

Campus Conversations Final Report

The Impact of Climate Change on Food Security

David Emmanuel Gray, Ph.D.
Assistant Teaching Professor of Philosophy
Carnegie Mellon University in Qatar

Jill Duffy
Student Development Coordinator
Carnegie Mellon University in Qatar

On the evening of Sunday, November 20, 2011, one-hundred and eight university students gathered at the Hamad bin Khalifa University Student Center in Education City of Doha, Qatar for a deliberative loop addressing the impact of climate change on food security. This event was hosted by Carnegie Mellon University in Qatar, in partnership with Qatar Foundation Sustainability Education. If unchecked, global climate change could drastically alter the landscape of Qatar through increased temperatures, continued desertification, and shrinking landmass due to rising sea level. These changes in turn would put pressure on Qatar's food security with scarcity of fresh water, loss of agricultural lands, and rapid depletion of fish and other sea life. The need to merge an ever evolving understanding of the natural world with individual practices and national policies further complicates things. This deliberation had participants consider links between climate change and food security while asking them to weigh the possible actions that the universities partnered with Hamad bin Khalifa University might take on issues of climate change, food security, and sustainability.

The event was an extension of the broader Campus Conversations program based at Carnegie Mellon's Pittsburgh campus, which promotes civic, democratic engagement at the campus level through deliberative polls[®] and deliberative loops[®]. A deliberative loop is a structured conversation designed to give a representative and diverse group of people the opportunity to provide informed feedback on a set of specific issues affecting their community, ideally influencing those who make policy decisions. In preparation for the conversation, participants receive well-designed background information on the issue that they are expected to have read beforehand. At the beginning of the event, participants fill out pre-surveys soliciting their initial impressions of the issue. Following that, participants are randomly assigned to small, peer-moderated groups to discuss and deliberate amongst themselves in a structured conversation, one goal of which is to assemble a set of questions to present to an invited panel of experts. After a plenary question and answer session with the panel, participants fill out a post-survey gathering their more considered and informed judgments about the issue. The results are then passed on to interested stakeholders.

The Campus Conversations program originated in 2005 at the Program for Deliberative Democracy, which is housed at Carnegie Mellon University in Pittsburgh, with a set of threefold objectives: (1) develop empowered, informed, and responsible learners through the transformation of experience and the creation of knowledge; (2) promote a commitment to civic engagement and social responsibility; and (3) encourage substan-



University Programs and Undergraduate Majors Partnered with Hamad bin Khalifa University

| | | |
|----------------------------------|--|--|
| Carnegie Mellon University | Tepper School of Business School of Computer Science Dietrich College of Humanities and Social Sciences Mellon College of Science | Business Administration Computer Science Information Systems Biological Sciences Computational Biology |
| Northwestern University | Medill School of Journalism School of Communication | Journalism Communication |
| Georgetown University | School of Foreign Service | Culture and Politics International Economics International Politics |
| Cornell University | Weill Cornell Medical College | Medicine Pre-Medicine |
| Texas A&M University | Dwight Look College of Engineering | Chemical Engineering Electrical and Computer Engineering Mechanical Engineering Petroleum Engineering |
| Virginia Commonwealth University | School of the Arts | Fashion Design Graphic Design Interior Design Painting and Printmaking |

tive interaction among individuals and groups who traditionally do not interact in the context of daily life. Since then, the responsibility for the program has become a collaborative effort between the academic unit within Carnegie Mellon's Center for Ethics and Policy and Carnegie Mellon's division of student affairs. Between five to seven campus conversations are held on the Pittsburgh campus every year.

While there have been previous campus conversations involving Carnegie Mellon's Qatar campus, these events were held in conjunction with similar conversations based out of Pittsburgh. The Campus Conversation on the Impact of Climate Change on Food Security was the first program that was held in Qatar independent from the Pittsburgh campus, addressing an issue of particular concern to the Qatar community, and open to all undergraduate students attending any of the universities partnered with Hamad bin Khalifa University. The invited expert panel consisted of three university professors, one government researcher, and a community representative. The plenary question and answer session with the panel was moderated by Steff Gaulter, the senior meteorologist for Al Jazeera English. The background materials for this event consisted of (1) a 38-page document, "Climate Change and the Campus", provided by the Program for Deliberative Democracy, and (2) a 2-page flyer advertising the event along with various facts concerning how climate change and food security apply to Qatar. It was anticipated that most students would read the flyer before attending, and those interested could dig deeper into the larger background document. Students were recruited through faculty and student affairs partners across these universities, and some students received extra credit points in their courses for participating.

Executive Summary of this Report

Ninety-six undergraduates participated in this campus conversation, and seventy one of these students completed both the pre- and post-surveys associated with the deliberation, resulting in a 73.96% response rate. This was a diverse group of indi-

Expert Panel for the Campus Conversation on the Impact of Climate Change on Food Security

| | |
|----------------------------|---|
| Dr. Patrick Linke | Member of Executive Board and Chief Engineer, Qatar National Food Security Programme Founder and Director, Qatar Sustainable Water & Energy Utilization Initiative Professor of Chemical Engineering, Texas A&M University at Qatar |
| Dr. Mari Luomi | Post-Doctoral Fellow, Center for International Regional Studies, Georgetown University School of Foreign Service in Qatar |
| Dr. Robert G. Wirsing | Visiting Professor, Georgetown University School of Foreign Service in Qatar |
| Dr. Fedaa Ali | Chief Researcher, Qatar Environment and Energy Research Institute |
| Marouf Mahmoud | Vodafone Qatar |
| Steff Gaultner (Moderator) | Senior Meteorologist, Al Jazeera English |

viduals, with students from five of the six universities, the full range of academic years, several different majors, and a wide range of different nationalities. In addition to these students, who participated as deliberators, a separate cohort of twelve students acted as moderators for the small group discussions.

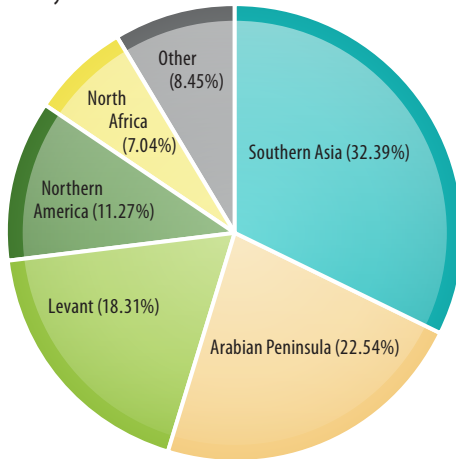
In examining the survey results, 85.71% of participants indicated on the post-survey that they believe that the issue of food security in Qatar is a very important issue (an increase of 37.14% from the pre-survey). In addition, post-survey results show that 82.86% of participants believe that global climate change either has already begun to effect food security in Qatar or will do so in the next few years (an increase of 24.28%). When it came to the role of the universities partnered with Hamad bin Khalifa University, 47.89% of post-survey responses support the allocation of significantly more resources to adopt sustainable practices (an increase of 17.54%). Finally, post-survey results suggest that, in addition to raising concern for this issue, the event was also informative and transformative, as 78.26% of participants claim in the post-survey to understand the issue of food security Qatar either well or very well (an increase of 55.07%) while 61.19% of respondents indicated that this campus conversation changed their views a great deal about the effect of global climate change on food security in Qatar. In addition to asking about the issues under discussion, the post-survey asked participants about their impressions of the campus conversation event itself. In response, 75.38% found this event very engaging and 57.81% found it very enjoyable. Furthermore, 70.15% of the participants said that this campus conversation allowed them to hear a great deal of arguments or perspectives that they had not considered before.

These results suggest that these students are concerned about the implications of global climate for Qatar's food security, and that they want their universities to do something in response. Indeed, their comments suggest that they want greater action taken across all of Qatar society. These results also suggest that students attending the universities partnered with Hamad bin Khalifa University would be strongly interested in future campus conversations. Participants at this campus conversation provided a variety of topics and issues that they thought this forum would be well equipped to handle. Finally, in light of the rich *majlis* tradition within the Gulf region, there already exist cultural norms with which the Campus Conversations program may align itself in order to display the relevance and value of democratic decision making to students living in this region.

Figure 1: The Parties to the Conversation

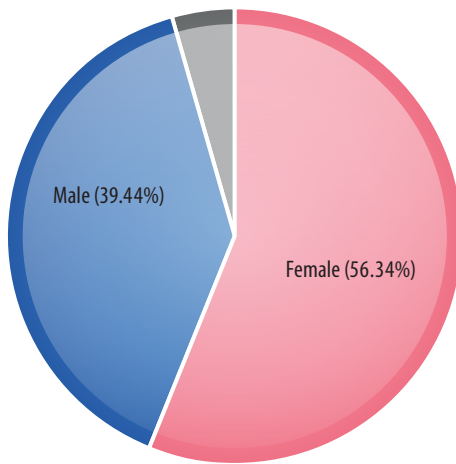
The demographic makeup of the seventy-one participants ($n = 71$) who submitted both pre- and post-surveys for this campus conversation.

