HOW INFORMATION WORLDS SHAPE OUR RESPONSE TO CLIMATE CHANGE

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Introduction

WHETHER IT'S AN UNSEASONABLY WARM DAY, a comment on social media, or an alarming news segment about rising sea levels, we are constantly reminded that the climate is changing. From deadly storms to subtle shifts in the migratory patterns of birds, such experiences alter our relationship to a world once ordered around the predictable change of seasons. Climate change, with its unimaginable scale and complexity, is redefining communities, disrupting global relationships, and threatening the natural world.

After living through yet another hottest year on the planet, there is growing acceptance that a crisis once assumed to affect only the furthest reaches of the Earth now poses an immediate threat to us all. Consensus that climate change is real is at an all-time high in the U.S. 1 And yet, the collective ability to comprehend and respond to threats posed by the climate crisis is jeopardized by ambivalence, skepticism, anxiety, and distrust.

Today, information flows toward us, online and in person, through multiple channels that have grown increasingly diverse, individualized, and unrelenting. With less agreement about what is true, what can be trusted, and where information has originated, it's more challenging than ever for the public to reach agreement about how to respond to big, complex problems like climate change.

Previous research has tied divergent viewpoints about climate change to cultural, generational, and political differences. 2 These distinctions are often measured by what people say they know and how it fits into their beliefs, social media use, and political affiliation. But while this research explains public opinion in terms of demographics and attitudes, it misses important clues about how people respond to the topic of climate change in conversations with others, in media they encounter, and in relation to themselves.

1

Anthony Leiserowitz, Edward Maibach, Seth Rosenthal, John Kotcher, Matthew Ballew, Matthew Goldberg, and Abel Gustafson, *Climate Change In The American Mind: December 2018* (New Haven: Yale University and George Mason University, 2018), https://climateco mmunication.yale.edu/publication s/climate-change-in-the-americanmind-december-2018/.

"New Poll: Nearly Half Of Americans Are More Convinced Than They Were Five Years Ago That Climate Change Is Happening, With Extreme Weather Driving Their Views," *Energy Policy Institute at the University of Chicago*, January 22, 2019, https://e pic.uchicago.edu/news/new-poll-n early-half-of-americans-are-more-c onvinced-than-they-were-five-year s-ago-that-climate-change-is-happ ening-with-extreme-weather-drivin g-their-views/. To fill this gap, our latest report from Project Information Literacy (PIL), an independent research institute, looks not at *what* people know about climate change, but *how* they know it. By leveraging our combined expertise in information science, information literacy, and data science, we examine the ways in which people living in America encounter, engage with, and respond to climate change news and information; how these interactions shape their perceptions of the worldwide climate emergency; and how these attitudes impact their willingness to take action, no matter how small it seems.

In a follow-up analysis, we look to the future to explore how college students encounter climate change news and information. They have encountered the threat of the climate crisis since childhood and will have to live with the crisis through the rest of their lives, depending on how we deal with climate change today.

Three sets of questions frame our inquiry:

- 1. What do individuals in the U.S. understand, believe, and feel about climate change? How are their attitudes shaped by the information practices and technologies that mediate their encounters with climate change news and information?
- 2. How do individuals engage with others in their own personal orbit on the subject of climate change? How willing are people to discuss climate change and listen to those who may hold different views? How much do such interpersonal interactions influence what they know and think about climate change?
- 3. What information practices contribute to being informed about and engaged with the climate crisis and motivated to take action? Which practices contribute to inaction, distrust, ambivalence, hopelessness, and indifference?

To respond to these questions, we administered two large-scale online surveys: One was sent to a sample of 4,503 members of the general public, ages 16 to 85 years old; and the other to a sample of 1,593 college students enrolled in nine higher education institutions across the U.S. 3 Results from each of the survey questions are available in our data dashboard.

Drawing from our analysis of the survey results, we identify three opportunities that better position climate change stakeholders — journalists, educators, librarians, activists, scientists, and policy analysts — wanting to encourage greater climate change engagement among a divided populace. Each of these opportunities is accompanied by a set of questions to open up discussion and pathways for action.

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"Climate, Energy & Environment," *Pew Research Center*, accessed May 2024, https://www.pewresear ch.org/topic/science/science-issue s/climate-energy-environment/.

"Environment," *Gallup*, accessed May 2024, https://news.gallup.co m/poll/1615/Environment.aspx.

Jennifer Marlon, Emily Goddard, Peter Howe, Matto Mildenberger, Martial Jefferson, Eric Fine, and Anthony Leiserowitz, *Yale Climate Opinion Maps 2023* (New Haven: Yale University and George Mason University, 2023), https://climateco mmunication.yale.edu/visualizatio ns-data/ycom-us/.

3

The same survey with minor changes to demographic questions was administered to each sample, featuring questions about information-seeking practices, the role of technology and community interactions in shaping those practices, and self-assessments of anxiety about the future of the planet. This report is divided into four parts:

Part 1 The Flattening Effect discusses how our acceptance and understanding of climate change is influenced by a variety of factors, including shared personal experiences with extreme weather and climate events across the country. These events have brought communities together, blurred their differences, and established a basis for collective climate action.

Part Two: Mapping the Terrain introduces the idea of *information worlds*, the collective channels of news and information people encounter, curate, and engage with to make sense of he world around them. **4** We use information worlds as a framework to map the terrain of people's opinions about climate change and the extent of their engagement with the issue.

Part Three: Views from Four Mile Markers identifies perspectives in the climate terrain belief systems, community alliances, and affinities and differences among our sample.

Part Four: The Road Ahead explores how the young understand and respond to climate change and their willingness to take action. We conclude our report by identifying three opportunities for building broader consensus in climate change engagement and action across the country, based on the results of our collective survey results.

Why this research matters now

There is growing attention to what climate activist Hannah Ritchie calls "urgent optimism." 5 That is, taking shared action to shape positive outcomes for a planet that is under a constant onslaught of ongoing climate disasters. The effect of these weather disasters on Americans has raised awareness that solutions are needed. At the same time, it has become the top priority as a serious challenge facing all of us, regardless of where we live or who we vote for in November.

In a heated presidential election season, when voters are split into hostile camps whose views reflect their political affiliation, shared action on climate change is often viewed at best as unrealistic and at worst as impossible. Political activists use divisive issues like climate change to energize support from their constituents.

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We acknowledge the "small worlds" research and theories of Elfreda Chapman, a pioneering scholar in library and information science in the mid-1990s, has informed this report. Our study builds on this earlier work as we focus on how changes to networked infrastructures, and the algorithms they increasingly employ, impact what kinds of information worlds people inhabit today and how certain characteristics pertain to their understanding and beliefs about climate change.

5

Hannah Ritchie, *Not The End Of The World: How We Can Be The First Generation To Build A Sustainable Planet* (New York: Little, Brown, Spark, 2024), 9. These loud voices can take center stage in climate change debates, framing it as a partisan political issue in terms that often inflame fear and anger. The mentality that "you are either with us, or against us" is a theme of our political discourse that feeds the news of the moment.

The media prefer to highlight these debates rather than report on the choices we can make to mitigate the climate crisis. Moreover, social media platforms, through which a large portion of people in America share their concerns about the state of the planet, help promote messages fueled by the politics of anger, fear, and distrust of "the other side." Algorithms designed to segment us into advertising markets distance us from one another as developments in artificial intelligence (AI) enable deceptive, targeted climate change messaging on a massive scale. As one respondent to our survey said, "I hear about climate change from all of these sources, but it's actually disturbing in some ways because it's not all accurate."

No wonder so many people are turned off by the political discord that permeates public debate. By countering a common narrative of inevitable conflict, our findings can strengthen efforts to bridge our divides over this crisis and encourage action. Taken together, our report is meant to inform the development of new strategies for taking collective action to sustain the future of the planet at a time when it is urgently needed.

Part 1: The Flattening Effect

WILDFIRES, DROUGHTS, FLOODS, HEAT WAVES: These extreme weather and climate events are evidence that climate change isn't simply a concern for the future; it's here. We no longer need complex computer models to predict climate change or chart its catastrophic course. Melting glaciers, rising seas, and mass migrations bear witness to the global threat.

