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The Climate Change Generation?

Survey Analysis of the Perceptions and Beliefs of Young Americans

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American adults under the age of 35 have come of age in the decades since the “discovery” of man-made climate change as a major societal problem. The oldest of this cohort was twelve in 1988, when NASA climate scientist James Hansen testified at a Senate Energy Committee hearing that global temperature rise was underway and that human-produced greenhouse gases were almost certainly responsible. For this reason, the conventional wisdom holds that young Americans, growing up in a world of ever more certain scientific evidence, increasing news attention, alarming entertainment portrayals, and school-based curricula, should be more engaged with and concerned about the issue of climate change than older Americans.

However, contrary to this conventional wisdom, new nationally representative survey data analyzed by American University communication researchers and collected by the Yale Project on Climate Change and the George Mason University Center for Climate Change Communication reveal that Americans between the ages of 18 and 34 are, for the most part, split on the issue of global warming and, on some indicators, relatively disengaged when compared to older generations.

Overall, the survey data, collected between December 24, 2009 and January 3, 2010, offer no predictable portrait of young people when it comes to global warming: While less concerned about and preoccupied with global warming than older generations, they are slightly more likely to believe that global warming is caused by human factors and that there is scientific consensus that it is occurring. They are also somewhat more optimistic than their elders about the effectiveness of taking action to reduce global warming. And, while they are less open to new information about global warming than older generations, they are much more trusting of scientists and President Obama on the issue. However, they also share older generations’ distrust of the mainstream news media. Of note, young evangelicals, an increasingly important group politically, place strong levels of trust in religious leaders as sources of information about global warming, though they are also trusting of scientists and President Obama.

Nationwide, liberals and conservatives exhibit wide differences in their beliefs about global warming, with conservatives more skeptical and less engaged than liberals, and this ideological divide is no different among young Americans.

Members of the current college-age generation (18-22 year-olds), who have grown up with even less scientific uncertainty about climate change, are somewhat more concerned and engaged than their slightly older 23-34 year-old counterparts; however, this does not hold across the board.

Still, the data suggest untapped potential to engage young Americans on the issue of global warming, particularly relative to shifting the perceptions of those who currently hold moderately skeptical or uncertain views.

Note: Statistically significant differences between groups are based on the results of chi-square tests, which are reported with each table.

Are young adults more engaged with and concerned about climate change than older generations?

Adults under the age of 35 are significantly less likely than their elders to say that they had thought about global warming before today, with nearly a quarter (22%) of under 35's saying they had *never* thought about the issue previously. Only 38% of those between the ages of 18 and 34 say that they had previously thought about global warming either "a lot" (10%) or "some" (28%), compared to 51% of those 35-59 and 44% of those 60 and older (*Table 1*).

Table 1 | Amount of prior thought about global warming

	<i>National average</i>	<i>Ages 18 - 34 (29%)</i>	<i>Ages 35 - 59 (48%)</i>	<i>Ages 60 + (23%)</i>
How much had you thought about global warming before today?				
	%	%	%	%
<i>A lot</i>	15	10	16	17
<i>Some</i>	31	28	35	27
<i>A little</i>	36	39	33	40
<i>Not at all</i>	18	22	16	17
<i>n=</i>	978	277	471	230

Chi-square $p < .05$

In addition, the issue of global warming is not considered of any greater personal importance to under 35's than it is to those 35 and older. Seventeen percent of adults under 35 say that the issue of global warming is either extremely or very important to them, a proportion that is statistically equivalent to the 20% of those 35-59 and 22% of those 60 and older who say this (*Table 2*).

Table 2 | Personal importance of global warming

	National average	Ages 18 - 34 (29%)	Ages 35 - 59 (48%)	Ages 60 + (23%)
How important is the issue of global warming to you personally?				
	%	%	%	%
<i>Extremely important</i>	5	2	6	7
<i>Very important</i>	14	15	14	15
<i>Somewhat important</i>	37	39	39	32
<i>Not too important</i>	23	25	21	27
<i>Not at all important</i>	20	19	20	18
n=	978	277	471	230

Chi-square *n.s.*

Worry about global warming is also fairly equally distributed across age cohorts. About half of all American adults – young and old – are either somewhat or very worried about global warming, with the other half either not very or not at all worried. More specifically, only 9% of Americans 18-34 say that they are “very worried,” which is statistically equivalent to the proportion among 35-59 year-olds (12%) and among those 60 and older (14%) (*Table 3*).