Nationality

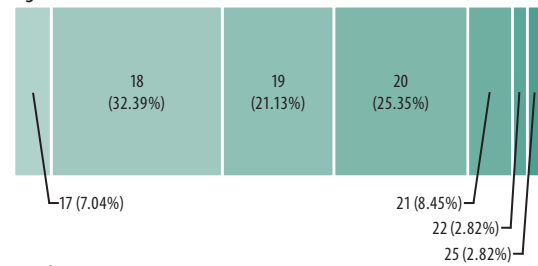


| | |
|-------------------|-----------------------|
| India (18.31%) | Pakistan (9.86%) |
| Sri Lanka (2.82%) | Iran (1.41%) |
| Qatar (16.90%) | Oman (4.23%) |
| Yemen (1.41%) | Jordan (7.75%) |
| Syria (7.04%) | Palestine (2.82%) |
| Lebanon (0.70%) | United States (8.45%) |
| Canada (2.82%) | Sudan (4.23%) |
| Egypt (1.41%) | Tunisia (1.41%) |
| China (1.41%) | Costa Rica (1.41%) |
| Germany (1.41%) | Indonesia (1.41%) |
| Maldives (1.41%) | Philippines (1.41%) |

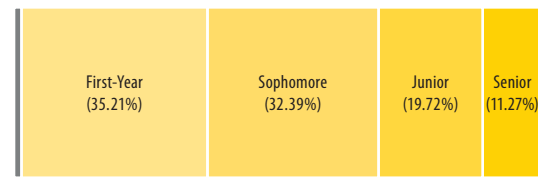
Gender



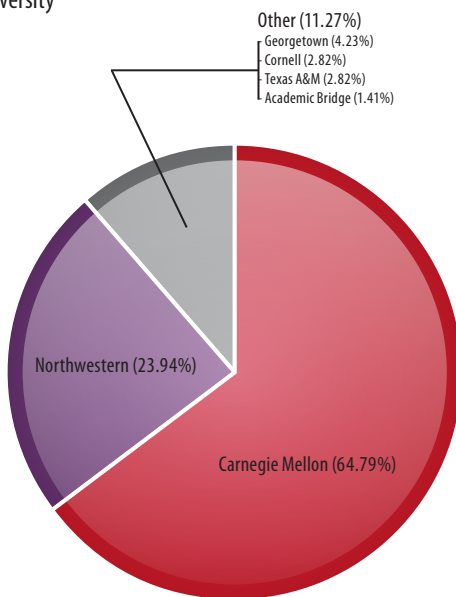
Age



Academic Year



University



Major Field of Study

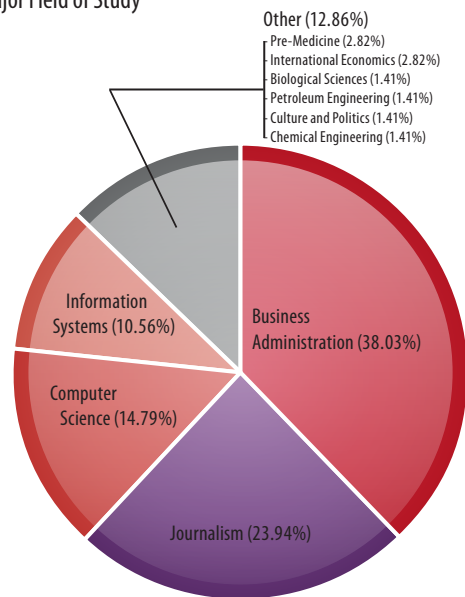
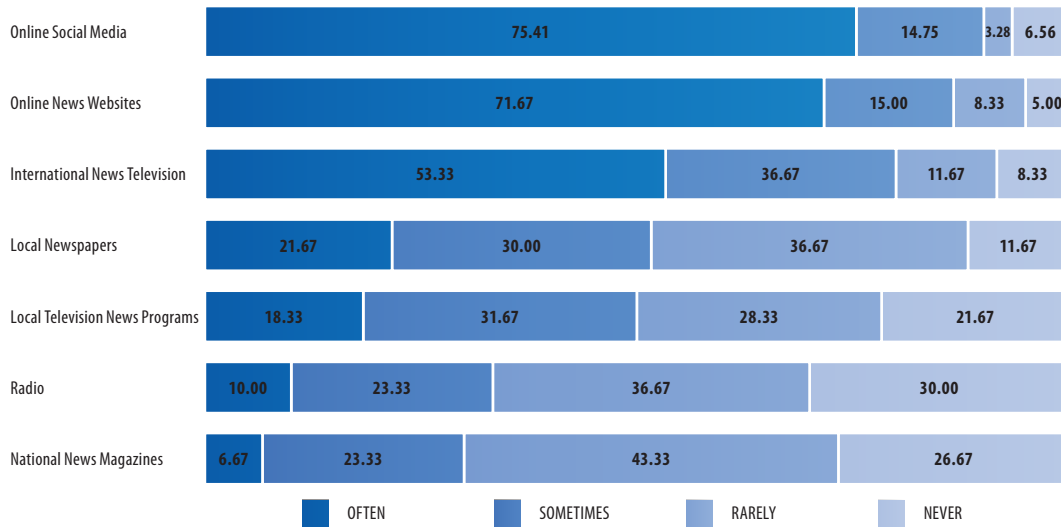


Figure 2: How Participants Receive the News

The percentages of participants indicating in the pre-surveys how frequently they get news from the specified source. Percentages are based only on the sixty participants who provided a response for all seven news sources ($n = 60$).



Participants

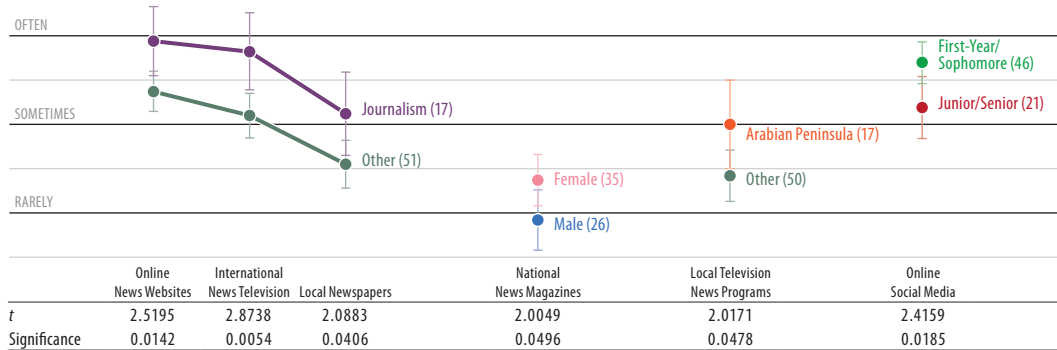
The results reported in the next sections represent the data collected from the pre- and post-deliberation surveys from participants at the campus conversation on November 20, 2011. The data reflects responses from the seventy-one students who completed both pre- and post-deliberation surveys. An additional twenty-five students responded to the pre-survey but did not submit a post-survey. The responses of this latter group of students are not reflected in this report.

As figure 1 shows, students from twenty-two countries participated, with India and Qatar having the largest representation. In calculating this, participants indicating dual nationality were divided between their respective countries, so, for example, a student claiming to be from both the United States and Lebanon was counted as half-American and half-Lebanese. In addition, there were somewhat more females than males who participated. In general, participants were relatively young in both age and academic year. The average age was 19.2 (median: 19), and slightly over two-thirds of participants were first-year and sophomore students. Finally, students from five of the six universities partnered with Hamad bin Khalifa University participated, with nearly two-thirds from Carnegie Mellon and almost a quarter from Northwestern. A student from Hamad bin Khalifa University's pre-college Academic Bridge Program also participated. Students from ten different majors participated with the majority majoring in either Business Administration or Journalism. Similar to those with dual nationality, participants indicating double majors were divided between their respective majors, so, for example, a student claiming to major in both Business Administration and Computer Science was counted as half of each.

In addition to collecting demographic information, participants were also asked how frequently they got the news from seven different media sources. The results, appearing in figure 2, show that online sources are the most popular among the participants, whereas fewer of them rely on more legacy sources like print media and the radio. Considering this is a group of undergraduate students, these results should not be surprising.

Figure 3: How Different Groups Receive the News

Comparing mean responses of different groups concerning how frequently they get news from the specified source with 95% confidence intervals. For each, the number of participants in each group responding is given in parentheses. Below are the *t* values and significances of two-tailed unpaired *t*-tests comparing the groups' responses for that news source.



These responses concerning sources of news were also compared using the demographic information, the more interesting results of which appear in figure 3. We anticipated to see some differences in news consumption between journalism and non-journalism students, and the analysis confirms this. Indeed, there were significant differences showing these journalism majors using online news websites, international news television, and local newspapers more frequently than the non-journalism majors participating. We were unable to detect any significant differences between these two groups for the other forms of media, however.

In making other demographic comparisons, there were also some statistically significant differences suggesting that (1) the women of this group read more national news magazines than the men; (2) those from the Arabian Peninsula get more news from the local television news programs than those from outside the Arabian Peninsula, presumably because these programs are almost exclusively in Arabic; and (3) taken together, the first-years and sophomores employ more online social media than this group of juniors and seniors. Other factors, such as age, did not reveal any further significant differences.

Results

It should be emphasized that the data gathered at this campus conversation comes from a sample of the larger community that was *not* randomly selected. While undergraduate students from all universities partnered with Hamad bin Khalifa University were invited to participate in this conversation, some universities were able to offer different kinds of incentives to their students. This resulted in, for instance, the greater number of participants from Carnegie Mellon and Northwestern, universities with which the organizers had the most direct affiliation. Thus, the participants and respondents make up a convenience sample, rather than a representative random sample of the Hamad bin Khalifa University undergraduate community. This means all the results to follow must be viewed in this context without hasty generalization. Even so, these results still offer insight into the perspective of a select group of participants who availed themselves of the opportunity to consider, discuss, and question the effect of climate change on food security in Qatar, an important issue confronting the larger community living there.

Figure 4: The Importance of the Issues

The percentages of participants indicating in pre- and post-surveys the importance of global climate change and food security in Qatar, the number (*n*) of participants completing each item on both surveys, and the two-tailed paired *t*-test results comparing individual responses across both surveys. Values of zero percent (0.00%) have been omitted.