Closer to home, severe weather events, many attributable to climate change, have become an accepted feature of the American landscape. 6 Of more than 6,100 people we surveyed, more than 80% said they live in a community that has been affected by extreme weather or climate events since 2021. These results are strikingly higher than the answer to a similar question that Gallup asked two years ago. At that time, fewer than half as many respondents – 33% – had experienced an extreme weather or climate event in the previous two years. 7

As the data in Figures 1A and 1B illustrate, personal experiences with severe weather and climate events have become commonplace from coast to coast. Dramatic changes in weather patterns were initially surprising to people in the U.S., but now are woven into the fabric of their daily lives. As one respondent in the Midwest said, "I can actively see it when I look out the window — and I am wearing a t-shirt outside when it's February!"

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The World Economic Forum defines "two main types of extreme weather – weather-related and climate-related. Weather-related events are shorter incidents such as tornadoes, deep freezes or heat waves. Climate-related events last longer or are caused by a buildup of weather-related events over time. They include droughts or wildfires."

Olivia Rosane, "Extreme Weather 101: Everything You Need To Know," *World Economic Forum*, April 11, 2022, http s://www.weforum.org/agenda/2022/ 04/extreme-weather-101-everything-y ou-need-to-know/.

Jeffrey M. Jones, "Extreme Weather Has Affected One In Three Americans," *Gallup*, April 6, 2022, http s://news.gallup.com/poll/391508/ext reme-weather-affected-one-three-am ericans.aspx.

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Has the community where you currently live been affected by any of these extreme weather events during the past three years?



Figure 1A: What severe weather events have you recently experienced? N = 6,096, general population sample (N = 4,503) and college student sample (N = 1,593). Source: Question 1.

Number of severe weather events experienced during the past three years



Figure 1B: Number of severe weather events experienced. N = 6,096, general population sample (N = 4,503) and college student sample (N = 1,593). Source: Question 1.

Whether it's extreme temperatures, flooding, droughts, or severe storms, the ubiquity of unusual weather has had a "flattening effect" in the U.S. That is, personal encounters with severe weather have become a shared experience across every region in the country, collapsing differences in political orientation, religion, income, and age while having potential for uniting communities. 8 A 2020 headline in *The New York Times* captures this collective experience: "Every place has its own climate risk: What is it where you live?" 9

Even though it may be tempting to tune out unpleasant news about the effects of climate change, living through it makes disengagement impossible. This is because the shared experience of ongoing climate disasters is a challenge that can only be faced collectively. Time after time, we've seen communities that have come together to survive an environmental emergency and have learned through adversity that they can unite around a common cause despite their differences. The challenge, of course, is sustaining that unity once the emergency has passed.

While personal exposure to environmental disasters is one way people directly engage with climate change, it is not the only way we make sense of the climate crisis happening around the world. Other components feeding into our understanding of climate change include the news we read, watch, or listen to; posts shared through social media; and conversations with people in our communities. All of these sources make up our information worlds, influencing how much we know, what we trust, and how we react to climate change — whether we feel hope or despair, and whether or not we decide to take action to combat this climate emergency.

Notably, the information channels available to us today are more diverse, complex, fragmented, algorithmically mediated, and disconnected than ever, leading to different interpretations of climate change impacts and possible solutions. The outsized effect this complexity has on our ability to relate to one another is especially apparent in a U.S. election year. The latest political news and analyses get top billing — the sheer volume drowns out other stories, including items about the climate crisis. As one survey respondent said, "there are so many issues at the moment that no single one elicits a particularly strong reaction, I feel neutral."

To date, there has been no in-depth exploration of the technological and social infrastructures that shape understanding of the climate crisis. How, for instance, do social media feeds or conversations with a friend influence our comprehension of climate change? How does distrust of journalism intersect with the amount of engagement with climate change as a pressing issue? Our study is the first examination of how divergent information channels, like these, are personally created, how differences and affinities reveal themselves, and how these complex webs of information shape understanding of what it means to live on a warming planet.

8

Rebecca Solnit, *Hope In The Dark: Untold Histories, Wild Possibilities* (Chicago: Haymarket Books, 2016).

Jacob Remes, "Finding Solidarity In Disaster," *The Atlantic*, September 1, 2005, https://www.theatlantic.com/p olitics/archive/2015/09/hurricane-katr inas-lesson-in-civics/402961/.

9

Stuart A. Thompson and Yaryna Serkez, "Every Place Has Its Own Climate Risk. What Is It Where You Live?" *The New York Times*, September 18, 2020, https://www.nyti mes.com/interactive/2020/09/18/opi nion/wildfire-hurricane-climate.html. In the following pages, we use our survey data to map the terrain of climate change understanding in the U.S. We share findings about how our survey participants encounter and engage with information channels that shape their beliefs and attitudes about climate change while identifying opportunities to build broader consensus across the United States.

Part 2: Mapping the Terrain

HOW DO PEOPLE DEVELOP THEIR UNDERSTANDING and attitudes about climate change? How do they see themselves as actors in the climate crisis? How divided is America across these lines of engagement and attitude? To answer these questions, we took data from our survey of the general population and mapped the terrain of attitudes, beliefs, and feelings about climate change.

To frame our approach we use *information worlds*: Collective arrangements of personalized news, information technologies, and social spaces through which people encounter and process news and information about the world around them. Our goal is to examine certain characteristics of information worlds that pertain to the understanding and beliefs people have about climate change in the U.S.

In our survey of more than 4,500 members of the general public, we examined how people encounter climate change news and information and what they think and feel about the crisis. By analyzing the components of their information worlds and mapping the continuum of what they agree and disagree with, we can see how information flows shape engagement in the national conversation about climate change. Our concept of information worlds deepens our insights into how these moving pieces fit together.

But what exactly are information worlds?

How our information worlds define us

When we run across a perspective profoundly different from our own, many of us may simply shake our heads and think, We *must be living in different worlds*. In a real sense, we are: We are each surrounded by streams of news, political commentary, entertainment, and social connections that we either choose ourselves or that are served up to us by algorithmic personalization. These streams, shaped by our experiences, values, and our beliefs about how knowledge is created and validated, comprise our information worlds.

Information worlds consist of the personalized news, information technologies, and social connections through which we encounter, process, and engage with the world. These flows are fed by traditional institutions such as news organizations and government offices. We also get information from teachers, spiritual leaders, political figures, weather forecasters, advertisers, and cultural influencers. Even more information flows to us through personal connections, whether in face-toface conversations with our family and neighbors or with strangers online.

None of these exchanges are new. But what's changed with the internet is how information has become more interactive, social, malleable, and mediated by complex cultural and technological processes. Today's information is not something "out there" that we seek out, it's all around us in various forms, interwoven with our social relationships, experiences, and personal beliefs. In short, we all make choices that shape the information worlds we inhabit and, through those worlds, we make meaning out of our daily lives.

Because we have so many options, because so many actors strive to influence the news and information we encounter, and because the cultural and technological systems through which information flows constantly vie for our attention, our information worlds lead us to hold views about climate change that are often strikingly different from one another. And yet, as we found, these views can frequently overlap.

Take for instance, one of the findings from our survey: More than three-quarters of our respondents (76%) believe climate change is real. But there s much less agreement about how serious it is, and many say they don t think much about changes to the climate at all.

By examining differences and affinities like these in our information worlds alongside attitudes about climate change — whether it truly is a crisis, what action is needed and how urgently, and whether it leads us to despair or hope for the future — we were able to map out how information worlds influence peoples understanding of climate change.

