchase more hydro-electric power even if it costs more than current energy sources.	541	3.65	1.112	5.2%	9.2%	27.0%	33.1%	25.5%
Make it a priority to purchase seasonal produce from local growers for cafeterias and food serving establishments on campus	542	4.19	1.007	2.6%	4.6%	13.7%	29.7%	49.4%

Personal Behavior Changes

We used a series of questionnaire items to evaluate students' support of personal behavior changes that would contribute to climate neutrality. Students also show a great willingness to make personal behavior changes to contribute to reducing global warming.

Personal Behavior Changes	N	Mean	SD	Very unlikely	2	3	4	Very likely
Turn off electrically-powered appliances (TV, stereo, printer) when I'm not in the room.	542	4.52	0.824	1.3%	2.4%	6.5%	22.9%	67.0%
Replace my current light bulbs with fluorescent bulbs wherever possible in my home, dorm room, or apartment	541	4.13	1.079	3.5%	5.4%	15.3%	26.2%	49.5%
Walk or ride a bike for distances less than one mile.	541	4.54	0.861	1.7%	2.4%	7.4%	17.6%	71.0%
Bring empty bottles to a recycling bin.	541	4.54	0.844	1.3%	3.0%	6.5%	18.7%	70.6%
Separate recycling from other waste.	541	4.48	0.928	2.4%	3.1%	6.7%	20.0%	67.8%
Take the time to empty my food waste into a compost bin	541	3.39	1.234	5.7%	9.8%	15.9%	22.7%	45.8%
Switch off the lights if I'm the last person to leave a room.	538	4.69	0.667	.6%	.9%	5.4%	15.2%	77.9%
Print or photocopy double-sided whenever I can.	540	4.34	1.009	2.0%	5.4%	11.3%	19.6%	61.7%
Edit drafts of my papers online.	540	3.98	1.220	5.0%	10.2%	14.8%	22.0%	48.0%
Take notes using both sides of the paper.	541	4.68	0.767	1.7%	1.5%	4.1%	12.6%	80.2%

Activism/Voluntary Help for Sustainability

Although many students support personal behavior changes, we also wanted to assess students' willingness to contribute additional time (in the form of volunteering) and funds to carbon neutrality. Students were much less willing to take extra time and money to help reduce Cornell's carbon footprint, responding positively toward these items ("Very likely" or "likely") less than 50 percent of the time for every item. This indicates that although students are willing to expend small amounts of effort to contribute to climate neutrality (i.e., "Take notes using both sides of the paper," "Switch off the lights if I'm the last person to leave a room."), they are much less willing to be supportive of efforts that that elicit more significant personal costs of time and monetary resources.

Activism/Voluntary Help for Sustainability	N	Mean	SD	Very unlikely	2	3	4	Very likely
Talk to others about how to reduce their carbon footprint.	537	3.18	1.307	15.5%	13.2%	28.1%	24.8%	18.4%
Pay a higher price for food that is produced using sustainable practices that minimize greenhouse gas emissions	540	3.10	1.348	17.6%	14.8%	25.9%	23.1%	18.5%
Volunteer time to help Cornell reduce its greenhouse gas emissions	539	3.05	1.238	14.7%	16.3%	32.5%	22.6%	13.9%
Work on behalf of a campaign to raise student awareness about how to reduce their contributions to greenhouse gas emissions	539	284	1.274	19.7%	18.6%	32.3%	16.9%	12.6%
Take a 3-credit course on how I can reduce my carbon footprint.	538	2.88	1.510	27.9%	16.0%	17.7%	17.5%	21.0%
Pay an optional $30 student activity fee each year to help Cornell invest in more energy efficient technologies	538	3.03	1.479	23.7%	14.5%	18.9%	20.8%	22.1%
Pay an extra tax to bring my own personal vehicle to campus	538	2.55	1.471	36.4%	16.0%	19.7%	12.3%	15.6%

Sources of Information on Global Warming and Climate Neutrality

We used one section to determine students' sources of information regarding global warming and climate neutrality. Faculty or staff members stand out as the most prominent source of climate neutrality information. This finding has important implications for campaigns that seek to raise student awareness regarding climate neutrality.