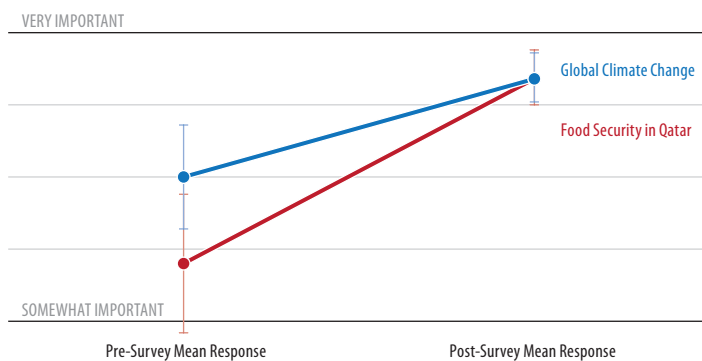
| | | % Survey Responses | | | | | <i>n</i> | Two-Tailed Paired <i>T</i> -Test | |
|------------------------|------|--------------------|--------------------|--------------------|--------|---------------|----------|----------------------------------|--------------|
| | | VERY IMPORTANT | SOMEWHAT IMPORTANT | A LITTLE IMPORTANT | UNSURE | NOT IMPORTANT | | <i>t</i> | Significance |
| Global climate change | Pre | 62.86 | 27.14 | 8.57 | | 1.43 | 70 | -3.6016 | 0.0006 |
| | Post | 84.29 | 15.71 | | | | | | |
| Food security in Qatar | Pre | 48.57 | 32.86 | 12.86 | 1.43 | 4.29 | 70 | -5.7644 | 0.0000 |
| | Post | 85.71 | 12.86 | 1.43 | | | | | |

The percentage of participants whose pre-survey response concerning global climate change/food security in Qatar is the indicated column and whose post-survey response is the indicated row. The shaded diagonal indicates participants whose responses did not change. Participants above the diagonal made a shift from pre- to post-survey suggesting that the issue is more important, whereas those below shifted towards it being less important. Values of zero percent (0.00%) have been omitted.

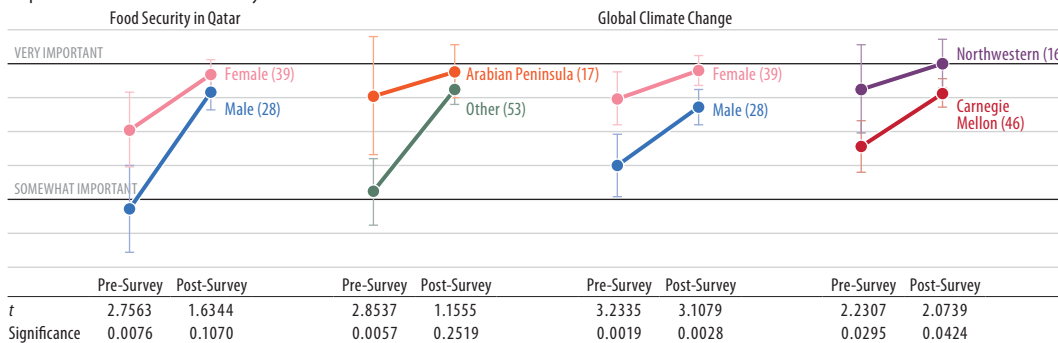
| | | Pre-Survey Response | | | | |
|------------------------|--------------------|---------------------|--------------------|--------------------|--------|---------------|
| | | VERY IMPORTANT | SOMEWHAT IMPORTANT | A LITTLE IMPORTANT | UNSURE | NOT IMPORTANT |
| Global climate change | VERY IMPORTANT | 58.57 | 17.14 | 7.14 | | 1.43 |
| | SOMEWHAT IMPORTANT | 4.29 | 10.00 | 1.43 | | |
| | A LITTLE IMPORTANT | | | | | |
| | UNSURE | | | | | |
| | NOT IMPORTANT | | | | | |
| Food security in Qatar | VERY IMPORTANT | 47.14 | 27.14 | 7.14 | 1.43 | 2.86 |
| | SOMEWHAT IMPORTANT | 1.43 | 5.71 | 5.71 | | |
| | A LITTLE IMPORTANT | | | | | 1.43 |
| | UNSURE | | | | | |
| | NOT IMPORTANT | | | | | |

Comparing mean responses on both issues from pre- to post-survey with 95% confidence intervals (right), along with the results a two-tailed paired *t*-test (below).

| | Pre-survey | Post-Survey |
|--------------|------------|-------------|
| <i>t</i> | 2.8190 | 0.0000 |
| Significance | 0.0063 | 1.0000 |



Comparing mean responses of different groups concerning the indicated issues from pre- to post-survey with 95% confidence intervals. For each, the number of participants in each group responding is given in parentheses. Below are the *t* values and significances of two-tailed unpaired *t*-tests comparing the groups' responses for the issue on that survey.



As seen in figure 4, prior to the campus conversation, a 62.86% majority of participants indicated that the issue of global climate change was very important, and the conversation apparently reinforced this notion as this majority increased to 84.29% afterwards. Indeed, all participants indicated after the conversation that global climate change was either very or somewhat important. An even greater change is revealed when it comes to the issue of food security in Qatar, however. Before the conversation, only 48.57% suggested that this was a very important issue. The conversation clearly had an impact, signif-

icantly increasing that to 85.71% in the post-survey—perhaps not surprising given the topic of this campus conversation. Figure 4 also shows that while a majority of people did not seem to change their views concerning the importance of global climate change or food security in Qatar, those who did change their mind on these issues did so overwhelmingly in the direction of the issues having greater importance. In comparing individual responses across both issues, responses on the pre-survey show participants judging global climate change as significantly more important than food security in Qatar, whereas on the post-survey there is virtually no distinction between their relative importance.

In addition, figure 4 compares how different demographic groups in the conversation judge the importance of the two issues. First, when it came to the issue of food security in Qatar, initially female participants apparently thought the issue was more important than the men and those participants from the Arabian Peninsula thought it more important than those not from there. Given the explicit concern with food security by the governments of the Arabian Peninsula, it is not too surprising that their young citizens might therefore see this issue as especially important prior to this conversation. The greater concern among these women than the men was more of a surprise. Regardless, in both cases these distinctions seem to have receded by the end of the conversation. On the other hand, when it came to global climate change, some initial differences did not disappear. On both pre- and post-surveys, the females thought this issue was more important than the men and students from Northwestern thought it was more important than their Carnegie Mellon counterparts. Given that the conversation ended up more focused on food security than climate change, perhaps there was less opportunity for convergence on the latter issue than the former.

When it came to the participants' understanding of the issues, the conversation clearly contributed to them feeling that they understood them both better. As figure 5 shows, 51.43% of the participants indicated that they understood global climate change either very well or well prior to the conversation, while afterwards this increased to 87.14% claimed to understand it that well. As with issue importance, a more dramatic change was revealed with regards to food security in Qatar: participants claiming to understand the issue either very well or well increased from 23.19% to 78.26%. Indeed, the results in figure 5 show that a 61.43% majority indicated a greater amount of understanding going from pre- to post-survey on global climate change, while an even greater majority of 78.25% expressed greater understanding of food security in Qatar. Clearly the participants believed that this event contributed to their greater understanding of both issues. Finally, in comparing individual responses across both issues, figure 5 shows that responses on both pre- and post-surveys suggest that the participants felt a significantly greater understanding of climate change than they had for food security, though the gap narrowed slightly by the time of the post-survey.

Responses to more open-ended questions on the post-survey not only help confirm the view that participating in this campus conversation was an informative experience but they also offer a more nuanced account of what particular items resonated with this group. For instance, one participant said, "I was very shocked to find out that 90% of our food is imported. What if these countries decide to withdraw their support or cancel the trade?" Another said, "I had never considered exactly why using energy should be moderated, but

Figure 5: Understanding the Issues

The percentages of participants indicating in pre- and post-surveys how well they think they understand global climate change and food security in Qatar, the number (*n*) of participants completing each item on both surveys, and the two-tailed paired *t* test results comparing individual responses across both surveys. Values of zero percent (0.00%) have been omitted.

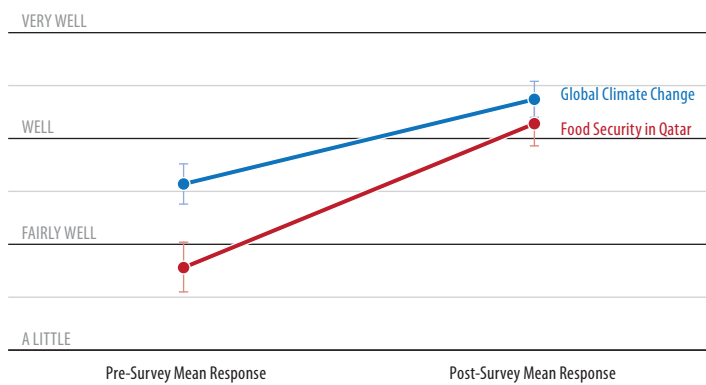
| | | % Survey Responses | | | | | <i>n</i> | Two-Tailed Paired <i>T</i> -Test | |
|------------------------|------|--------------------|-------|-------------|----------|------------|----------|----------------------------------|--------------|
| | | VERY WELL | WELL | FAIRLY WELL | A LITTLE | NOT AT ALL | | <i>t</i> | Significance |
| Global climate change | Pre | 11.43 | 40.00 | 44.29 | 2.86 | 1.43 | 70 | -7.7701 | 0.0000 |
| | Post | 50.00 | 37.14 | 12.86 | | | | | |
| Food security in Qatar | Pre | 2.90 | 20.29 | 37.68 | 30.43 | 8.70 | 69 | -11.9653 | 0.0000 |
| | Post | 42.03 | 36.23 | 15.94 | 5.80 | | | | |

The percentage of participants whose pre-survey response concerning global climate change/food security in Qatar is the indicated column and whose post-survey response is the indicated row. The shaded diagonal indicates participants whose responses did not change. Participants above the diagonal made a shift from pre- to post-survey expressing greater understanding of the issue, whereas those below shifted towards less understanding. Values of zero percent (0.00%) have been omitted.