Mapping opinions about climate change

To explore the complex ways that attitudes, beliefs, and feelings about the climate crisis intersect and diverge, we mapped affinities and differences among responses to 35 of our survey's opinion questions. 10 Figure 2 shows a map of climate change understanding and agreement in the U.S., based on analysis of responses to our survey from the general population sample (N = 4,503). 11

In Figure 2, respondents who shared consensus on many points about climate change are clustered at one or the other end of the map. Those whose opinions were less in alignment with others were more spread out, resulting in three distinct affinity groups that share beliefs and attitudes about climate change:

- 1. **The Engaged** (33%) are convinced that the climate crisis is happening and that it's their civic duty to stay informed. They keep up with climate change news and information, but they are not consumed by the media coverage.
- 2. **The Detached** (47%) are concerned, but not sure what to think about climate change. While most believe climate change is happening, they don't follow much climate change news.
- 3 **The Resistant** (9%) don't believe climate change is happening and do not engage with climate change news and information. They do not trust scientists or journalists and deny claims that climate change is real.

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See the Methods section of this report for more details about the cluster analysis technique used for this data analysis of the terrain.

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Respondents in our college sample were not included in the data analysis used to produce this figure. See the Methods section of this report for more details about the rationale for this decision.



Figure 2: How divided is America over climate change? N = 3,967, based on cluster analysis performed on the general population sample (N = 4,503), minus removal of 536 respondents for data quality.

Our terrain map of climate change understanding and engagement mirrors the storied polarization in public opinion about climate change that's often described in the news and displayed on Capitol Hill. 12 At the same time, our findings suggest that the split between those committed to addressing the climate crisis and those doubtful of it is not as evenly distributed as we may assume. In fact, what we observed is quite different: The asymmetry in the terrain points markedly in the direction of belief in climate change.

A significant swath of respondents — the Engaged — not only thinks climate change is real, but is alarmed by the state of the environment and eager to see action taken. In Figure 2, this region of responses (33%) is populated by committed believers in climate change, who have a strong sense that confronting it is their civic responsibility. As an Engaged respondent said, "I'm concerned about the impacts of climate change, both on the natural environment and on human society, and motivated to take action to reduce my own carbon footprint and to support policies that will help to mitigate the effects of climate change." Another simply described feeling "scared and optimistic."

The Detached occupies 47% of the terrain in Figure 2. This largest group of respondents is largely convinced that climate change is real, but is less in agreement about how pressing it is and what should be done about it. Though awash in news and information, many of those in this sizable group aren't sure what to believe and who to trust when it comes to climate change. As one respondent in the largest group on the terrain map put it, "I feel helpless and some things need to change." Another just wrote, "fix it and fast."

Only a small group in our sample — the Resistant — is unified in their conviction that climate change is a "hoax." For some in this group, which occupies 9% of the terrain in Figure 2, skepticism is paired with a belief that they do not have a role in helping combat climate change. As one survey participant commented, "A lot of what we're hearing about climate change is hype, our climate has been changing since the beginning of time," while another one said, "God created the climate and only he can fix it."

While the Engaged and the Resistant are marked by strong consensus, as high as 80% agreement across survey responses, this consensus dwindles in different parts of the map. This is especially true for the Detached: Those in this large group are not perfectly aligned with either of the other opinion groups. The Detached, however, tilt toward the Engaged group more than they do toward the much smaller Resistant group. Figure 3 shows common areas of consensus across the three groups.

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The political affiliation per group in our terrain mapping is available in the data dashboard; see Question 5 for each of the U.S. General Population subset options for the Engaged, Detached, and Resistant groups.



Figure 3: How do the three groups agree and differ in their beliefs? N = 3,967, based on cluster analysis performed on the general population sample (N = 4,503), minus removal of 536 respondents for data quality. Source: Questions 8, 10, and 16.

The plurality of respondents, those in the Detached group, are not of one mind. They tend to share opinions with those who are concerned about the crisis more than with those who are not. But there is a lot of open space in this terrain where opinions are not fixed. Notably, this space offers potential to converge in the direction of concern and action.

As a whole, what our terrain map reveals is that people in our sample are indeed divided. When it comes to climate change, however, these groups appear to be both less distinct and more fluid than suggested by the national preoccupation with political polarization. ¹³ In addition, respondents with strong and consistent opinions about climate change belief or skepticism are not equal in number.

As a follow up step in our analysis, we used the data from Figure 2 to create three maps by geographic location for each of the affinity groups — the Engaged, the Detached, and the Resistant. The results in Figure 4 are revealing: Though there are geographic differences, the Engaged, Detached, and Resistant live throughout the nation.

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Frank Newport, "Update: Partisan Gaps Expand Most On Government Power, Climate," *Gallup*, August 23, 2023, https://ne ws.gallup.com/poll/509129/updat e-partisan-gaps-expand-governme nt-power-climate.aspx. Unlike familiar maps we see in other publications, which often show stark political divisions, our maps show the Resistant, though few in number, live in the same states as the more numerous Engaged. In other words, people in these groups live throughout the country rather than being geographically separated from one another.

Proportion of Respondents per Affinity Group, by State

Figure 4: Where do the three groups live in the U.S.? N = 3,967, based on cluster analysis performed on the general population sample (N = 4,503), minus removal of 536 respondents for data quality. Note: Puerto Rico and the U.S. Virgin Islands are excluded from this view.

Together these findings suggest that people in the U.S., as a whole, are becoming more aware of climate change as an existential crisis. But what do our data tell us about how individuals' understanding of climate change is shaped by their information practices, preferences, and use of technologies, all of which shape their encounters with climate change news and information?

In the next part of this report, we provide a close-up analysis of four areas of the map that help reveal *how* people in the U.S. learn about climate change, not what they necessarily know as scientific fact.

Part 3: Views from Four Mile Markers

WHAT WOULD A TOUR OF OUR MAP OF CLIMATE CHANGE

UNDERSTANDING tell us about individuals' information worlds in the U.S.? In this section, we identify four significant points, or mile markers, in our map of climate change understanding and engagement.

Emerging from the survey data, these mile markers allow us to examine how survey participants agreed or disagreed with opinion statements we asked about climate change. As a whole, our illustrations show the shape of respondents' understanding of the climate crisis and reveal their willingness to take action, or not.

Mile Marker #1: News is fast, but climate change is slow.

News is all around us. A constant stream of objective coverage mixed in with poorer quality content shapes, in part, how we make sense of the climate crisis. Regardless of which region of our map respondents fit into, many of them agreed on one thing about the coverage: "The media focuses more on the negative impacts of climate change rather than solutions" (see Figures 5A and 5B).

The media focuses more on the negative impacts of climate change rather than solutions.



Figure 5A: Why climate coverage falls short for so many. Percent agreement in Engaged, Detached, and Resistant groups. N = 3,967, based on cluster analysis performed on the general population sample (N = 4,503), minus removal of 536 respondents for data quality. Source: Question 16.

The media focuses more on the negative impacts of climate change rather than solutions.



Figure 5B: Why climate coverage falls short for so many. Spatial distribution of agreement across the terrain. N = 3,967, based on cluster analysis performed on the general population sample (N = 4,503), minus removal of 536 respondents for data quality. Source: Question 16. Note: The lighter the cell color, the fewer the number of respondents, and the darker the cell color, the greater the number of respondents included in the cell. Hovering the cursor over a cell reveals a small tooltip showing the breakdown of agree, neutral, and disagree for respondents in that cell.

Figure 5B shows a map of the widespread agreement about the shortcomings of media coverage about climate change, and yet, there were marked differences among the Engaged, the Detached, and the Resistant in terms of how much they interacted with news about climate change.

Those in the Resistant group were least interested in following climate change news, while slightly less than half of those in the Detached group said they did (48%). Surprisingly, though nearly all in the Engaged group claimed to follow climate change news, many said they had not seen any news about it in the past week (see Figure 6).

How much, if at all, have you seen, read, or heard specifically about climate change from any source in the past week?



Figure 6: How much do the three affinity groups follow climate change news? N = 3,967, based on cluster analysis performed on the general population sample (N = 4,503), minus removal of 536 respondents for data quality. Source: Question 13.

What could explain this apparent contradiction? It may be that most encounters with climate news across all of the groups were unintentional and sporadic. In other words, something about climate change popped up on their social media feed (24%) or on a news site they visited (31%). In other cases, while they were scrolling, a headline, photo, illustration, or chart may have caught their eye (20%).