Table 3 | Worry about global warming

	National average	Ages 18 - 34 (29%)	Ages 35 - 59 (48%)	Ages 60 + (23%)
How worried are you about global warming?				
	%	%	%	%
<i>Very worried</i>	12	9	12	14
<i>Somewhat worried</i>	38	37	41	34
<i>Not very worried</i>	27	32	26	25
<i>Not at all worried</i>	23	22	21	27
n=	980	279	471	230

Chi-square *n.s.*

While overall worry about global warming differs only slightly across age cohorts, young adults are significantly more likely to discount the immediate impacts of the problem. Specifically, those under 35 are less likely than older adults to believe that global warming is *already* harming people in the United States and elsewhere in the world and are instead more likely to believe that harm will begin 10, 25, or even 50 years in the future. Just 21% of 18-34 year-olds believe that people around the world are currently experiencing harm due to global warming, relative to 33% of those 35-59 and 29% of those 60 and older (*Table 4*).

Table 4 | Timing of global warming harm

	National average	Ages 18 - 34 (29%)	Ages 35 - 59 (48%)	Ages 60 + (23%)
When do you think global warming will start to harm...				
	%	%	%	%
People in the United States?				
<i>They are being harmed now</i>	25	19	28	25
<i>In 10 years</i>	12	15	10	13
<i>In 25 years</i>	14	17	11	15
<i>In 50 years</i>	12	17	10	13
<i>In 100 years</i>	13	11	15	12
<i>Never</i>	23	21	25	22
n=	978	281	468	229
Chi-square $p < .01$				
Other people around the world?				
<i>They are being harmed now</i>	28	21	33	29
<i>In 10 years</i>	13	17	10	14
<i>In 25 years</i>	12	16	10	11
<i>In 50 years</i>	12	13	12	11
<i>In 100 years</i>	13	13	13	14
<i>Never</i>	21	20	23	20
n=	963	277	458	228
Chi-square $p < .05$				

Younger adults are also significantly less likely than their older counterparts to report that their friends are acting in ways to reduce global warming. While at least half of older adults indicate that their friends are acting to reduce global warming, this is true of just 39% of under 35's. These results suggest that currently, among young people, acting in ways to reduce global warming is not perceived as a dominant social norm or pressure (*Table 5*).

Table 5 | Social norms about global warming

	<i>National average</i>	<i>Ages 18 - 34 (29%)</i>	<i>Ages 35 - 59 (48%)</i>	<i>Ages 60+ (23%)</i>
Most of my friends are trying to act in ways that reduce global warming.				
	%	%	%	%
<i>Strongly agree</i>	5	5	6	3
<i>Somewhat agree</i>	43	34	47	47
<i>Somewhat disagree</i>	37	46	32	39
<i>Strongly disagree</i>	14	15	15	11
<i>n=</i>	934	260	463	211

Chi-square $p < .01$

What do young Americans believe about the reality and causes of global warming?

When it comes to beliefs about both the reality and causes of global warming, young Americans are on par with or somewhat more convinced about global warming and its human causes than older generations.

Fifty-seven percent of the American public believes that global warming is happening, a level of belief that varies little, if at all, across age cohorts. A full twenty percent of American adults do not think that global warming is happening, and roughly a quarter are unsure (*Table 6*).

Table 6 | Belief in Global Warming

	<i>National average</i>	<i>Ages 18 - 34 (29%)</i>	<i>Ages 35 - 59 (48%)</i>	<i>Ages 60+ (23%)</i>
Do you think that global warming is happening?				
	%	%	%	%
<i>Yes</i>	57	57	58	57
<i>Don't know</i>	23	23	21	26
<i>No</i>	20	20	22	17
<i>n=</i>	992	285	476	231

Chi-square *n.s.*

Young adults appear to be only marginally more likely than older adults to believe that there is a consensus among the scientific community about whether global warming is occurring: Thirty-eight percent of adults 18-34 believe this, relative to 33% of adults 35-59 and just 29% of those 60 and older. These differences, however, are not statistically significant (*Table 7*).