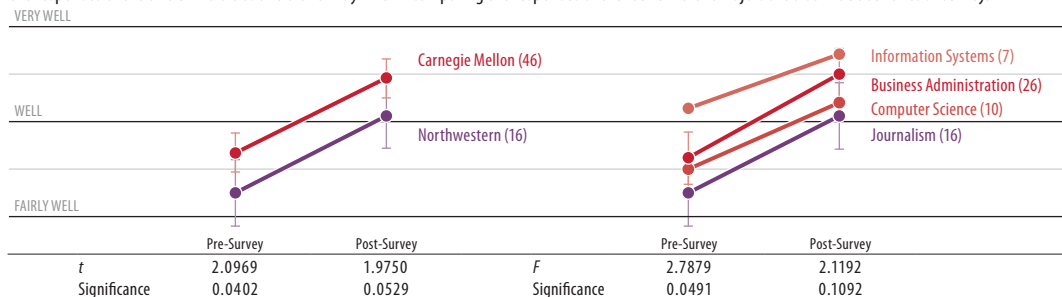
| | | Pre-Survey Response | | | | |
|------------------------|-------------|---------------------|-------|-------------|----------|------------|
| | | VERY WELL | WELL | FAIRLY WELL | A LITTLE | NOT AT ALL |
| Global climate change | VERY WELL | 10.00 | 22.86 | 15.71 | | 1.43 |
| | WELL | 1.43 | 15.71 | 18.57 | 1.43 | |
| | FAIRLY WELL | | 1.43 | 10.00 | 1.43 | |
| | A LITTLE | | | | | |
| | NOT AT ALL | | | | | |
| Food security in Qatar | VERY WELL | 2.90 | 13.04 | 18.84 | 4.35 | 2.90 |
| | WELL | | 7.25 | 13.04 | 14.49 | 1.45 |
| | FAIRLY WELL | | | 5.80 | 10.14 | |
| | A LITTLE | | | | 1.45 | 4.35 |
| | NOT AT ALL | | | | | |

Comparing mean responses on both issues from pre- to post-survey with 95% confidence intervals (right), along with the results a two-tailed paired *t*-test (below).

| | Pre-Survey | Post-Survey |
|--------------|------------|-------------|
| <i>t</i> | 7.2219 | 3.0978 |
| Significance | 0.0000 | 0.0028 |



Comparing mean responses of Carnegie Mellon and Northwestern (left) and mean responses by the majors at those two universities (right) concerning the issue of global climate change from pre- to post-survey, with 95% confidence intervals for both universities as well as the business administration and journalism majors, and the number of participants in each group responding in parentheses. Significance results from a two-tailed unpaired *t*-test comparing the responses of the two universities and a one-way ANOVA comparing the responses of the four different majors are also included for each survey.



now I have realized its importance.” Indeed, one participant remarked how important it was to learning about this issue: “I think educating people would encourage them because when people learn about the effect of global warming, they will be engaged in this issue.”

In comparing how different demographic groups express their understanding of the issues, a significant difference emerged between Carnegie Mellon and Northwestern students concerning the issue of global climate change. As seen in figure 5, participants from Carnegie Mellon indicated a greater un-

Figure 6: Consensus Among Climate Scientists

The percentages of participants indicating in pre- and post-surveys whether they think that climate scientists agree or disagree about whether the earth has been warming in recent years and whether human activities are a major source of climate change, the number (*n*) of participants completing each item on both surveys, and the two-tailed paired *t* test results comparing individual responses across both surveys. Values of zero percent (0.00%) have been omitted.

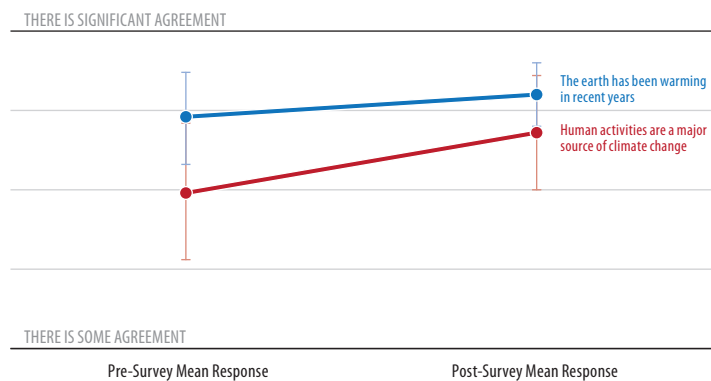
| | | % Survey Responses | | | | | Two-Tailed Paired T-Test | | |
|---|------|--------------------------------|-------------------------|--------|----------------------------|-----------------------------------|--------------------------|----------|--------------|
| | | THERE IS SIGNIFICANT AGREEMENT | THERE IS SOME AGREEMENT | UNSURE | THERE IS SOME DISAGREEMENT | THERE IS SIGNIFICANT DISAGREEMENT | <i>n</i> | <i>t</i> | Significance |
| The earth has been warming in recent years | Pre | 77.14 | 21.43 | | | 1.43 | 70 | -0.9276 | 0.3569 |
| | Post | 80.00 | 20.00 | | | | | | |
| Human activities are a major source of climate change | Pre | 68.12 | 21.74 | 1.45 | 8.70 | | 69 | -1.8521 | 0.0683 |
| | Post | 78.26 | 17.39 | | 2.90 | 1.45 | | | |

The percentage of participants whose pre-survey response concerning the earth warming/human activities is the indicated column and whose post-survey response is the indicated row. The shaded diagonal indicates participants whose responses did not change. Participants above the diagonal made a shift from pre- to post-survey believing that there is greater agreement amongst climate scientists, whereas those below shifted towards belief in greater disagreement. Values of zero percent (0.00%) have been omitted.

| | | Pre-Survey Response | | | | |
|---|-----------------------------------|--------------------------------|-------------------------|--------|----------------------------|-----------------------------------|
| | | THERE IS SIGNIFICANT AGREEMENT | THERE IS SOME AGREEMENT | UNSURE | THERE IS SOME DISAGREEMENT | THERE IS SIGNIFICANT DISAGREEMENT |
| The earth has been warming in recent years | | | | | | |
| Post-Survey Response | THERE IS SIGNIFICANT AGREEMENT | 68.57 | 10.00 | | | 1.43 |
| | THERE IS SOME AGREEMENT | 8.57 | 11.43 | | | |
| | UNSURE | | | | | |
| | THERE IS SOME DISAGREEMENT | | | | | |
| | THERE IS SIGNIFICANT DISAGREEMENT | | | | | |
| Human activities are a major source of climate change | | | | | | |
| Post-Survey Response | THERE IS SIGNIFICANT AGREEMENT | 62.32 | 11.59 | 1.45 | 2.90 | |
| | THERE IS SOME AGREEMENT | 5.80 | 8.70 | | 2.90 | |
| | UNSURE | | | | | |
| | THERE IS SOME DISAGREEMENT | | | | 2.90 | |
| | THERE IS SIGNIFICANT DISAGREEMENT | | | 1.45 | | |

Comparing mean responses on both issues from pre- to post-survey with 95% confidence intervals (right), along with the results a two-tailed paired *t*-test (below).

| | Pre-Survey | Post-Survey |
|--------------|------------|-------------|
| <i>t</i> | 1.8681 | 1.2101 |
| Significance | 0.0661 | 0.2304 |



derstanding of this issue than those attending Northwestern on both pre- and post-surveys, though the understanding of each group did seem to increase as a result of the event. Breaking this down further by major shows that, on the pre-survey, Carnegie Mellon majors in information systems, business administration, and computer science each claimed greater understanding than the Northwestern journalism majors. On the post-survey, however, this distinction became much less significant. One possible explanation for this difference between the two universities is that virtually all Carnegie Mellon students are required to take 76-100, Reading and Writing in an Academic Context, during the fall semester of their first year, and this course usually incorporates material concerning climate change and/or sustainability. Meanwhile, Northwestern has no similar requirement.