At the same time, a substantial percentage of people we surveyed (41%) claimed that the media exaggerates the impacts of climate change. As one respondent said, "there's too many climate stories to try to remember, and they're always banging on about climate change."

The Resistant were especially critical of the extent of media coverage. This small group of respondents kept up with news in general, but did not follow news about climate change, and more than three-quarters of them (85%) said they don't think about climate change at all. As one respondent said, "Whenever I read or hear something on just about everything on the news, it always blames it on climate change — I don't even listen anymore."

These combined factors make news engagement a notable part of our mapping of climate change understanding. As comments from survey participants suggest, and our survey results confirm, the news comes to most people in a piecemeal, haphazard manner.

Much of this happens through encountering snippets of coverage from a variety of sources: When asked about where they had seen climate change news in the week prior to taking the survey, respondents identified television news broadcasts (35%) and social media (30%) as major pathways. Figure 7 lists sources our sample, as a whole, identified as common pathways to climate change news.





Figure 7: Where do people get climate change news and information? General population sample (*N* = 4,503). Source: Question 14. Note: In the figure above, examples for each source were provided as follows. Social media (e.g., Instagram, TikTok, etc.); Newspapers or magazines (e.g., USA Today, New York Times, The Atlantic, etc.); Television news (e.g., Fox, CNN, local channel, etc.); Radio (e.g., NPR Morning Edition, Mark Levin, talk shows, etc.); Podcasts (e.g., Stuff You Should Know, The Daily, etc.); Online or face-to-face interactions (e.g., friends, teachers, Discord groups, Reddit forums, Twitch streams, etc.).

Most people we surveyed interacted with climate change news through a hodgepodge of sources and without any consistency. Their awareness of climate change information depended on the fluctuations of the news cycle and what was trending on social media.

In sharp contrast, those who actively searched for climate change news comprised a small minority of our sample (16%). For some of them, being agents of their own encounters with climate change news was the only reliable way to get closer to the

source of truth. As one respondent explained, "I do not trust any news, social media, or government entities related to climate change. The only way to know the truth is to study the source of the data and research — this way you can see all sides of the data and not behave out of fear mongering."

This is the challenge of climate change media coverage: Climate change is a global phenomenon that has developed over centuries. Scientists have been sounding the alarm for decades, and yet, news cycles are driven by patterns of breaking news that are local, transitory, and a poor match for the global, gradual pace of climate change. For many news consumers, progress may appear to be too little, too late when information is scattered piecemeal among competing issues.

What appears to be missing from most climate change coverage is not so much a sense of urgency as a sense of larger context. The number of climate news stories has steadily risen since the 1980s. ¹⁴ In tandem, so have weather and climate disasters in the U.S. Far fewer stories have focused on the cumulative progress in sustainability efforts or have detailed the many factors that go into making sense of the climate crisis and how it can be addressed. ¹⁵ As one concerned survey participant commented: "It is so depressing to see how animals or even the natural landscape are now being destroyed, but what should I do better for those who do not have a voice to say 'stop'?"

The newness of news, with its focus on the latest weather-related disasters and political disputes over climate policy, makes it hard to cobble together the big picture. Our findings suggest this gives many people in the U.S. a vague sense of impending catastrophe rather than seeing a clear path for possible futures based on choices we make together. As one respondent summed it up, "Climate change is so politicized, people don't know what to believe."

Mile Marker #2: Lack of trust undermines climate action.

How do you get people to respond to a global crisis when many don't seem to trust the messenger? Our survey results reveal an intriguing dichotomy: A large majority of respondents believed climate change is real, but there was less agreement that they could trust the work of scientists researching climate change or journalists reporting on it. As one put it, "there's so much BS from both sides." Another said, "I'm not sure what to think about it; they change their minds so much."

Figures 8A and 8B show a dramatic majority (85%) in the Engaged group thought that climate scientists have a good handle on what is causing climate change. By comparison, less than half of the Detached (41%) felt the same way. The Resistant

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To gauge the shape of U.S. climate change coverage over the last 40 years, Yuqi He, a PIL Fellow for PIL's Climate Change Study, conducted a search in the subscription-based U.S. NewsStream database (via ProQuest) because its database contains the most U.S. news content, with 618 newspapers dating back to the 1980s. Results indicated U.S. news coverage on climate change has steadily risen since the 1980s with coverage peaking in 2019 and 2021.

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Mark Herrtsgaard and Kyle Pope, "Making Climate The Everything Story," *Columbia Journalism Review*, September 19, 2023, https://www.cjr. org/covering_climate_now/making-cl imate-everything-better-coverage-sol utions-journalism.php. were even more doubtful, with only a few (5%) agreeing in this small group that scientists understand what causes climate change.

Scientists have a good grasp of the causes of climate change.



Figure 8A: Who believes scientists have a good grasp of climate change causes? N = 3,967, based on cluster analysis performed on the general population sample (N = 4,503), minus removal of 536 respondents for data quality. Source: Question 8.



Scientists have a good grasp of the causes of climate change.

Figure 8B: Who believes scientists have a good grasp of climate change causes? Spatial distribution of agreement across the terrain. N = 3,967, based on cluster analysis performed on the general population sample (N = 4,503), minus removal of 536 respondents for data quality. Source: Question 8. Note: The lighter the cell color, the fewer the number of respondents, and the darker the cell color, the greater the number of respondents included in the cell. Hovering the cursor over a cell reveals a small tooltip showing the breakdown of agree, neutral, and disagree for respondents in that cell.

When it comes to journalism, distrust ran even deeper. Half of the respondents in the sample (46%) felt confident thev could trust the credibility of news about climate change; almost a third (29%) expressed outright distrust. As Figures 9A and 9B illustrate, more than three-quarters of the Engaged (77%) were confident in the credibility of climate news, but nearly everyone in the Resistant group (96%) had no trust in it.

I trust the credibility of most climate change news and information I encounter.



Figure 9A: Who trusts the credibility of climate change news? Percent agreement in Engaged, Detached, and Resistant groups. N = 3,967, based on cluster analysis performed on the general population sample (N = 4,503), minus removal of 536 respondents for data quality. Source: Question 16.



Figure 9B: Who trusts the credibility of climate change news? Spatial distribution of agreement across the terrain. N = 3,967, based on cluster analysis performed on the general population sample (N = 4,503), minus removal of 536 respondents for data quality. Source: Question 16. Note: The lighter the cell color, the fewer the number of respondents, and the darker the cell color, the greater the number of respondents included in the cell. Hovering the cursor over a cell reveals a small tooltip showing the breakdown of agree, neutral, and disagree for respondents in that cell.

Notably, those who expressed the most trust in climate change news and information were more likely to apply a suite of strategies to assess its credibility (see Figure 10). For example, more than half of these respondents (53%) used lateral reading strategies to see how the story was covered elsewhere, while another sizable proportion (41%) researched sources mentioned in the news to check the reliability of climate news.

When you come across climate change news or information online or in print, how do you decide if it is credible?



Figure 10: Strategies for checking the credibility of climate change news. N = 3,967, based on cluster analysis performed on the general population sample (N = 4,503), minus removal of 536 respondents for data quality. Source: Question 18.

This behavior suggests a relationship between trust and critical approaches to news sources: Those who trust the reliability of news are also more likely to verify its credibility. Some go even further, as one climate change believer said, to "try to understand the motivation behind the message."

Surprisingly, those who did not trust news were less likely to use evaluation strategies. For instance, a third of the Detached (31%) didn't check the credibility of climate change news at all. In the Resistant group more than a third (38%) also didn't bother checking. As one put it, "I ignore it because none of it is credible." But only (9%) of the Engaged did not feel a need to evaluate climate change news or information.

For those who didn't dismiss the importance of evaluation outright, distrust in the media and experts was still pronounced in responses. Traditional markers of credibility like the author's credentials (24%) the opinion of other experts (17%), or turning to peer-reviewed literature (15%) were not frequently used, particularly among the Detached and Resistant. Instead, these groups felt the most reliable approach was "doing your own research," or, as one respondent put it, "I fact-check everything." Another explained, "I trust my own eyes."