Table 7 | Beliefs about the scientific consensus on global warming

	<i>National average</i>	<i>Ages 18-34 (29%)</i>	<i>Ages 35-59 (48%)</i>	<i>Ages 60+ (23%)</i>
Which comes closer to your views?				
	%	%	%	%
<i>Most scientists think global warming is happening</i>	34	38	33	29
<i>There is a lot of disagreement</i>	40	40	39	42
<i>Most scientists think global warming is not happening</i>	5	2	7	4
<i>Don't know enough to say</i>	22	20	21	24
n=	982	281	472	229

Chi-square *n.s.*

When it comes to the causes of global warming, 52% of Americans ages 18-34 believe that global warming is caused mostly by human activities, which is only slightly greater than those ages 35-59 (46%) and those 60 and older (45%). Young adults are much less likely, however, to believe that global warming is caused by natural changes in the environment. Just 27% of under 35's believe this, relative to 37% of those 35-59 and 43% of those 60 and older (*Table 8*).

Table 8 | Beliefs about the causes of global warming

	<i>National average</i>	<i>Ages 18-34 (29%)</i>	<i>Ages 35-59 (48%)</i>	<i>Ages 60+ (23%)</i>
Assuming that global warming is happening, do you think it is...				
	%	%	%	%
<i>Caused mostly by human activities</i>	47	52	46	45
<i>Caused mostly by changes in the environment</i>	35	27	37	43
<i>Neither because global warming isn't happening</i>	9	12	9	5
<i>Caused by both human activities and natural changes (VOL)</i>	6	7	7	3
<i>Other</i>	1	1	1	3
<i>Don't know (VOL)</i>	1	1	1	1
n=	979	279	468	232

Chi-square *p* < .01

What is the outlook of young Americans on efforts to reduce global warming?

Young adults appear to be somewhat different from older generations in their outlook relative to taking action on global warming. Young adults hold slightly less pessimism than older cohorts about the effectiveness of policy action and are instead *cautiously optimistic*, with 51% of under 35's saying

that humans can reduce global warming but that it's unclear at this point that we will do what is needed (*Table 9*).

Table 9| Expected outcome of human action to reduce global warming

	National average	Ages 18 - 34 (29%)	Ages 35 - 59 (48%)	Ages 60 + (23%)
Which of the following statements comes closest to your view?				
	%	%	%	%
<i>Humans can reduce global warming, and we are going to do so successfully</i>	10	8	12	9
<i>Humans could reduce global warming, but it's unclear at this point whether we will do what's needed</i>	45	51	43	40
<i>Humans could reduce global warming, but people aren't willing to change their behavior; so, we're not going to</i>	17	16	16	21
<i>Humans can't reduce global warming, even if it is happening</i>	15	11	16	19
<i>Global warming isn't happening</i>	13	14	13	11
n=	973	271	474	228

Chi-square $p = .05$

Relative to their older counterparts, young adults are also more likely to believe that taking steps to reduce their personal contribution to global warming will either increase or have no impact on their quality of life. Roughly a third of under 35's (33%) believe taking personal steps to reduce global warming will improve their quality of life to some degree, compared to 29% of adults 35-59 and 26% of adults 60 and older (*Table 10*).

Table 10| Impact of personal behavior change on quality of life

	National average	Ages 18 - 34 (29%)	Ages 35 - 59 (48%)	Ages 60 + (23%)
were to				
	%	%	%	%
<i>Improve my quality of life a lot</i>	11	11	12	10
<i>Improve my quality of life a little</i>	18	22	17	15
<i>Have no impact on my quality of life</i>	33	39	31	32
<i>Decrease my quality of life a little</i>	10	8	12	9
<i>Decrease my quality of life a lot</i>	5	4	6	4
<i>Don't know</i>	22	16	22	30
n=	967	277	462	228

Chi-square $p < .05$

Do young Americans want more information about global warming, and whom do they trust for that information?

More than two-thirds of young adults say that they need more information about global warming. However, they are less likely than older cohorts to say that they need “a lot” more information. Just 11% of under 35’s say the need “a lot” more information, compared to 24% of adults ages 35-59 and 30% of adults 60 and older (*Table 11*).