Participants were also asked to indicate the extent to which they thought there was agreement or disagreement amongst climate scientists concerning whether the earth has been warming in recent years and whether human activities are a major source of climate change. As pre- and post-results in figure 6 sug-

Figure 7: The Effects of Climate Change on Food Security in Qatar

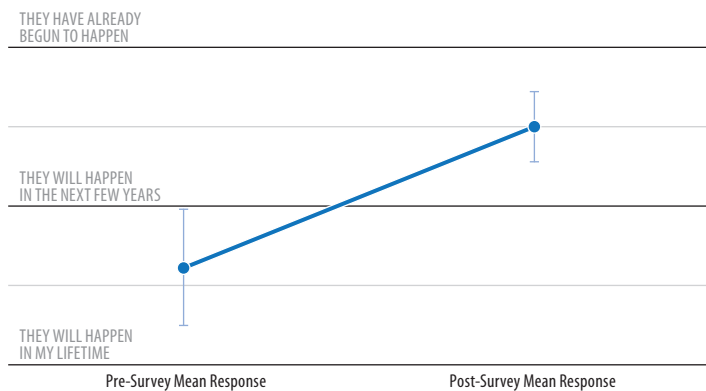
The percentages of participants indicating in pre- and post-surveys what best describes their views about the effects of global climate change on food security in Qatar, the number (*n*) of participants completing this item on both surveys, and the two-tailed paired *t*-test results comparing individual responses across both surveys. Values of zero percent (0.00%) have been omitted.

| | % Survey Responses | | | | | | <i>n</i> | Two-Tailed Paired <i>T</i> -Test | |
|------|-----------------------------------|--|---------------------------------|---|--------|------------------------|----------|----------------------------------|--------------|
| | THEY HAVE ALREADY BEGUN TO HAPPEN | THEY WILL HAPPEN IN THE NEXT FEW YEARS | THEY WILL HAPPEN IN MY LIFETIME | THEY WILL NOT HAPPEN IN MY LIFETIME, BUT WILL AFFECT FUTURE GENERATIONS | UNSURE | THEY WILL NEVER HAPPEN | | <i>t</i> | Significance |
| Pre | 44.29 | 14.29 | 17.14 | 8.57 | 14.29 | 1.43 | 70 | -4.9113 | 0.0000 |
| Post | 72.86 | 10.00 | 12.86 | 2.86 | 1.43 | | | | |

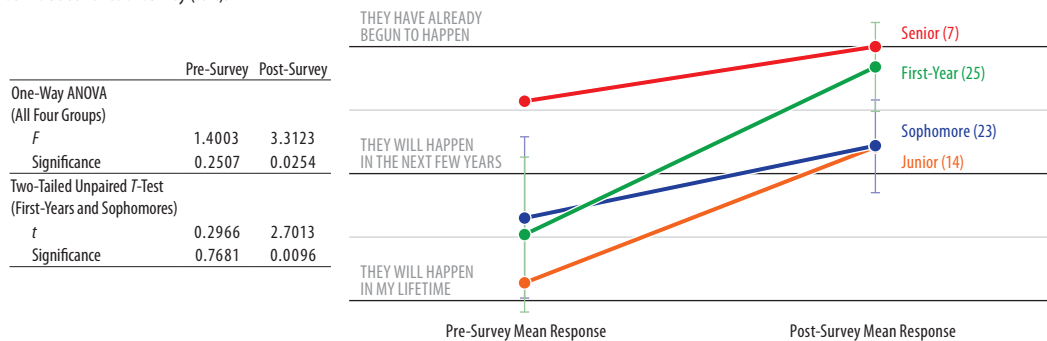
The percentage of participants whose pre-survey response is the indicated column and whose post-survey response is the indicated row. The shaded diagonal indicates participants whose responses did not change. Participants above the diagonal made a shift from pre- to post-survey believing that the effects of climate change will happen sooner, whereas those below shifted towards these effects happening later. Values of zero percent (0.00%) have been omitted.

| Post-Survey Response | Pre-Survey Response | | | | | |
|---|-----------------------------------|--|---------------------------------|---|--------|------------------------|
| | THEY HAVE ALREADY BEGUN TO HAPPEN | THEY WILL HAPPEN IN THE NEXT FEW YEARS | THEY WILL HAPPEN IN MY LIFETIME | THEY WILL NOT HAPPEN IN MY LIFETIME, BUT WILL AFFECT FUTURE GENERATIONS | UNSURE | THEY WILL NEVER HAPPEN |
| THEY HAVE ALREADY BEGUN TO HAPPEN | 40.00 | 11.43 | 8.57 | 2.86 | 8.57 | 1.43 |
| THEY WILL HAPPEN IN THE NEXT FEW YEARS | | 2.86 | 2.86 | 1.43 | 2.86 | |
| THEY WILL HAPPEN IN MY LIFETIME | 4.29 | | 5.71 | 1.43 | 1.43 | |
| THEY WILL NOT HAPPEN IN MY LIFETIME, BUT WILL AFFECT FUTURE GENERATIONS | | | | 2.86 | | |
| UNSURE | | | | | 1.43 | |
| THEY WILL NEVER HAPPEN | | | | | | |

Comparing mean responses from pre- to post-survey with 95% confidence intervals.



Comparing mean responses of different academic years concerning the effects of climate change on food security in Qatar from pre- to post-survey, with 95% confidence intervals for first-years and sophomores, and the number of participants in each group responding in parentheses (right). Significance results from a one-way ANOVA comparing the responses of all four groups and a two-tailed unpaired *t*-test comparing responses of only first-years and sophomores are also included for each survey (left).



gest, participants generally believe there is between some and significant agreement on these issues. However, there appears to have been relatively little change on these two items as a result of this campus conversation. While there was some small movement in the aggregate of responses towards a belief in more agreement amongst climate scientists on these two issues, these movements were not significant. In comparing individual responses across both items, the pre-survey displays an almost significant difference suggesting there is more agreement concerning the earth warming than concerning the cause coming from human activities. This difference vanishes on the post-survey, however. Similarly, no significant

Figure 8: How Much to Allocate towards Sustainable Practices

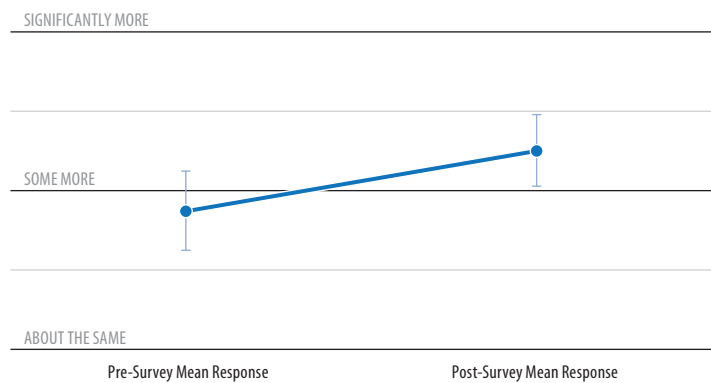
The percentages of participants indicating in pre- and post-surveys whether the universities partnered with Hamad bin Khalifa University should allocate more, less, or about the same amount of resources as they currently do to adopt sustainable practices, the number (*n*) of participants completing this item on both surveys, and the two-tailed paired *t*-test results comparing individual responses across both surveys. Values of zero percent (0.00%) have been omitted.

| | % Survey Responses | | | | | <i>n</i> | Two-Tailed Paired <i>T</i> -Test | |
|------|--------------------|-----------|----------------|-----------|--------------------|----------|----------------------------------|--------------|
| | SIGNIFICANTLY MORE | SOME MORE | ABOUT THE SAME | SOME LESS | SIGNIFICANTLY LESS | | <i>t</i> | Significance |
| Pre | 29.58 | 43.66 | 15.49 | 7.04 | 4.23 | 71 | -2.5710 | 0.0123 |
| Post | 47.89 | 39.43 | 5.63 | 4.23 | 2.82 | | | |

The percentage of participants whose pre-survey response is the indicated column and whose post-survey response is the indicated row. The shaded diagonal indicates participants whose responses did not change. Participants above the diagonal made a shift from pre- to post-survey expressing for allocating more resources, whereas those below shifted towards allocating less. Values of zero percent (0.00%) have been omitted.

| | Post-Survey Response | Pre-Survey Response | | | | |
|--|----------------------|---------------------|-----------|----------------|-----------|--------------------|
| | | SIGNIFICANTLY MORE | SOME MORE | ABOUT THE SAME | SOME LESS | SIGNIFICANTLY LESS |
| | SIGNIFICANTLY MORE | 18.31 | 19.72 | 5.63 | 1.41 | 2.82 |
| | SOME MORE | 8.45 | 19.72 | 8.45 | 2.82 | |
| | ABOUT THE SAME | | 4.23 | 1.41 | | |
| | SOME LESS | 1.41 | | | 2.82 | |
| | SIGNIFICANTLY LESS | 1.41 | | | | 1.41 |

Comparing mean responses from pre- to post-survey with 95% confidence intervals.



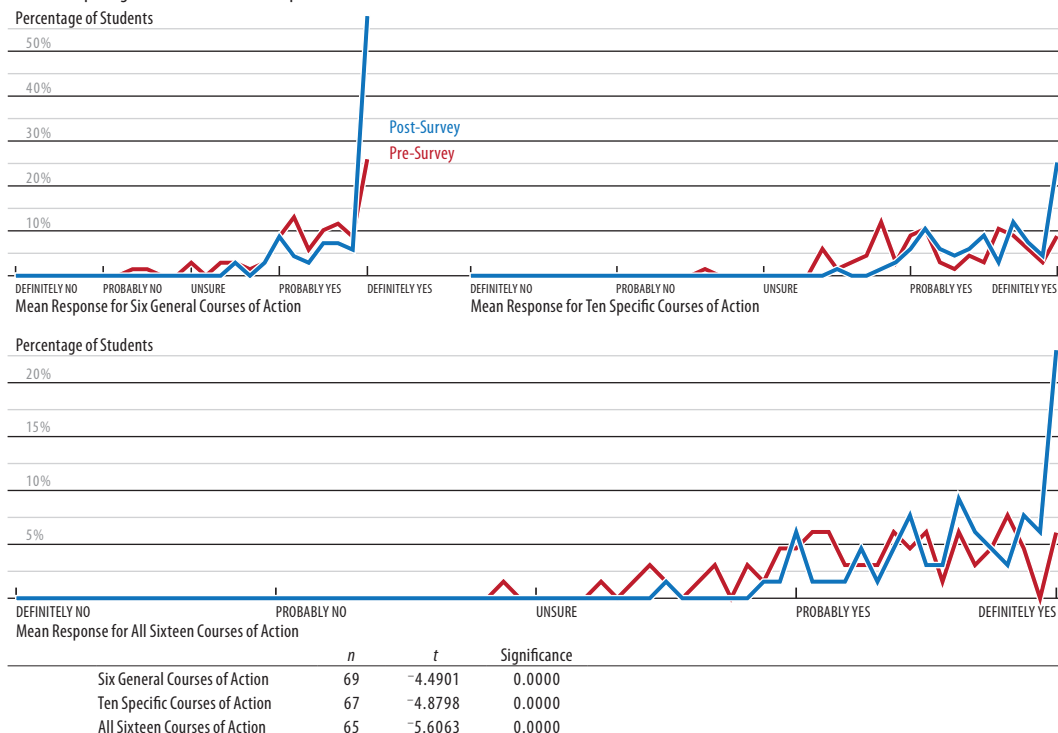
differences were revealed when comparing the responses between various demographic groups. As noted earlier, with the emphasis of the conversation turning primarily on food security in Qatar, it may well be that there was little content in the deliberations available for influencing a significant shift in the responses to these particular items.