Source of Information on Global Warming and Climate Neutrality	N	Mean	SD	Very unlikely	2	3	4	Very likely
Friends	538	3.45	1.162	9.1%	9.9%	26.0%	37.2%	17.8%
Parents	537	3.23	1.329	15.3%	14.5%	21.2%	30.0%	19.0%
Faculty or staff member	539	3.89	1.108	5.6%	5.6%	17.1%	37.5%	34.3%
Club/sport/social organization	538	3.18	1.226	13.2%	14.5%	26.4%	32.5%	13.4%
Posters in residence halls	538	3.27	1.252	14.3%	9.9%	25.8%	34.4%	15.6%
Posters in other campus buildings	537	3.35	1.167	9.9%	11.2%	28.7%	34.5%	15.8%
Cornell Sun	535	3.36	1.205	11.2%	10.8%	24.7%	36.8%	16.4%

Tabling or quarter cards at Ho Plaza	538	2.60	1.255	26.4%	19.9%	28.8%	17.3%	7.6%
Email listserv	539	2.88	1.318	21.7%	16.5%	24.9%	25.4%	11.5%
Other Internet Web sites	539	3.27	1.242	12.4%	13.2%	26.2%	31.5%	16.7%
Resident advisor	535	2.62	1.286	27.9%	16.6%	29.0%	18.3%	8.2%

Survey Demographics

To better understand the sample of respondents, as well as to determine how well our sample represents the Cornell undergraduate population, we included a series of questionnaire items pertaining to demographic information and current personal habits that contribute to global warming.

Variable	N (% of sample)
Gender	541
Male	243 (55.1%)
Female	298 (44.9%)
Years of Education	540
Freshmen	164(30.4%)
Sophomore	133(24.6%)
Junior	120(22.2%)
Senior	123(22.8%)
Ethnicity	516
White/European American	402 (77.9%)
Black/African American	6(1.2%)
Hispanic/Latino/Chicano	11 (2.1%)
Asian/Asian American	81 (15.7%)
Native American	1 (0.2%)
Multiracial	15(2.9%)
Where do you live?	535
North Campus Hall	152(28.4%)
Program House	28(5.2%)
Transfer Students' Living Facilities	16(3.0%)
Sorority/Fraternity House	43(8.0%)
West Campus Hall/House	54(10.1%)
Collegetown Dorm	19(3.5%)
Other On-Campus Housing	16(3.0%)
Off-Campus Housing (i.e. apartment)	207(38.7%)
Having personal car in Ithaca?	540
Yes	154 (28.5%)
No	386 (71.5%)
Access to someone else's car in Ithaca?	533
Yes	188 (35.3%)
No	345 (64.7%)
Walk to class most days?	542
Yes	501 (92.4%)
No	41 (7.6%)
Ride bicycle to class most days?	542
Yes	74 (13.7%)
No	468 (86.3%)
Ride bus to class most days?	542
Yes	144(26.6%)
No	398(73.4%)
Get dropped off by car to class most days?	542
Yes	19(3.5%)
No	523(96.5%)
Drive own vehicle to class most days?	542

Yes	18(3.3%)
No	524(96.7%)
NYS Resident?	
Yes	282(52.6%)
No	254(47.4%)

Comparison of Sample to the Cornell Undergraduate Population

The below tables compare the final sample of 3,347 Cornell undergraduate students with demographic characteristics of the entire Cornell undergraduate population. We provide comparisons of the following variables: year in school, gender and ethnicity. There is an overrepresentation of freshman in the population as compared with the sampling pool and Cornell undergraduate population. The comparisons also demonstrate that the distribution of gender in the sample compares closely with the gender distribution of the sampling pool and the Cornell undergraduate population. These comparisons indicate that there is an overrepresentation of white students and an underrepresentation of black and Hispanic students.

*Year in School**

	Sampling Pool	Final Sample
Freshman	22.84%	30.31%
Sophomore	26.27%	24.77%
Junior	25.70%	22.18%
Senior	25.01%	22.74%
Fifth-Year Senior	.18%	N/A

*We were unable to obtain population statistics regarding year in school.

Gender

	Population	Sampling Pool	Final Sample
Male	50.94%	44.65%	51.13%
Female	49.06%	55.35%	48.72%

Ethnicity

	Population	Sampling Pool	Final Sample
White	53.24%	69.46%	77.65%
Indian	*	.46%	.19%
Native American	.47%	3.54%	.19%
Hispanic	5.49%	4.38%	2.12%
Black	5.02%	5.46%	1.16%
Asian	16.10%	16.5%	15.61%
Other	*	.19%	

*Indian and Other categories were not included in "Summary Update: Progress Toward Diversity and Inclusion." Cornell University Annual Report, 2006.