Taken together, these findings suggest people's ability to accept a reliable source about the climate crisis is tempered by the degree to which they believe in the scientists and journalists sharing climate change information. Those who are most involved in climate change as a pressing concern are confident they can recognize news they should trust and can screen out less reliable information. Those who are less trusting are also less likely to take individual action to mitigate climate change. If they don't trust the messenger, they might not trust the message either.

This kind of ambivalence is difficult to overcome. In the U.S., trust in institutions of all kinds has been declining for years, and efforts to turn it around have not changed that trajectory. ¹⁶ Much of this quandary is related to the nature of today's news – coverage is fragmented and mixed with opinion and commentary, or is politicized.

Restoring trust in institutions is a large hurdle to clear in our race to counter the existential threat of climate change. But it's all the more reason to map out available pathways to trusted information as a means of galvanizing a collective response. This is key to building bridges for better communication about and understanding of the crisis at hand.

Not everything people know about climate change comes directly from institutional sources of knowledge like scientists and journalists though. It also comes from face-to-face and online interactions. "If it's important, I'll learn about it through others," said one respondent; echoing this, another said, "I mostly rely on what other people say." In other words, many survey participants count on their personal connections to expose and filter information for them to make sense of climate change.

Others depend on direct experience and firsthand observations. When asked how they keep up with climate news, one said, "I spend time outdoors, often having to interact with the effects of climate change physically." Another said, "A lot of the time, I just look out of my window and watch how much things have changed in my 49 years of life," while another simply said, "there's too much talking and very little action."

In a time of heightened political conflict, trust in science and mainstream news has been caught up in the centrifugal forces of partisan identity for people in the U.S. 17 Yet, as we travel across our map of responses to climate change, other factors in our information worlds may give us room to escape the hard boundaries of political affiliation and find common ground through other ways of gathering, sharing, and reflecting on information. 16

"America's Trust In Its Institutions Has Collapsed," *The Economist*, April 17, 2024, https://www.economist.com/u nited-states/2024/04/17/americas-tru st-in-its-institutions-has-collapsed.

17

Marc Hetherington and Jonathan M. Ladd, "Destroying Trust In the Media, Science, And Government Has Left America Vulnerable To Disaster," *Brookings Institute*, May 1, 2020, http s://www.brookings.edu/articles/destr oying-trust-in-the-media-science-andgovernment-has-left-america-vulnera ble-to-disaster/.

Brian Kennedy and Alec Tyson, "Americans' Trust In Scientists, Positive Views Of Science Continue To Decline," *Pew Research Center*, November 14, 2023, https://www.pew research.org/science/2023/11/14/ame rians-trust-in-scientists-positive-view s-of-science-continue-to-decline/.

Mile Marker #3: Most are willing to consider climate change viewpoints different from their own.

A majority of respondents held the same opinions about climate change as the people in their orbit (see Figure 11), like family (60%) and friends (56%) and, to a lesser degree, people in their larger community (40%). However, climate change discourse didn't end there.



= 4,503). Source: Question 9.

One of the more intriguing findings from our survey results is the openness most respondents (72%) expressed around listening to other views of climate change, even if they don't agree with them. Figures 12A and 12B illustrate how this tendency to remain open to hearing other opinions is found across the Engaged, Detached, and Resistant.

Even if I don't agree with someone about climate change, I will consider their views.

Figure 12A: Receptiveness to other viewpoints about climate change. Percent agreement in Engaged, Detached, and Resistant groups. N = 3,967, based on cluster analysis performed on the general population sample (N = 4,503), minus removal of 536 respondents for data quality. Source: Question 9.



Figure 12B: Receptiveness to other viewpoints about climate change. Spatial distribution of agreement across the terrain. N = 3,967, based on cluster analysis performed on the general population sample (N = 4,503), minus removal of 536 respondents for data quality. Source: Question 9. Note: The lighter the cell color, the fewer the number of respondents, and the darker the cell color, the greater the number of respondents included in the cell. Hovering the cursor over a cell reveals a small tooltip showing the breakdown of agree, neutral, and disagree for respondents in that cell.

Though many people in our sample were surrounded by those who tend to agree with them about climate change, most say they are willing to engage in climate change discussions even if it challenges their own beliefs. Additionally, two-thirds of the sample said staying informed about climate change was their civic responsibility, providing an incentive to be knowledgeable about climate change when it comes up in conversation. Most of the Engaged (91%) confirmed this by saying they had a good grasp of threats imposed by climate change, far more than the Detached (39%) or the Resistant (30%).

At the same time, however, participation in the public square was notably limited. As Figure 13 shows, more than half of our sample had either never shared or rarely, if ever, shared ideas or links to climate change news and information through conversations with people in real life or on social media in the month prior to taking the survey.



How often, if at all, have you shared content about climate change with someone online or in person during the past month (e.g., started a conversation about something you read or heard about on the news; shared a story on your social media; etc.)?

Though respondents may aspire to discuss climate change with others, we also found many people avoided such discussions. Half of the Resistant respondents (50%) and almost a third of the Detached (32%) bypassed such conversations, while only a handful of respondents in the Engaged group (8%) did. This contradiction reveals just one of the many complexities in our research findings that belie a simple view of climate change discourse.

A larger percentage of the Resistant respondents agreed that "Discussions about climate change are unproductive" (69%) than the Detached (32%) and the Engaged (6%) combined. One possible reason for this varied amount of engagement is that climate change is so tightly tied to political and cultural identities that it may seem a conversational minefield between these three groups in the terrain mapping. Evidence of this abounds in the myriad strategies offered in the media about how to navigate contentious discussions around climate

change.¹⁸

And yet, we found most people in our sample say they are willing to talk about climate change even if, in practice, they have not done so. One plausible explanation may be related to the flattening effect of widespread extreme weather events people may be more open to discussing climate events that are in their own backyard. Common experience has united the vast majority of us through our shared encounters with climate change-causes disasters — and there's much to discuss.

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See Katharine Hayhoe, *Saving Us: A Climate Scientist's Case For Hope And Healing In A Divided World* (New York: Simon and Schuster, 2021).

Figure 13: How often is climate change news and information shared? General population sample (N = 4,503). Source: Question 17.

Mile Marker #4: A journey from despair to hope is possible.

What can be done to engage and inspire people who may feel overwhelmed by the threat of climate change? Judging from the abundance of write-in comments to the survey that had a tone of despair and anxiety about the future of the planet, this is a tall order. As a whole, there is a troubling gap in America between awareness of the climate emergency and a sense that taking action can make a difference.

Most respondents had mixed feelings about the future (see Figure 14). A majority believed that humanity has the capacity to mitigate climate change (66%) and that individual actions can be effective (67%), yet less than a third (28%) participated in community efforts to support the environment. More than a third said they felt powerless (36%) in the face of climate change, yet nearly two-thirds said they were motivated to be part of the solution.



Figure 14: What does the future hold? General population sample (N = 4,503). Source: Questions 8 and 10.

The strength of emotional responses became especially clear when we asked survey respondents to describe in two words their feelings after encountering news about climate change. The most frequent responses were variations on anxiety, sadness, and anger. Figure 15 provides an interactive table of respondents' responses.

Think about a time in the past two weeks when you saw, read, or heard about climate change. What two words best describe your reaction to the topic, especially how it made you feel?