More significant changes were apparent when participants indicated how soon they believe that climate change will have an effect on food security in Qatar. Figure 7 shows that 58.58% of participants initially thought that these effects have either already begun to happen or will do so in the next few years, whereas after the conversation this rose to 82.86%. By the end, no one indicated that these effects would never happen. While slightly more than half of the participants did not change their mind on this issue, comparing pre- and post-surveys show that 42.87% of the participants did indicate that they believed that these changes were going to occur sooner than they had initially thought. Finally, something interesting appeared when comparing responses on pre- and post-surveys along with the participants' academic year: first-year participants displayed an aggressive change of mind, especially when compared to participants one year ahead of them in university. Indeed, first-years and sophomores began the conversation nearly identical, but in the end, these first-years generally believed that the effects of climate change on food security were happening much sooner than the sophomores.

When it came to addressing what ought to be done in response to the impact of climate change on food security, participants were asked several questions

Figure 9: Mean Responses to Potential Courses of Action

Comparing the mean responses of participants on pre- and post-surveys for the potential courses of action that the universities partnered with Hamad bin Khalifa University might take in response to climate change. Shown are the means for six general courses of action, ten specific courses of action, and all sixteen courses of action. For each chart, the horizontal axis indicates the mean response and the vertical axis indicates the percentage of students with that mean response. The number (*n*) of participants responding to all items within each category on both surveys and the significance results from two-tailed paired *t*-tests comparing the individual mean responses are also included.



concerning the role of the universities partnered with Hamad bin Khalifa University. Generally speaking, this conversation seemed to generate significant support for these institutions to take some form of action. More specifically, participants were asked whether their universities should allocate more, less, or about the same amount of resources as they currently do to adopt sustainable practices. Initially, as seen in figure 8, only 29.58% of participants initially believed that the universities should allocate significantly more; after the conversation, this was 47.89%. Indeed, an overwhelming majority of 87.32% concluded that the universities should allocate more resources than they currently do. Furthermore, figure 8 suggests that the conversation clearly had some impact here, with 40.85% of participants changing their minds towards the universities allocating at least some more than they currently do. In comparing the different demographic groups, no significant differences were revealed.

In addition to the general question about allocating resources, participants were also asked to consider six general courses of action that the universities partnered with Hamad bin Khalifa University might take (e.g., modifying day-to-day on-campus operations to be more energy efficient) along with ten more specific courses of action (e.g., conduct sustainability assessments). As figure 9 shows, there was a significant movement from pre- to post-survey towards having the universities doing more in response to issues of climate change and food security, especially when it came to the six general courses of action. In fact, the percentage

Figure 10: Potential Courses of Action

The percentages of participants indicating in pre- and post-surveys whether they believe the universities partnered with Hamad bin Khalifa University should or should not take the specified course of action, the percentage of participants whose answers from pre- to post-survey revealed a shift in judgment one way or the other for that action, the number (n) of participants completing this item on both surveys, and the two-tailed paired t-test results comparing individual responses across both surveys. Values of zero percent (0.00%) have been omitted.

| In thinking about the role that the Education City universities play in the global environment, do you think they should ... | DEFINITELY YES | | | | % Survey Responses | | | | % Participants Shifting from Pre to Post ... | | | | n | t | Significance |
|--|----------------|-------|--------------|--------|--------------------|---------------|-------------|------------|--|--------------------------|---------|--------|---|---|--------------|
| | Pre | Post | PROBABLY YES | UNSURE | PROBABLY NO | DEFINITELY NO | Towards YES | Not At All | Towards NO | Two-Tailed Paired T-Test | | | | | |
| Modify their day-to-day on-campus operations to become more energy efficient (reduce carbon emissions)? | 54.29 | 75.71 | 34.29 | 7.14 | 2.86 | 1.43 | 34.29 | 57.14 | 8.57 | 70 | -3.5636 | 0.0007 | | | |
| Modify their off-campus practices (e.g., encourage energy efficient practices at off-campus events and university-sponsored events) to be more energy efficient? | 51.43 | 71.43 | 35.71 | 10.00 | 2.86 | 1.43 | 30.00 | 64.29 | 5.71 | 70 | -3.2681 | 0.0017 | | | |
| Encourage their employees to use sustainable practices in their personal lives? | 48.57 | 74.29 | 37.14 | 8.57 | 5.71 | 1.43 | 37.14 | 55.71 | 7.14 | 70 | -3.8258 | 0.0003 | | | |
| Encourage their students to use sustainable practices in their personal lives? | 54.29 | 77.14 | 34.29 | 8.57 | 2.86 | 1.43 | 35.71 | 54.29 | 10.00 | 70 | -3.1831 | 0.0022 | | | |
| Engage in community outreach to educate the public about sustainable practices and environmental issues? | 61.43 | 75.71 | 27.14 | 8.57 | 2.86 | 1.43 | 28.57 | 62.86 | 8.57 | 70 | -2.8002 | 0.0066 | | | |
| Encourage and support environmental research? | 59.42 | 79.71 | 33.33 | 4.35 | 1.45 | 1.45 | 27.54 | 65.22 | 7.25 | 69 | -2.0647 | 0.0428 | | | |
| More specifically, should the universities in Education City ... | | | | | | | | | | | | | | | |
| Conduct sustainability assessments to determine their impact on the environment and food security? | 47.89 | 81.69 | 46.48 | 5.63 | | | 40.85 | 54.93 | 4.23 | 71 | -5.3547 | 0.0000 | | | |
| Spend additional money to pay for off-sets to reduce carbon emissions? | 28.17 | 52.11 | 36.62 | 21.13 | 11.27 | 2.82 | 43.66 | 43.66 | 12.68 | 71 | -3.5893 | 0.0006 | | | |
| Install, produce, and use renewable electricity on campus (from solar or wind sources)? | 66.20 | 70.42 | 23.94 | 8.45 | 1.41 | | 19.72 | 66.20 | 14.08 | 71 | -1.1230 | 0.2653 | | | |
| Provide (aluminum, plastic, and paper) recycling containers next to trash cans in all buildings and encourage everyone to recycle? | 70.00 | 75.71 | 20.00 | 7.14 | 1.43 | 1.43 | 21.43 | 67.14 | 11.43 | 70 | -1.7207 | 0.0898 | | | |
| Modify on-campus food operations to produce less food waste? | 60.00 | 85.71 | 28.57 | 8.57 | 1.45 | 2.86 | 34.29 | 57.14 | 8.57 | 70 | -3.0778 | 0.0030 | | | |
| Limit air travel for university related business in order to reduce CO2 emissions? | 28.17 | 40.85 | 25.35 | 22.54 | 15.49 | 8.45 | 36.62 | 39.44 | 23.94 | 71 | -1.8729 | 0.0653 | | | |
| Ask off-campus caterers to provide catering options with less waste packaging (for example buffet style rather than a box lunch with many plastic containers)? | 52.86 | 74.29 | 35.71 | 10.00 | 1.43 | | 31.43 | 58.57 | 10.00 | 70 | -2.9877 | 0.0039 | | | |
| Establish water conservation policies (like limiting landscape watering times and capturing and using air conditioning condensate for irrigation)? | 52.11 | 78.87 | 32.39 | 14.09 | 1.41 | | 35.21 | 57.75 | 7.04 | 71 | -3.7503 | 0.0004 | | | |
| Offer more courses, clubs, and activities that focus on environmental and sustainability issues? | 42.25 | 64.79 | 33.80 | 21.13 | 2.82 | | 36.62 | 53.52 | 9.86 | 71 | -3.8947 | 0.0002 | | | |
| Offer a university major in agriculture or related field? | 38.57 | 55.71 | 28.57 | 25.71 | 4.29 | 2.86 | 35.71 | 48.57 | 15.71 | 70 | -2.3355 | 0.0224 | | | |

of participants responding with definitively yes to all six general items went from 26.09% on the pre-survey to 57.97% on the post-survey. When it came to all ten specific courses of action, the jump was from 8.96% to 25.37%, and the percentages of responses saying definitively yes on all sixteen courses of action increased from 6.15% to 23.08%. Analysis revealed no significant differences between the various demographic groups.

Figure 10 breaks down the results from each of the sixteen potential courses of action proposed on the surveys. Except for when it came to using renewable energy sources, encouraging recycling, and limiting air travel, there were significant shifts from pre- to post-surveys towards the universities taking action. The lack of significant change for using renewable energy and encouraging recycling are probably best explained by the fact that participants were already highly favorable towards these two courses of action on the pre-survey, so perhaps there was not much more change to be expected. The relative lack of support for limiting air travel is probably not too surprising, for the primary mode of travel to and from Qatar is by plane. Restrictions on air travel for universities whose home campuses are far from Qatar might therefore be thought too burdensome.