Table 11| Need for more information

	National average	Ages 18 - 34 (29%)	Ages 35 - 59 (48%)	Ages 60 + (23%)
On some issues people feel that they have all the information they need in order to form a firm opinion, while on other issues they would like more information before making up their mind. For global warming, where would you place yourself?				
	%	%	%	%
<i>I need a lot more information</i>	22	11	24	30
<i>I need some more information</i>	23	23	22	24
<i>I need a little more information</i>	26	35	25	19
<i>I do not need any more information</i>	29	31	29	26
n=	980	277	472	231

Chi-square $p < .001$

Just 34% of young adults agree that their beliefs about global warming could be changed. This is roughly equal to the percentage of adults 35-59 (32%) who feel this way but significantly less than the 42% of those 60 and older who feel that their beliefs are mutable (*Table 12*).

Table 12| Willingness to change mind about global warming

	National average	Ages 18 - 34 (29%)	Ages 35 - 59 (48%)	Ages 60 + (23%)
I could easily change my mind about global warming.				
	%	%	%	%
<i>Strongly agree</i>	5	5	5	3
<i>Somewhat agree</i>	30	29	27	38
<i>Somewhat disagree</i>	31	31	34	24
<i>Strongly disagree</i>	34	35	34	34
n=	977	278	470	229

Chi-square $p < .05$

Substantial majorities of young adults say that they trust scientists (82%) and President Barack Obama (61%) as information sources on global warming, and under 35's are significantly more trusting of these figures than older Americans. Although a majority of young Americans (54%) also trust Al Gore as an information source, differences across age cohorts are somewhat smaller in this case. When compared to older generations, young adults are significantly *less* trusting of Sarah Palin, who has emerged as a vocal climate change skeptic: Just 27% of under 35's say that they trust Palin, compared to 39% of older adults. Only about a third of Americans trust the mainstream news media as an information source, which does not vary much across age cohorts (*Table 13*).

Table 13| Trust in information sources

	National average	Ages 18 - 34 (29%)	Ages 35 - 59 (48%)	Ages 60 + (23%)
How much do you trust or distrust the following as a source of information about global warming?				
	%	%	%	%
Scientists*				
Trust (strongly or somewhat)	74	82	72	68
Distrust (strongly or somewhat)	26	18	28	32
n=	965	272	465	228
Barack Obama*				
Trust (strongly or somewhat)	51	61	47	47
Distrust (strongly or somewhat)	49	39	53	53
n=	967	272	464	231
Al Gore*				
Trust (strongly or somewhat)	47	54	44	47
Distrust (strongly or somewhat)	53	46	56	53
n=	962	269	464	229
Religious leaders				
Trust (strongly or somewhat)	45	49	43	44
Distrust (strongly or somewhat)	55	51	57	56
n=	956	273	458	225
Mainstream news media				
Trust (strongly or somewhat)	36	33	38	36
Distrust (strongly or somewhat)	64	67	62	64
n=	966	270	467	229
Sarah Palin*				
Trust (strongly or somewhat)	36	27	39	39
Distrust (strongly or somewhat)	64	73	61	61
n=	961	272	464	225

* denotes Chi-square $p < .05$

There are no significant differences across age cohorts when it comes to trust in religious leaders, *except* among evangelical Christians. While evangelicals, who make up roughly 30% of the population, are, on the whole, more likely to trust religious leaders on global warming than Americans who don't identify as evangelical, this is especially true of young adults. A full 81% of 18-34 year-old evangelicals trust religious leaders as an information source on global warming, compared to just 36% of non-evangelical young adults. In contrast, 51% of evangelicals 60 and older trust religious leaders compared to 41% of non-evangelicals (*Table 14*).

Notably, a large majority of evangelicals trust scientists. This is true across all age groups of evangelicals but particularly among young evangelicals: A full 77% of this group says that they trust scientists as an information source on global warming. Obama is also a trusted source among a majority (52%) of young evangelicals.

Table 14| Trust in information sources among evangelical Christians

% who say they trust...	National average	Ages 18 - 34 (29%)	Ages 35 - 59 (48%)	Ages 60 + (23%)
Religious leaders				
Evangelicals (30%)*	65	81	62	51
Non-Evangelicals (70%)	37	36	36	41
n=	945	269	454	222
Scientists				
Evangelicals (30%)*	66	77	64	56
Non-Evangelicals (70%)*	78	86	75	73
n=	945	269	454	222
Barack Obama				
Evangelicals (30%)*	42	52	38	36
Non-Evangelicals (70%)	55	66	50	52
n=	945	269	454	222

* denotes Chi-square $p < .05$

Are liberals and conservatives polarized across age cohorts?