1 sad (9.7%)	sad frustrated sad extremely sad rather sad sad thinking very sad sad angry
2 worry (8.6%)	worrisome worried mad hopeless worried worried sick worried aware
3 anxious (6.9%)	anxious concerned fear anxious anxious worried anxious anxious depressed
4 concern (6.5%)	concern anxious concerned overwhelmed concerned increasingly concerned
5 scary (6.5%)	very scared scared informed scared optimistic scared worried scared
6 frustrate (4.7%)	frustrated sad frustration concern fear frustration frustrated frustrated determined
7 depress (3.7%)	sad depressed depressed depressed sad overly depressed
8 hopeless (3.5%)	hopeless infuriated hopeless worried angry hopeless sad hopeless
9 angry (3.3%)	sick angry sad angry angry angry scared angry hopeless angry depressed
10 disappointed (2.3%)	disappointed disgusted moderately disappointed disappointment futility
11 helpless (2.3%)	sad helpless nervous helpless sad helpless questioning helpless sad helpless
12 shock (2.2%)	shocking destructive extremely shocked shocked depressed surprise shock
13 + hopeful (2%)	hopeful optimistic concern hopeful scared hopeful worried hopeful anxious hopeful
14 upset (1.7%)	fairly upset upsetting kills unhappy upset upset annoyed upset concerned
15 fear (1.7%)	fear mongering fear anxious worried fearful fear frustration concerned fear
16 powerless (1.7%)	home powerless resigned scared powerless powerless annoyed powerless concerned
17 bad (1.6%)	very bad getting worse i feel bad bad time getting worse bad angry bad mad
18 surprise (1.6%)	very surprised surprised educative surprised surprised agitated surprise shock
19 interest (1.5%)	(interesting information) great interesting) (interesting unknown) (very interesting)
20 + motivate (1.4%)	highly motivated concerned motivated motivated anger motivation scared motivated
21 nervous (1.4%)	nervous helpless shocked nervous nervous unsure nervous sad worried nervous
22 stress (1.1%)	opinionated stressed stressed worried anxious stressed stressed slightly
23 annoy (1%)	annoyed worried upset annoyed surprised annoyed disgust annoyance
24 confuse (0.9%)	really confused mad confused sad confused confusion anger confusion gloom
25 curious (0.9%)	overwhelmed curious concerned curious curious prepared hopeful curious
26 overwhelm (0.8%)	overwhelmed curious overwhelmed concerned anxious overwhelmed sad overwhelming
27 horrible (0.8%)	(horrified dumbfounded) (horrific changes) (horrible interesting) (horrible thing)
28 serious (0.8%)	serious stoppable urgent serious serious worry too serious serious issue
29 informative (0.8%)	scared informed worried informed better informed interesting informative

30 terrible (0.7%)	terrified vulnerable terrible decision terrified sad terrible situation terrified panicked
31 afraid (0.7%)	strangely afraid very afraid afraid mobilized afraid curious scared afraid
32 disgust (0.6%)	disappointed disgusted disgust annoyance depressing disgusted utter disgust
33 doom (0.5%)	we're doomed doom gloom doom gloom we're doomed we're doomed
34 mad (0.5%)	worried mad sad mad confused upset mad mad aggressive mad annoyed
35 + optimistic (0.5%)	scared optimistic hopeful optimistic optimistic relatively optimistic
36 tire (0.5%)	tired anxious determined tired sad tired fearful tired bored tired tired exhausted
37 dread (0.5%)	dreadful anxious anger dread worried dreadful foreboding dread hope dread
38 + happy (0.5%)	happy good happy happy empowered happy curious happy gratefull happy sad
39 fake (0.4%)	fake news fake lies conspiracy fake fake repetitive fake news it's fake all fake
40 unsurprised (0.4%)	stressed unsurprised scared unsurprised unsurprised; disappointed worried + unsurprised
41 crazy (0.4%)	ridiculous crazy really crazy really crazy scray crazy crazy now crazy outrage
42 discourage (0.4%)	discouraged disappointed helpless discouraged frustrated discouraged
43 aware (0.4%)	worried aware be aware concerned aware informed aware aware informmed
44 hoax (0.4%)	hoax joke probably hoax hoax hoax government a hoax fraud hoax
45 ridiculous (0.4%)	silly ridiculous ridiculous crazy ridiculous beliefs it's ridiculous democratic ridiculous
46 bore (0.3%)	bored rather bored worries bored suprise very bored bored frustrated
47 intrigue (0.3%)	intriguing interesting interested intriguing surprised intrigued interested intrigued
48 resign (0.3%)	home powerless resigned powerless resigned reluctantly resigned? somewhat resigned
49 alarm (0.3%)	anxious alarming alarmed inquisitive alarmed concerned somewhat alarming
50 + amaze (0.3%)	amazed (it was amazing) amazing (amazing) (amazing fantastic) (shocked amazed)

Figure 15: What is the emotional response to climate change? N = 6,096, General population sample (N = 4,503) and college student sample (N = 1,593). Source: Question 11.

As Figure 15 illustrates, an ominous narrative about the dire state of the planet dominates the American psyche. Even respondents who were deeply concerned, and who trusted what they heard in the news about climate change, expressed gloom.

The Engaged were more likely to say they felt powerless than those in the Detached group (see Figure 16). As one Engaged respondent put it, "I feel depressed, anxious, and really angry, because this change was preventable — humans are an inferior

species." Another expressed discouragement about political division, saying, "we are not close to a consensus in this country as to how to address climate change."

Climate change makes me feel powerless.



Figure 16: The powerlessness of climate change. N = 3,967, based on cluster analysis performed on the general population sample (N = 4,503), minus removal of 536 respondents for data quality. Source: Question 10.

Examining a small group of respondents whose answers to opinion questions showed the most consistently hopeful viewpoints revealed they shared similarities: They were more likely to get news from multiple sources, trust those sources, and feel they knew enough to engage in discussions about climate change than survey respondents overall.

Though their information-rich environment was aligned with a hopeful outlook, simply being well informed does not lead to hope. Many of those in the Engaged group, who were following news about climate change, were discouraged about the future.

Not surprisingly, the Resistant respondents, the smallest group, expressed negativity, but not out of despair. Many used terms like "scam" and "BS," along with conspiratorial responses such as "socialists are using it to control people, events and land. They made a machine that makes weather change."

The reactions of the Detached ranged from indifference to concern to optimism. One respondent said, "politics has made climate change a profitable business. This fact cancels any good that the politicians are trying to get us to believe." Another was worried but believed that there were few options, saying, "It breaks my heart, it really does, and I don't know what I can do about it but pray."

Others in the Detached group expressed hope that action was still possible. As one put it, "I'm concerned and motivated. It's such an important issue, and it's crucial for all of us to take action to protect our planet." Together, these mixed reactions among a group that is not particularly unified in its thinking about climate change suggest some are moving toward hope and the possibility of engaging in climate action. Respondents in this large, ambivalent group were open to discussions about climate change, too. Likewise, the flattening effect of shared experiences with extreme weather events suggests a route forward grounded in collective concern and a sense that action is possible.

As writer, historian, and activist Rebecca Solnit explains: "The main job is not to convince climate deniers or the indifferent (and there are a lot fewer in either of those categories than there were a decade ago). It's to engage and inspire those who care but don't see that what we do matters — that it's not too late, and we are making epic decisions now." 19

Taking the long view, these four mile markers suggest multiple routes toward action, at least for the vast majority who believe climate change is real. For some, information from scientists and journalists will remain potent sources for inspiration. For others who are less trusting of experts, a shared path to action could be built through local community connections that facilitate a greater understanding of climate change. All in all, the necessary shift for most in this country will be from despair and frustration to a conviction that effective mitigation strategies are available, despite political division.

If people in the U.S. are now more willing to engage with one another around a climate crisis that has landed on their doorstep, some may be nudged away from the ominous narrative about the dire state of the planet toward advocating for positive change. In the next part of the report, we focus on college students and how they encounter and respond to climate change. Then, based on our collective findings from the general public and college samples, we conclude with opportunities for change that encourage hope for a sustainable future.

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Rebecca Solnit, "Difficult Is Not The Same As Impossible," in *Not Too Late: Changing the Climate Story from Despair to Possibility*, ed. Rebecca Solnit and Thelma Young Lutunatabua (Chicago: Haymarket, 2023), 8.

Part 4: The Road Ahead

SINCE YOUNG PEOPLE WILL BE THE ONES to live with the consequences of the decisions we make now to combat climate change, their perspective is vital for addressing climate change today. So, what did we learn about the rising generation from our survey of climate change beliefs, attitudes, and opinions?

In this final section of our report, we look to the future. We present findings gleaned from 1,593 college students who were enrolled at nine U.S. colleges and universities, and responded to the second survey. We explore how their information practices and attitudes inform whether, and how, they will take action in response to climate change. This discussion serves as a basis for suggestions for stakeholders wanting to mobilize engagement and action.