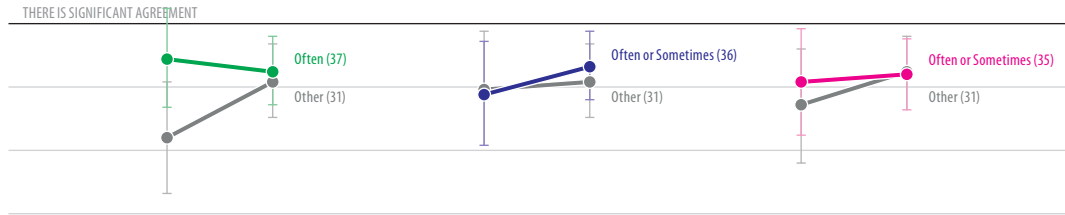
Many of the responses to the open-ended post-survey questions show a particular concern with food waste. Given the frequent availability of complimentary refreshments—and even full buffets meals—at most events hosted by the various institutions partnered with Hamad bin Khalifa University, this reaction is not surprising. These participants seemed to recognize that this overabundance of food is often wasteful. For instance, one participant suggested, “Reduce the amount of events and the huge amount of food they bring every time,” while another concurred with saying, “Modify on-campus food operation to produce less food waste. Given the free food available . . . seminars need to be managed properly.” A second focus appears on local sources of food as an area that universities and individuals could address in their efforts to support Qatar’s food security. One participant said, “Try to consume local produce in order to promote local food growing.” A second participant suggested, “Find ways to create agriculture on campus. Urban farming.” A third proposed that “Education City could establish an agricultural course and emphasize the importance of growing our own food.” Given Qatar’s landscape and climate, and its dependency on imported food, it is clearly important to some participants to develop local sources of food.

Finally, individual responses on pre- and post-surveys were also compared to how frequently participants got news from international news television, local newspapers, and local television news programs. These three news sources were analyzed because, for each of them, it was possible to split participants into two groups of roughly equal sizes. So, for instance, international news television users were split into two groups: the first group consisting of participants who got their news from it often, and the second group of participants who used it sometimes, rarely, or never. Similar divisions were made for local newspapers and local television, which can be seen in

Figure 11: News Sources and Changes in Beliefs and Judgments

Comparing mean responses of different groups, based on how frequently they get news from the specified source, concerning the indicated survey item from pre- to post-survey with 95% confidence intervals. For each, the number (*n*) of participants in each group responding to that item on both surveys is given in parentheses. Below each chart are the significance results from two-tailed unpaired *t*-tests comparing the groups' response for the issue on that survey.

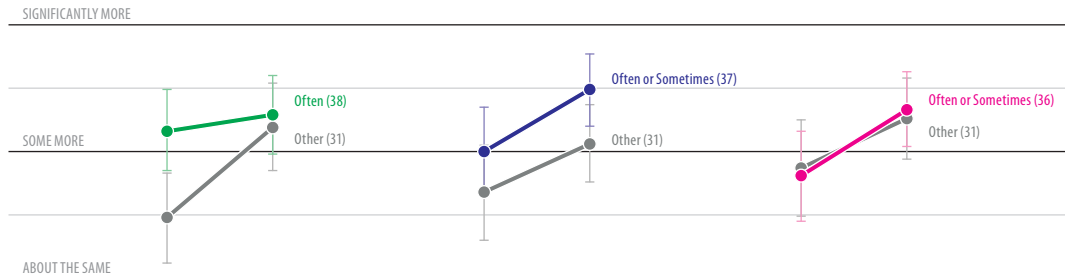
The level of agreement amongst climate scientists about whether the earth has been warming in recent years.



THERE IS SOME AGREEMENT

| | International News Television | | Local Newspapers | | Local Television News Programs | |
|--------------|-------------------------------|-------------|------------------|-------------|--------------------------------|-------------|
| | Pre-Survey | Post-Survey | Pre-Survey | Post-Survey | Pre-Survey | Post-Survey |
| <i>t</i> | 2.1554 | 0.3668 | 0.1293 | 0.6029 | 0.6105 | 0.0648 |
| Significance | 0.0348 | 0.7149 | 0.8975 | 0.5487 | 0.5437 | 0.9486 |

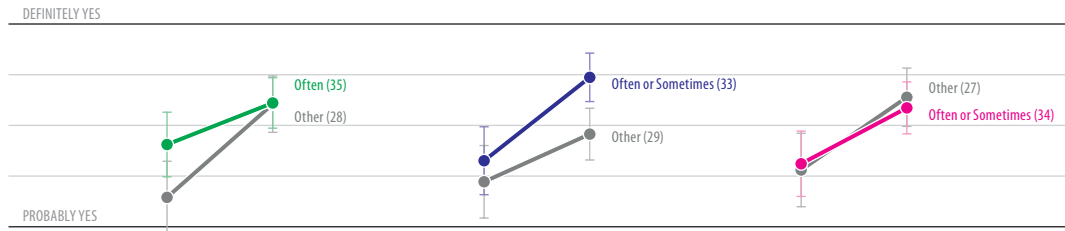
The amount of resources the universities partnered with Hamad Bin Khalifa University should allocate towards adopting more sustainable practices.



ABOUT THE SAME

| | International News Television | | Local Newspapers | | Local Television News Programs | |
|--------------|-------------------------------|-------------|------------------|-------------|--------------------------------|-------------|
| | Pre-Survey | Post-Survey | Pre-Survey | Post-Survey | Pre-Survey | Post-Survey |
| <i>t</i> | 2.7484 | 0.4099 | 1.2617 | 2.0090 | 0.2517 | 0.3437 |
| Significance | 0.0077 | 0.6832 | 0.2115 | 0.0486 | 0.8021 | 0.7322 |

The mean responses across all sixteen potential courses of action that might be done by the universities partnered with Hamad Bin Khalifa University.



PROBABLY YES

| | International News Television | | Local Newspapers | | Local Television News Programs | |
|--------------|-------------------------------|-------------|------------------|-------------|--------------------------------|-------------|
| | Pre-Survey | Post-Survey | Pre-Survey | Post-Survey | Pre-Survey | Post-Survey |
| <i>t</i> | 2.1774 | 0.0622 | 0.8473 | 3.2102 | 0.2520 | 0.5458 |
| Significance | 0.0333 | 0.9506 | 0.4002 | 0.0021 | 0.8019 | 0.5873 |

figure 11. This figure shows the changes in individual responses for these groups concerning three survey items, each of which shows a significant difference between the groups for at least one of the three news sources.

As the results in figure 11 show, the two groups for international news television showed convergence on these three survey items. That is, on the pre-survey, there is initially a significant difference between the groups, but it subsequently disappears on the post-survey. Meanwhile, the responses of the two groups for local television news programs do not display any significant differences on these three items at any point. The two groups for local newspapers suggest that the conversation actually caused divergence on the two survey items involving what the universities partnered with Hamad bin Khalifa University ought to do

Figure 12: Participant Perceptions of the Conversation

The percentages of participants indicating in the post-surveys the extent to which they found participating in this campus conversation to be the specified item, and the number (*n*) of participants completing this item on the survey. Values of zero percent (0.00%) have been omitted.

| | % Survey Responses | | | | <i>n</i> |
|----------------------------|--------------------|------------|----------|------------|----------|
| | VERY | MODERATELY | A LITTLE | NOT AT ALL | |
| Engaging | 75.38 | 21.54 | 3.08 | | 65 |
| Enjoyable | 57.81 | 40.63 | 1.56 | | 64 |
| Intellectually Stimulating | 62.50 | 25.00 | 10.94 | 1.56 | 64 |
| Frustrating | 7.81 | 9.38 | 35.94 | 46.87 | 64 |

The percentages of participants indicating in the post-surveys how informative they found the specified item, and the number (*n*) of participants completing this item on the survey. Values of zero percent (0.00%) have been omitted.

| | % Survey Responses | | | | <i>n</i> |
|--|--------------------|------------|----------|------------|----------|
| | VERY | MODERATELY | A LITTLE | NOT AT ALL | |
| The written material provided for the conversation | 50.75 | 38.81 | 10.44 | | 67 |
| The group discussions | 69.12 | 27.94 | 2.94 | | 68 |
| The expert panelists | 72.06 | 22.06 | 5.88 | | 68 |

The percentages of participants indicating in the post-surveys the extent to which any background documents and this campus conversation has the indicated effect, the number (*n*) of participants completing this item on the survey, and the two-tailed paired *t*-test results comparing individual responses across judgments of the background documents and the campus conversation. Only one participant indicated that they did not read any background documents, and so their responses are not included here. Values of zero percent (0.00%) have been omitted.

| | | % Survey Responses | | | | <i>n</i> | Two-Tailed Paired <i>T</i> -Test | |
|---|----------------------|--------------------|-------|----------|------------|----------|----------------------------------|--------------|
| | | A GREAT DEAL | SOME | A LITTLE | NOT AT ALL | | <i>t</i> | Significance |
| Broaden your understanding of the effect of global climate change on food security in Qatar | Background documents | 58.21 | 35.82 | 5.97 | | 67 | -1.1801 | 0.2422 |
| | Campus conversation | 67.16 | 26.87 | 5.97 | | | | |
| Present arguments or perspectives concerning the effect of global climate change on food security in Qatar that you had not considered before | Background documents | 52.24 | 38.81 | 5.97 | 2.98 | 67 | -2.7994 | 0.0067 |
| | Campus conversation | 70.15 | 23.88 | 5.97 | | | | |
| Change your views about the effect of global climate change on food security in Qatar | Background documents | 52.24 | 29.85 | 13.43 | 4.48 | 67 | -2.1974 | 0.0315 |
| | Campus conversation | 61.19 | 26.87 | 11.94 | | | | |
| Strengthen your existing views of the effect of global climate change on food security in Qatar | Background documents | 54.55 | 31.82 | 12.12 | 1.52 | 66 | -2.7365 | 0.0080 |
| | Campus conversation | 71.21 | 21.21 | 6.06 | 1.52 | | | |

in adopting more sustainable practices. On the pre-survey, there is no significant difference between the two groups, whereas on the post-survey, those individuals getting news from local newspapers more frequently indicated significant preference for the universities to do more. (There was no significant difference between these two groups on either pre- or post-survey in response to the survey item asking about whether climate scientists agree or disagree that the earth has been warming in recent years.) These results raise interesting questions concerning how the mode and frequency of news consumption by participants might influence the results of deliberation. For instance, perhaps individuals who get their news primarily by reading print media respond to deliberation differently from those who get the same news by watching television. Future campus conversations might further explore such possibilities.