There are wide differences in beliefs about global warming among political liberals and conservatives. The biggest gap is in the belief that global warming is happening: More than three-quarters (77%) of liberals believe this, compared to just 35% of conservatives (*Table 15*).

Polarization among liberals and conservatives is observed across age cohorts, with little evidence that young liberals and conservatives are any more united on the issue of global warming than older generations. Nor are liberal young adults particularly convinced of or concerned about global

warming: Liberals under the age of 35 are no more – and are often times less – likely to hold beliefs supportive of the reality and human causes of global warming than liberals in older age cohorts.

Table 15| Ideological differences in global warming beliefs

	National average	Ages 18 - 34 (29%)	Ages 35 - 59 (48%)	Ages 60+ (23%)
% who believe that global warming is happening				
Liberals (22%)*	77	73	83	70
Moderates (43%)	67	68	65	69
Conservatives (34%)	35	30	35	40
n=	947	264	458	225
% who believe that scientists agree global warming is happening				
Liberals (22%)	52	46	59	49
Moderates (43%)*	37	47	35	30
Conservatives (34%)	19	23	17	20
n=	949	266	459	224
% who believe global warming is caused mostly by human activities				
Liberals (22%)	67	68	67	64
Moderates (43%)	52	54	52	50
Conservatives (34%)	27	27	25	32
n=	940	260	456	224

*denotes Chi-square $p < .05$

Young liberals are much less likely than older liberals to believe that global warming is causing harm to people in the U.S. and around the world now. Here, the differences between young liberals and young conservatives *are* reduced relative to the older cohorts, but this is because young people – across the board – are much less likely than older generations to see global warming as a current source of harm (*Table 16*).

Table 16| Ideological differences in timing of harm

	National average	Ages 18 - 34 (29%)	Ages 35 - 59 (48%)	Ages 60+ (23%)
% who believe people in the U.S. are being harmed by global warming now				
Liberals (22%)*	39	23	46	51
Moderates (43%)*	29	24	33	25
Conservatives (34%)*	11	7	12	15
n=	940	260	456	224
% who believe people around the world are being harmed by global warming now				
Liberals (22%)*	40	25	49	49
Moderates (43%)	32	25	36	32
Conservatives (34%)*	15	9	16	19
n=	931	260	450	221

*denotes Chi-square $p < .05$

Political moderates are the most likely to say that they could change their minds about global warming. Among under 35's, 48% of moderates say that they could change their mind. Young liberals and conservatives are much more fixed in their convictions: Twenty-six percent of conservatives and just 18% of liberals under the age of 35 agree that they could change their mind about global warming (*Table 17*).

Table 17 | Ideological differences in willingness to change mind

	National average	Ages 18 - 34 (29%)	Ages 35 - 59 (48%)	Ages 60+ (23%)
% who agree that they could easily change their minds about global warming				
<i>Liberals (22%)*</i>	22	18	16	49
<i>Moderates (43%)</i>	41	48	38	40
<i>Conservatives (34%)</i>	33	26	32	42
<i>n=</i>	942	260	459	223

*denotes Chi-square $p < .05$

There are also strong ideological differences when it comes to the sources people trust for information about global warming, and again, these ideological differences hold up across the age spectrum. Approximately three-quarters of liberals trust Barack Obama (77%) and Al Gore (71%), compared to roughly a quarter of conservatives. In contrast, 61% of conservatives say that they trust Sarah Palin compared to just 11% of liberals (*Table 18*).

Only scientists are trusted by a strong majority of Americans, regardless of ideology. But even scientists are not completely immune to ideological differences: A full 100% of liberals under the age of 35 say that they trust scientists, compared to 84% of moderates and 68% of conservatives (a proportion that is still very high). Religious leaders, on the other hand, are trusted by about 50% of conservatives – young and old – compared to a third or less of liberals. Among young adults, 59% of moderates say that they trust religious leaders. The mainstream media are trusted by no more than half of any ideological group, though more so by liberals than by conservatives.