College students in post-pandemic times

College students in America are no strangers to adversity. After spending nearly a year during high school at home and sheltering in place during the Covid-19 pandemic, these young people are under greater stress than ever, according to recent polls. 20 Many are worried about financial instability, the pressure to keep up academically, and feelings of loneliness and sadness. To this list of worries, we add climate anxiety. 21

Anxiety about the short- and long-term effects of climate change is evident in this young population, and it can darken their view of the future. Almost two-thirds of the college students surveyed (65%) agreed with the statement: "Climate change makes me feel powerless."

20

Zach Hrynowski and Stephanie Marken, "College Students Experience High Levels Of Worry And Stress," *Gallup*, August 10, 2023, https://www.gallup.com/education/ 509231/college-students-experience -high-levels-worry-stress.aspx.

Emma Kerr and Cole Clayboun, "Stress In College Students: What To Know," *US News and World Reports*, August 14, 2023, https://www.usnew s.com/education/best-colleges/artic les/stress-in-college-students-what-t o-know.

21

Brooke Jarvis, "Climate Change Is Keeping Therapists Up At Night," *The New York Times Magazine*, October 21, 2023, https://www.nytimes.com/ 2023/10/21/magazine/climate-anxiet y-therapy.html. In sharp contrast, only 36% of the general public sample reported they felt powerless. As one student said, "There has been so much damage and loss of life as a result of climate change that I feel as though I'm becoming numb to it - I just the new normal, especially for my generation." As a whole, nearly all of college students surveyed (95%) were worried about the health of the environment. Students' fears about climate change didn't end there (see Figure 17).



Figure 17: Anxiety about an uncertain future. General population sample (N = 4,503) and college student sample (N = 1,593). Source: Question 10.

For college students, the climate crisis they've lived with for as long as they can remember is a more immediate threat than it is for other people we surveyed. More than three-quarters of students said climate change makes them feel anxious about their future (78%) compared to less than half (47%) of the general public sample. A larger percentage (88%) of students was even more concerned about the generations coming after them.

More than three-quarters of students (76%) disagreed with the statement, "We shouldn't assume climate change is a human-made crisis," which puts them in opposition to so-called climate change skeptics in our survey of the general public.

As a point of comparison, far fewer respondents in the general public disagreed (34%) with the same statement about humans' responsibility for climate change. A vast majority of college students believe climate change should be a top priority of the federal government (81%), while many more believe businesses should help slow the pace of climate change (95%).

While college students followed news of all kinds, few had read, listened to, or heard much climate change news during the past week. One reason may be there is too much bleak coverage. Like respondents in the general population, even more students agreed (77%) with the statement, "The media focuses more on the negative impacts of climate change rather than solutions."

Rather than relying on traditional news sites for climate news, a majority of students construct personalized information spaces using social media platforms (54%), such as Instagram or TikTok. As a whole, our findings suggest that students personalized pathways to climate change news are self-curated and algorithmically promoted, and their information worlds are made up of climate change news that *finds* them rather than them actively seeking it out.

Like the respondents in the general population, much of college students' engagement with climate change news was sporadic and unplanned. And yet, students overwhelmingly trust scientists to understand the causes of climate change (82%), which is much more than the respondents in our sample of the general public did 56%). Most students make an effort to check the credibility of climate change news and information they encounter, too. Moreover, as seen in Figure 18, students trust the validity of most news and information about climate issues (58%), again, more than respondents from the general public (46%).



Figure 18: College students and the trust factor. General population sample (N = 4,503) and college student sample (N = 1,593). Source: Questions 8 and 16.

Students' faith in news sources is remarkable in an era when trust in institutions of all kinds is low. 22 To a large extent, they parlay that trust into making efficient decisions about credibility, with a large majority saying they evaluate information based on how much they trust the person or institution sharing it (68%).

They also check the tone of the source as a measure of credibility (61%), compare content to other sources (57%), or check the author's credentials (48%). Fewer report using the more labor-intensive processes of checking peer-reviewed research (26%) or seeking out what experts have to say (20%).

In many ways, these behaviors run counter to the ways many information instructors at their colleges and universities present research: As a matter of seeking certain kinds of publications to answer a question. And yet, students actual practices reflect a greater interest in following news of all kinds, a habit of curating connections that will bring them news, and a higher trust in institutional knowledge than is found in the public at large.

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Jeffrey M. Jones, "Confidence In U.S. Institutions Down: Average At New Low," *Gallup*, July 5, 2022, https://ne ws.gallup.com/poll/394283/confide nce-institutions-down-average-new-l ow.aspx. One explanation for students' commitment to credibility checking may be because they believe that the responsibility for the fate of the planet had been unfairly thrust upon them. As one said, I've been told since I was in middle school that we had to fix this — we were literally kids then. People of all ages have things they can do to help, but older people have considerably more they are able to do and put money and time into.

Another explanation may be how college students' information worlds differed from those of the general population both in their feelings about climate change and their information sources. As a whole, students we surveyed were much more likely to rely on their social media feeds to keep up with current events (80%) than the general population (44%) and also more likely to have encountered climate change news that way. Only 24% of students watched or listened to television news, but 60% of the general sample did.

How college students differ from other young people

As a follow-up analysis to our college student survey, we explored how a comparative sub-sample of 482 respondents, 18 to 24 years old, who were part of the general public sample (and not in the college sample), answered questions about hope and climate change mitigation. Most of these survey participants had a high school diploma or equivalent and many had some college credit.

In one sense, the media habits of younger respondents in the general population were more similar to those in the entire sample, spanning 16 to 85 years in age, than college students. The one exception was that younger people in the general sample used social media more than older people as a major source of information.

In contrast, college students were more traditional in one respect, being more likely to get news from newspapers and magazines (43%) than the broader sample was (30%). Figure 19 shows how different demographic groups in our samples answered a set of key questions.



Figure 19: Young people's response to climate change. General population sample (N = 4,503), college student sample (N = 1,593), and 18–24 year olds in general population sample (N = 482). Source: Questions 10 and 16.

As Figure 19 illustrates, young people in the general sample were less concerned about climate change and less committed to action than those in our college sample, but they were trending toward greater engagement with climate action than the general public as a whole. Political identity may play a role: A majority of college students (66%) described themselves as liberal compared to only 22 of those aged 18 to 24 in the general survey.

Available avenues for climate action may be a factor, too, since college campuses have speakers, events, and volunteer opportunities that young people in the general population may not have.

Most college students are "Engaged"

College students by and large trusted that scientists understand the causes of climate change. They also tended to trust journalists more than the general population did, mirroring the trust profile of the Engaged in our mapping of the general public respondents. And, like this group, they combined trust with other methods of verifying the reliability of news. While growing up with the threat of climate change, they learned about media and information literacy; many appear to have made source evaluation a habitual practice.

As Figure 20 illustrates, there are significantly more students who most strongly fit into the Engaged group than in other parts of our terrain map. This notable tilt among college students surveyed toward the opinions of the Engaged, away from the Resistant, and distinct from the Detached, is striking. Are college students unusual? Maybe not. When responses from those aged 18 to 24 in the general survey were analyzed, the same tilt toward Engaged opinions was present, though less pronounced. All in all, these findings point to a future in which the number of Americans who are concerned and committed to addressing climate change will grow, especially among younger generations.

Similarity of College Sample to the Engaged, Detached, and Resistant Groups



Figure 20: Most of the young are engaged with climate change. College student sample (N = 1,593). Note: This figure shows the distribution of similarity between students in the college sample and the characteristics of the Engaged, Detached, and Resistant groups. College sample respondents are mapped on top of the terrain based on the similarity between their responses to the survey questions and the consensus responses of each major group in the terrain.

Compared to the general sample, students were more likely to find discussions about climate change depressing, but were less likely to avoid them. Also, they were more inclined to agree that talking about it with someone who disagrees could have a good outcome. While feelings of helplessness and despair were pronounced among this young group, there were also glimmers of hope. Almost all of the students (91%) believed humanity has the ability to mitigate climate change and most believed in the power of individual action. As one student said, "It's very easy to feel hopeless about a situation you don't directly have control over, but progress always starts from the bottom."