Perceptions of the Conversation

In addition to asking participants items about the impact of climate change on food security, the post-survey also had both quantitative and open-ended items concerning the campus conversation event itself. The results of the quantitative items are presented in figure 12. As this shows, a large 75.38% majority of the participants found the event very engaging, 57.81% found it very enjoyable, and 62.50% found it very intellectually stimulating. Only a relatively small 17.19% of the participants indicated that they were either very or moderately frustrated by the event, though 35.94% of the participants suggested that they found things a little frustrating. Given the give-and-take nature of dialogue and deliberation, this last result is probably not too surprising.

Figure 13: Moderator Perceptions of the Conversation

The percentages of ten moderators ($n = 10$) indicating in the moderator survey the extent to which they found their group to be engaged in the discussion on average. Values of zero percent (0.00%) have been omitted.

| % Survey Responses | | | |
|--------------------|--------------------|------------------|--------------------|
| VERY ENGAGED | MODERATELY ENGAGED | NOT VERY ENGAGED | NOT ENGAGED AT ALL |
| 60.00 | 40.00 | | |

The percentages of ten moderators ($n = 10$) indicating in the moderator survey the extent to which they found participating in this campus conversation to be the specified item. Values of zero percent (0.00%) have been omitted.

| | % Survey Responses | | | |
|----------------------------|--------------------|------------|----------|------------|
| | VERY | MODERATELY | A LITTLE | NOT AT ALL |
| Engaging | 80.00 | 20.00 | | |
| Enjoyable | 50.00 | 50.00 | | |
| Intellectually Stimulating | 70.00 | 30.00 | | |
| Frustrating | | 10.00 | 50.00 | 40.00 |

Participants were also asked the extent to which they found various components of the campus conversation to be informative. While 50.75% of the participants found the written material very informative, larger 69.12% and 72.05% majorities found the group discussions and expert panelists, respectively, very informative. Clearly the interactive elements of the conversation had impact.

This impact of the campus conversation is further seen in the responses to items about the extent to which any background documents and this campus conversation affected them. As figure 12 shows, the results suggest that, overall, the campus conversation had more influence than the background documentation. In particular, when it came to hearing different perspectives, changing views, and also strengthening views about the issues, the reported difference between documentation and conversation is indeed significant. Of particular note, an overwhelming 70.15% of the participants reported that during this campus conversation they heard a great deal of arguments or perspectives that they had not considered before. This was 17.91% more than those indicated the same about the background documentation. In addition, 61.19% indicated that this campus conversation changed their views a great deal, 9.95% more than those indicated the same about the background documentation.

Following the event, all twelve of the student moderators were asked to complete a survey about their impressions of the event. Ten of them responded, and some of the results are presented in figure 13. This reveals that the moderators largely felt that the groups were either very or moderately engaged in the conversation. Furthermore, the aggregate of the responses of the moderators suggests that their own levels of engagement, enjoyment, intellectual stimulation, and frustration with the event are quite similar to those expressed by the participants.

Written comments on the post-survey, as well as on the survey given to the student moderators, further illuminates the positive perception of the event from participants. Several student moderators expressed that they learned “when to talk and when to listen to others,” an important skill this event meant to cultivate. Not only did they learn about creating space within a dialogue for talking and listening, but they recognized the importance of diverse viewpoints. A participant shared, “I saw opinions and learned thoughts and different points of view that I

didn't think of earlier," while a moderator likewise said, "[I learned] to respect and listen to all opinions regardless of the fact [that] they might contradict with your own beliefs." Participants also shared comments such as "I think I should participate in making a change as a student in [Education City] and as a member of the community," and "considering the importance of such issues, I would certainly like to be engaged in solving the current challenges." Lastly, the responses also highlight the participants recognition of the importance of these types of dialogues. One participant shared, "Students should be encouraged and educated by increasing the frequency of such [a] gathering"; while one moderator suggested, "We should have..[the campus conversation]...annually as many students enjoyed it and we addressed different point[s] of view." One participant even volunteered themselves to collaborate on future events and offered ideas to improve future gatherings, saying "Get attendees to join group[s] on the issue. Link student leaders with decision/policy makers."

Conclusion and Implications

As already noted in the introduction, the objectives of a campus conversation are threefold: (1) develop empowered, informed, and responsible learners through the transformation of experience and the creation of knowledge; (2) promote a commitment to civic engagement and social responsibility; and (3) encourage substantive interaction among individuals and groups who traditionally do not interact in the context of daily life. The results in this report strongly suggest that this event, the first campus conversation open to all undergraduates attending one of Hamad bin Khalifa University's partners, was a success on all three points.

First and foremost, as the comparison of pre- and post-survey data repeatedly suggest, this group of participants clearly underwent a variety of changes during the conversation: the issues became more important, understanding was thought to have increased, the impact of climate change was thought to be happening even sooner, and more action on the part of the universities partnered with Hamad bin Khalifa University was thought to be necessary. Both the quantitative and qualitative perspectives of the event by the participants, as well as those by the moderators, serve to reinforce this view. One weakness, however, with this analysis, is that it fails to measure whether these transformations held, or whether these students reverted back to their previously held views. As is, it is unknown the extent to which students who participated in this campus conversation actually made efforts to promote change in the areas of climate change and food security. This is a shortcoming that future campus conversations should attempt to ameliorate, say with follow-up surveys going out to the participants a few weeks or even months after the event.

Second, the perceptions of this campus conversation from both participants and moderators, suggest that it did promote a measure of civic engagement and social responsibility. As several comments have already indicated, this event allowed participants to process new information, assimilate it with their current knowledge, and make informed opinions. Indeed, the shift from pre- to post-survey in demanding

more action from the universities to address issues of global climate change, food security, and sustainability show a willingness for the community to take responsibility and identify steps for responding to these issues. Furthermore, this campus conversation allowed the moderators the opportunity to gain valuable group leadership experience, of which they reported taking advantage.

Third, this event clearly encouraged substantive interaction between different groups. While the participants were not a random sample representative of the overall student community in Hamad bin Khalifa University, there was nonetheless diverse involvement, with students from five of the six universities, the full range of academic years, several different majors, and a wide range of different nationalities. The substance of this interaction is further reinforced by the reported participant perspectives of the conversation, which suggest that students were confronted with arguments and perspectives that they had not considered before, or with which they disagreed. On a related point, it is worth adding that organizing this conversation also necessitated close collaboration among faculty and staff, academic and student affairs, Carnegie Mellon's Qatar and Pittsburgh campuses, and various partners at many of the institutions connected to Hamad bin Khalifa University. Put together, these groups encompass a diverse range of individuals that would otherwise seldom have had an opportunity to meet and interact.

In addition to the meeting of these three objectives, the feedback received from participants, student moderators, and panelists supports the organization of future campus conversations in Qatar. When prompted to suggest possible conversation topics that they would find interesting, participants offered ideas ranging from human rights to academic integrity, from displays of public affection to education reform and inter-faith initiatives. Organizing additional campus conversations, alongside current programs such as Doha Debates (though Qatar Foundation), Pizza and Politics (though Carnegie Mellon University in Qatar), and Zones of Conflict/Zones of Peace (Georgetown University School of Foreign Service in Qatar), can continue to promote principles of civil discourse, democratic engagement, and informed citizenship.

To conclude, John Dewey famously said that “democracy is a way of life... a way of personal life and one which provides a moral standard for personal conduct”.¹ According to Dewey, democracy goes beyond elections, parliaments, bills of rights, and even the rule of law. Properly understood, democracy is really about how to live peacefully in a community of people, many of whom may fundamentally differ from you. However, democratization is impossible through force or occupation, nor is merely holding elections sufficient. The true value of democracy is best revealed when it is lived, when it is demonstrated first-hand as a viable way of life. Simply put, our problems only get resolved when we actually talk about them together. Democracy demands such conversations, offering the only practical way for a pluralistic community to address its problems without resort to force, coercion, or acquiescence.

1 John Dewey, *Freedom and Culture* (Amhurst, NY: Prometheus Books, 1989), p. 101.

In the Middle East, and especially in the Gulf region, where the implementation of democratic practices or ideals might be regarded with suspicion, there is nevertheless a richly established *majlis* tradition whereby community members are accustomed to gathering together in order to deliberate and make decisions about a variety of local and national issues. The Campus Conversation program seems well suited to this particular cultural context, encouraging and coordinating the interaction of a diversity of perspectives at the university level. In this way, campus conversations may provide a simple outlet for young people in this region to directly experience how democracy is not alien but a natural outgrowth from their own culture and customs. Continuing to have campus conversations on topics chosen by and tailored to the local community may offer the best opportunity for the cultural relevance and cultural sensitivity of democracy to be recognized, and perhaps even to change participants' lives for the better.

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