Table 18| Ideological differences in source trust

	National average	Ages 18 - 34 (29%)	Ages 35 - 59 (48%)	Ages 60+ (23%)
% who say they trust scientists				
<i>Liberals (22%)*</i>	91	100	89	78
<i>Moderates (43%)</i>	77	84	76	71
<i>Conservatives (34%)</i>	61	68	58	60
n=	941	259	458	224
% who say they trust Barack Obama				
<i>Liberals (22%)</i>	77	82	78	65
<i>Moderates (43%)*</i>	57	65	51	59
<i>Conservatives (34%)</i>	26	32	24	26
n=	944	259	459	226
% who say they trust Al Gore				
<i>Liberals (22%)</i>	71	68	77	64
<i>Moderates (43%)*</i>	53	60	46	60
<i>Conservatives (34%)</i>	24	31	20	25
n=	938	257	458	223
% who say they trust religious leaders				
<i>Liberals (22%)</i>	29	33	24	33
<i>Moderates (43%)*</i>	49	59	44	49
<i>Conservatives (34%)</i>	51	51	55	44
n=	930	260	451	219
% who say they trust the mainstream news media				
<i>Liberals (22%)*</i>	43	32	54	39
<i>Moderates (43%)</i>	42	41	41	46
<i>Conservatives (34%)</i>	25	23	26	23
n=	942	258	460	224
Say that they trust Sarah Palin				
<i>Liberals (22%)*</i>	11	7	10	24
<i>Moderates (43%)</i>	28	28	29	25
<i>Conservatives (34%)*</i>	61	45	68	63
n=	937	259	459	219

*denotes Chi-square $p < .05$

Is the college-age generation any more engaged with global warming?

Although a consistent pattern of global warming concern and engagement fails to emerge among adults under the age of 35, some have argued that it is really those 22 and under who are likely to be the most engaged on climate change. Americans between the ages of 18 and 22 have grown up in an

era of even less scientific uncertainty and greater media attention to climate change than those ages 23-34.

In 2001, the Intergovernmental Panel on Climate Change (IPCC) provided new and stronger evidence that warming trends on the planet are attributable to human activities, and the year accounted for what at the time was a record amount of news attention to the issue. A 22-year-old today would have been 13 when the IPCC's 2001 report was issued and then 19 in 2007 when Al Gore and IPCC scientists shared the Nobel peace prize for "their efforts to build up and disseminate greater knowledge about man-made climate change." Thus, it could be that the college-age generation specifically, as opposed to 18-34 year-olds more generally, is the most energized around the issue of global warming.

Though the findings should be interpreted cautiously given the smaller number of respondents in the 18-22 sub-sample, the survey results do paint a picture of 18-22 year-olds as somewhat more concerned and engaged than their slightly older counterparts, though not across the board.

College-age adults are somewhat more likely to have previously thought about global warming: 16% had thought a lot about it, compared to only 8% of 23-34 year-olds. And, whereas 24% of 23-34 year-olds say that they had not thought at all about global warming, just 18% of 23-34 year-olds say this. In this regard, under 23's more closely resemble the national average than they do 23-34 year-olds (*Table 19*).

The younger group is also more likely to consider global warming personally important. A full 27% say that global warming is extremely or very important to them, compared to just 14% of 23-34 year-olds and 19% of the national sample. Just 14% of under 23's say that global warming is not at all important to them, whereas 22% of 23-34 year-olds say this.

The extent of worry about global warming, however, does not vary significantly among the two youngest age cohorts. The majority of both under 23's and 23-34 year-olds say that they are either not very or not at all worried about global warming. Equal proportions – just less than half of both groups – say that they are very or somewhat worried.

Table 19 | Age differences among the younger generation in global warming thought and concern

	National average	Ages 18 - 22 (8%)	Ages 23 - 34 (21%)
Prior thought about global warming? [#]			
	%	%	%
<i>A lot</i>	15	16	8
<i>Some</i>	31	23	30
<i>A little</i>	36	44	38
<i>Not at all</i>	18	18	24
n=	978	80	196
How personally important is global warming? [#]			
	%	%	%
<i>Extremely important</i>	5	4	2
<i>Very important</i>	14	23	12
<i>Somewhat important</i>	37	33	41
<i>Not too important</i>	23	28	23
<i>Not at all important</i>	20	14	22
n=	978	80	196
Worried about global warming? [#]			
	%	%	%
<i>Very worried</i>	12	5	10
<i>Somewhat worried</i>	38	38	37
<i>Not very worried</i>	27	26	34
<i>Not at all worried</i>	23	31	19
n=	980	80	198