More than a third of the students had stopped short of joining community climate action efforts (39%), but had devoted considerably more attention to thinking about climate change (62%) than their counterparts had, who were between 18 and 24 years old in the general population (36%). Sometimes this was reflected in students' area of study. As one said, "hearing about climate change makes me want to be part of a solution, it's why I'm studying environmental science." In other cases, attending college has encouraged them to feel positive about the future. "I already knew about climate change," one student said, but what they learned in class "made me more hopeful about combating climate change."

Some intriguing paths forward emerge from this snapshot of American youths' experiences, attitudes, and opinions. Taken with the rest of our survey data, some possible interventions and potential directions for today and the future come into view.

Looking ahead

From our map of the terrain, we note a convergence of climate change understanding, attitudes, and engagement among the 4,503 people from the general public we surveyed. These trends extend to college students we surveyed, too. It's at this critical intersection between young and old in America that these trends point to a fairly rapid evolution of public acceptance of climate change in recent years, especially when compared to previous climate change polls. We summarize these trends as follows.

People in America today have:

- 1. Vastly more personal experience with extreme weather and climate events, leading to a "flattening effect" in communities and the potential for collective climate action;
- 2. Strong consensus that climate change is real;
- 3. Widespread agreement that sometimes talking to someone with a different point of view about climate change can be worthwhile; and
- 4. Strong alignment with other Americans most engaged and supportive of climate change action.

In addition to these unifying factors, we found a complex, multilayered landscape in which nearly half of the people we surveyed were not necessarily skeptical about climate change but still not of one mind. These gaps and complexities about engagement with climate change present opportunities for raising questions and, ultimately, for building a sustainable future.

We conclude this report by noting three areas of opportunity that could move those who are currently detached toward engagement in the collective work of creating a sustainable future. We have opted for presenting questions rather than answers in this last section of our report because if we learned anything from our research, it is that climate change solutions will take concerted efforts from a multitude of stakeholders that include journalists, educators, librarians, activists, community leaders, scientists, and policy analysts.

Opportunity 1: Media's obligation to tell more climate stories that unify

Nearly half of the survey participants in the general public weren't sure how to respond to the climate crisis and were somewhat distrustful of media messages. This Detached portion of the population is the largest in our survey results, yet it is the most challenging group to reach. Their information worlds differ from those of the Engaged minority, and also from those in the sliver of outspoken skeptics who are not interested in doing anything to mitigate the climate crisis. These ambivalent Americans could be mobilized to address climate change if reached through alternative communication and local media strategies. What would these strategies look like?

- What framing strategies could make climate news attractive in a media environment saturated with news about political conflict?
- How can stories be made both engaging and easily shareable online and inperson so that they can flow through diverse channels to national and local audiences?
- How can scientists, educators, librarians, national organizations, and trusted community leaders develop and share strategies for effectively communicating climate news in ways that provide context and that speak to the concerns and preferences of their specific audiences?

Opportunity 2: Continuing community action after catastrophic events

The vast majority of people we surveyed had lived through one or more extreme weather events during the past three years. As one college student put it, "there has been so much damage and loss of life as a result of climate change that I feel as though I'm becoming numb to it." How can the "flattening effect," which collapses differences and often binds neighbors together during catastrophic events, be sustained once the immediate peril has passed and the storm clears?

- How can communities come together to map out routes that connect personal commitments to opportunities to participate in collective action that endures?
- How can trusted leaders form communities of engagement to ensure that collaboration, information sharing, and replicable strategies involve citizens?
- How can educators, librarians, local media, disaster response teams, and national organizations work with citizens to advocate for government policies that address climate change?
- How can successful coalition-building strategies be shared to make the work of establishing pathways to community action easier?

Opportunity 3: Transforming individuals' concern into hope

Our surveys uncovered a paradox. Most respondents indicated that they care about climate change, and they want businesses and the government to do more to address the crisis. They have personally changed their habits to be more environmentally conscious and care about the health of the environment. Yet they were not especially hopeful about the future. As one respondent put it, "This is our future, and we're watching it be destroyed." This is not a surprising response, given that most people we surveyed had information worlds that were shaped by what came their way, and felt news was too focused on the problem instead of the solution. The challenge is in convincing people in the U.S. that they are not alone in wanting action on climate change. ²³ By starting on a local level, what steps can be taken to help them see the positive steps that are already being taken where they live?

• What tactics are available for schools, libraries, organizations, and individuals to spread the word that, despite political division, there is a groundswell of public support for climate change action?

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Hannah Ritchie, "More People Care About Climate Change Than You Think," *Our World in Data*, March 25, 2024, https://ourworldindata.org/cli mate-change-support.

- How can individuals learn about and share effective ways to be more environmentally responsible while nourishing their connection to the natural world so they feel both a sense of efficacy and renewal?
- What steps can individuals take to amplify solutions, which could then work to counter despair, inform policy making, and offer others hope grounded in action?

We are living on a planet in peril. The reality of climate change has come home as more Americans personally experience its effects. Political strife absorbs attention and paralyzes collaboration on Capitol Hill, yet our survey results show we have more in common than we may realize.

As we face an existential climate threat and severe weather events escalate, the information landscape around us has become increasingly diverse, complex, and challenging. This year alone, problems brought on by information technology advances continue to mount. AI, for instance, poses dangers not only to human knowledge and creativity but to the environment, too. 24

There is much work to be done. Exploring how Americans' distinctive information worlds shape their beliefs about climate change offers a fresh perspective on opportunities for shared understanding and deeper engagement. As the public grows increasingly united in concern for the planet, it's the right moment to invite those who feel detached to engage in climate action and to spark a sense of hope that our shared future is in our hands.

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Andrew Ross Sorkin, Ravi Mattu, Bernhard Warner, Sarah Kessler, Michael J. de la Merced, Lauren Hirsch, and Ephrat Livni, "How Bad Is A.I. For The Climate?" *The New York Times*, May 6, 2024, https://www.nyt imes.com/2024/05/06/business/de albook/ai-power-energy-climate.htm

About PIL

Project Information Literacy (PIL) is a nonprofit research institute based in the San Francisco Bay Area that has published a series of 13 open-access research reports since 2009. PIL works in small teams on large, national research projects about information seeking in the digital age. PIL uses social science and data science methods to study adults living in the U.S., including how college students in the digital age interact with information resources for school, life, work, and more recently, engaging with algorithms, and news during the first 100 days of Covid-19. Altogether, more than 22,500 participants have been interviewed or surveyed for inclusion in PIL reports. Findings and recommendations from PIL studies have informed and influenced the thinking and practices of diverse constituencies from all over the world in higher education, public libraries, newspapers, nonprofits, and the workplace. For more details about our work, see the Project Information Literacy Retrospective: Insights from more than a decade of information literacy research, 2008–2022 (2022).

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Summary

As a majority of Americans experience extreme weather events, findings from PIL's climate study suggest understanding of the crisis is shifting away from skepticism toward acceptance and, for many, a rising sense of urgency about taking collective action to save a planet in peril. This report uniquely examines how understanding of the climate crisis is formed, based on the ways in which people encounter and process climate change news and information from traditional sources and social media as well as from friends and family. Findings are presented from a large-scale online survey deployed in Fall 2023 to a sample of the U.S. general population between the ages of 16 to 85 (N = 4,503), and from a slightly modified version of the same online survey in Winter 2024 to college students, ages 18 to 35 years old (N = 1,593), enrolled at nine U.S. higher education institutions. A computational analysis of the general population sample shows how respondents are clustered based on their beliefs, media preferences, climate anxiety, and willingness to take action. Three prominent groups with strong affinities emerged: The Engaged (33%), the Detached (47%), and the Resistant (9%). Four mile markers about news, trust, discourse, and hope are identified to reveal significant points of interest about how social and technological characteristics shape people's understanding and attitudes about the climate crisis in America.

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- Alison J. Head, Steven Geofrey, Barbara Fister, and Kirsten Hostetler, July 9, 2024

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