[#] denotes Chi-square $p < .10$

When it comes to the timing of harm from global warming, roughly equal percentages of college-age adults and 23-34 year-olds – about 20% – believe that people in the U.S. and around the world are being harmed now. However, differences emerge among those who believe that harm is yet to come: Compared to 23-34 year-olds, college-age adults are more likely to believe that harm is imminent in the next 10 or 25 years, whereas 23-34 year-olds are more likely than their younger counterparts to believe that harm is as far off as 50 or 100 years. At the same time, under 23's are somewhat more likely to say that people will *never* be harmed by global warming (*Table 20*).

Table 20 | Age differences among the younger generation in timing of harm

	<i>National average</i>	<i>Ages 18- 22 (8%)</i>	<i>Ages 23- 34 (21%)</i>
When will global warming harm people in the U.S.?*			
	%	%	%
<i>They are being harmed now</i>	25	16	20
<i>In 10 years</i>	12	21	13
<i>In 25 years</i>	14	23	15
<i>In 50 years</i>	12	5	22
<i>In 100 years</i>	13	9	12
<i>Never</i>	23	26	20
n=	978	80	199
When will global warming harm other people around the world?*			
	%	%	%
<i>They are being harmed now</i>	28	21	21
<i>In 10 years</i>	13	23	15
<i>In 25 years</i>	12	16	16
<i>In 50 years</i>	12	4	16
<i>In 100 years</i>	13	10	14
<i>Never</i>	21	26	17
n=	963	80	197

*denotes Chi-square $p < .05$

In comparison to their older counterparts, college-age Americans do tend to perceive greater activity among their friends on the issue. Among 18-22 year olds, 10% strongly agree that their friends are acting in ways to reduce global warming, compared to 3% of 23-34 year olds. Just 8% of under 23's strongly disagree with the statement that their friends are acting in ways to reduce global warming, compared to 18% of 23-34 year olds who strongly disagree with the statement (*Table 21*).

Table 21| Age differences among the younger generation in social norms

	<i>National average</i>	<i>Ages 18 - 22 (8%)</i>	<i>Ages 23 - 34 (21%)</i>
Friends are acting in ways to reduce global warming			
	%	%	%
<i>Strongly agree</i>	5	10	3
<i>Somewhat agree</i>	43	32	35
<i>Somewhat disagree</i>	37	50	44
<i>Strongly disagree</i>	14	8	18
<i>n=</i>	934	78	184

Chi-square $p < .05$

When it comes to their beliefs about the reality and causes of global warming, 18-22 year-olds don't differ much from 23-34 year-olds, and they are actually significantly more likely to believe that there is a lot of disagreement about the reality of global warming among scientists: A full 50% of 18-22 year-olds believe this, compared to just 35% of 23-34 year-olds. In contrast, 23-34 year-olds are more likely than under 23's to indicate that they don't know enough to say one way or another (*Table 22*).

Table 22 | Age differences among the younger generation in global warming beliefs

	National average	Ages 18 - 22 (8%)	Ages 23 - 34 (21%)
Believe that global warming is happening?			
	%	%	%
Yes	57	54	58
Don't know	23	19	25
No	20	28	18
n=	992	80	204
Scientific consensus on global warming?*			
	%	%	%
Most scientists think global warming is happening	34	38	38
There is a lot of disagreement	40	50	35
Most scientists think global warming is not happening	5	5	1
Don't know enough to say	22	8	25
n=	982	80	201
Causes of global warming?			
	%	%	%
Caused mostly by human activities	47	51	53
Caused mostly by changes in the environment	35	31	25
Neither because global warming isn't happening	9	10	13
Caused by both human activities and natural changes (VOL)	6	8	6
Other	1	0	2
Don't know (VOL)	1	0	2
n=	979	80	199

*denotes Chi-square $p < .05$

College-age adults are somewhat more likely to say that they need additional information about global warming than 23-34 year-olds. A full 78% of under 23's say they need at least a little more information, compared to 66% of 23-34 year-olds. And, 41% of the younger age group either strongly or somewhat agrees that they could easily change their minds about global warming, which is significantly more than the 31% of 23-34 year-olds who agree (*Table 23*).

Table 23| Age differences among the younger generation in openness to new information

	National average	Ages 18 - 22 (8%)	Ages 23 - 34 (21%)
Need more information?			
	%	%	%
<i>I need a lot more information</i>	22	15	10
<i>I need some more information</i>	23	23	24
<i>I need a little more information</i>	26	40	32
<i>I do not need any more information</i>	29	23	34
n=	980	80	196
Willing to change your mind?*			
	%	%	%
<i>Strongly agree</i>	5	11	3
<i>Somewhat agree</i>	30	30	28
<i>Somewhat disagree</i>	31	25	34
<i>Strongly disagree</i>	34	34	35
n=	977	80	198

*denotes Chi-square $p < .05$

Who among young people are most willing to change their minds on global warming?

The findings presented thus far suggest that there is untapped potential to reach and engage young Americans on climate change. Young Americans are already more optimistic than their elders about the effectiveness and benefits of taking action on global warming. Moreover, roughly a third of under 35's are open to changing their minds about global warming (41% among under 22's). This is not an insignificant number, particularly given this group's higher levels of trust in scientists and political figures like Al Gore and especially President Barack Obama, who maintains his commitment to passing new legislation to help combat climate change. In addition, though more formal analysis is needed, college-age Americans may be even more engaged than their late 20- and early 30-something peers.

As organizations and institutions seek to reach broader segments of the public on climate change, an important challenge will be to identify those groups of Americans who are open to new information and capable of shifting their views on the issue. Not surprisingly, those 18-34 year-olds who are most ambivalent about global warming are also the most likely to agree that they could easily change their minds: This includes 78% of those who think global warming is caused by both human activities and natural changes, 56% of those who say they don't know whether global warming is happening or not, and 49% of those who say they are not very worried about global warming (*Table 24*).

Although just 10% of 18-34 year-olds who don't believe that global warming is happening are willing to change their minds, roughly a third (32%) of those who think there is a lot of disagreement among scientists on global warming and a third (34%) of those who say that global warming is caused mostly by natural changes in the environment are open to shifting their views.

Thus, it is important not to over-estimate the proportion of Americans who are irrevocably dismissive of the issue: While the staunchest of global warming skeptics do seem relatively impervious to change, those with moderately skeptical or uncertain views are open to engagement.

Table 24| What types of young people are willing to change their minds?

% who agree that they could easily change their minds about global warming		National average	Ages 18-34 (29%)	Ages 35-59 (48%)	Ages 60+ (23%)
Believe that global warming is happening?					
	Yes (57%)	31	34	26	39
	Don't know (23%)	62	56	64	64
	No (20%)	16	12	16	19
	n=	974	276	470	228
Scientific consensus on global warming?					
	Most scientists think global warming is happening (34%)	29	39	22	30
	There is a lot of disagreement (40%)	34	32	32	41
	Most scientists think global warming is not happening (5%)	15	14	13	20
	Don't know enough to say (22%)	50	34	52	62
	n=	969	275	469	225
Causes of global warming?					
	Caused mostly by human activities (47%)	34	35	31	40
	Caused mostly by changes in the environment (35%)	39	34	38	46
	Neither because global warming isn't happening (9%)	16	9	19	27
	Caused by both human activities and natural changes (VOL) (6%)	41	78	26	14
	Other (1%)	31	0	50	33
	Don't know (VOL) (1%)	38	0	33	100
	n=	967	274	466	227
Worried about global warming?					
	Very worried (12%)	14	12	21	3
	Somewhat worried (38%)	39	36	35	50
	Not very worried (27%)	50	49	45	65
	Not at all worried (23%)	21	18	15	34
	n=	973	276	470	227

Methodology

These results come from a nationally representative survey of 1,001 American adults, aged 18 and older. The completion rate was 50 percent. The sample was weighted to correspond with US Census Bureau parameters for the United States. The margin of sampling error is plus or minus 3 percent, with 95 percent confidence. The survey was designed by Anthony Leiserowitz of Yale University and Edward Maibach and Connie Roser-Renouf of George Mason University and conducted December 24, 2009 through January 3, 2010 by Knowledge Networks, using an online research panel of American adults.

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