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## **The Climate Crisis: How Communication and Norms Interact with Attitudes and Actions**

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**The Climate Crisis: How Communication and  
Social Norms Interact with Attitude and Action**

A Thesis

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Kathryn Aldstadt

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### Abstract

The present study investigated the effect of communication strategies and social norms on peoples' self-reported environmental attitudes and actions. Communication strategies that cause high-fear levels in viewers can often cause distress, thereby increasing the likelihood that viewers will disregard a message in favor of protecting themselves (Clayton, 2020; Hornsey et al., 2015). Communication strategies that cause low-fear can serve as healthy motivators for action (Nestler & Egloff, 2012). Social norms are powerful, and people are likely to follow the same behavior pattern as others. In the current study, participants ( $N=71$ ) watched a Public Service Announcement (PSA) video and either had social norms made salient to them or not to examine their self-reported environmental attitudes and actions. Participants then completed two scales from Milfont and Duckitt (2010) designed to measure pro-environmental attitudes and action. There was no significant effect of Fear Levels, Salience, nor an interaction. The political affiliations of participants were analyzed, and Democrat participants ( $n = 43$ ) scored significantly higher than Republican participants ( $n = 10$ ) on the pro-environmental attitudes scale. However, no significant difference was observed between Republican and Democrat participants on the pro-environmental actions scale. These results are discussed in light of cognitive dissonance theory and the concept of Basking in the Glory of Others (Bernache-Assollant et al., 2007; Festinger, 1957; Gollwitzer et al., 2009).

*Keywords:* Climate change, social norms, attitude persuasion

## **The Climate Crisis: How Communication and Social Norms Interact with Attitude and Action**

Every day, climate change becomes a larger problem (Attari et al., 2015; Hornsey et al., 2015; Hornsey & Fielding, 2020). Media coverage of extreme weather events throughout the U.S., such as wildfires in California (Mansoor et al., 2022) and hurricanes along the Gulf Coast (Hao et al., 2020) appear to be making the effects of climate change increasingly salient to the general public (Center for Climate Change and Energy Solutions, 2018; Environmental Defense Fund, 2020). Researchers have been studying the effects of climate change on mental health and have seen a corresponding increase in eco anxiety arising from the potential of having to emigrate away from one's home and associated uncertainties about future well-being (Clayton, 2020; Hao et al., 2020). This anxiety from climate change can be adaptive by motivating people to mitigate those stressors, however, information about the risks associated with climate change can also have a negative effect on some people's motivation to engage in actions that protect the environment (Hickman et al., 2021; Scannell & Gifford, 2011). The current study explored how different risk communication methods can influence peoples' engagement in pro-environmental attitudes and actions.

### **Communication, Motivation, and Action**

Researchers have found that different forms of information communication can influence peoples' actions (Albarracin et al., 2021; Hornsey et al., 2015; Scannell & Gifford, 2011). Exposure to too much negative information can lead to "eco-paralysis," which means that people can become numb after experiencing overwhelming levels of climate change induced fear (Clayton, 2020). Hornsey and Fielding (2020) describe how

purely fact-based scientific communication (e.g., explaining how permafrost melt will increase carbon dioxide levels in the atmosphere (Turetsky et al., 2019) works best when the audience has not yet formed opinions about the topic, especially regarding political views. However, with climate change becoming a large part of public discourse, political ideology is often already considered, heavily affecting peoples' motivations to engage or disengage in activity to protect the environment. Hornsey et al. (2015) documented another route by which threatening climate change information can affect motivation to act. Specifically, they found that as people feel more threatened by climate change, they paradoxically also feel more in-control of the situation. The researchers used the motivated control interpretation to explain this, stating that when a threat is perceived as both severe and uncontrollable, which is how climate change is often characterized, people often react by reevaluating the controllability of the threat. Deciding that climate change is controllable reduces anxiety (Hornsey et al., 2015). Individuals may be more likely to undertake climate protective actions because they believe doing so will be effective, but reduced concern about climate change may undermine their motivation. It should be noted that this paradoxical effect is likely to occur at a certain level of threat; a threatening message above or below an individual's specific threshold would presumably not trigger increased perceptions of control.

Because of the complexities affecting how individuals react to threatening climate change information, Hornsey and Fielding (2020) have suggested using a jiu-jitsu approach to motivate action since that communication strategy, similar to the martial arts technique, attempts to use the opponent's existing energy and mental framework to the individuals' advantage. From this perspective, the communicator works with the

audiences' beliefs to advance their position or understanding. This approach allows climate change communications to be tailored to specific groups, such as political parties in the United States. The messages can then be tailored for these groups based on the group's existing beliefs. For example, when climate change is discussed in terms of creating new jobs and bolstering the economy, conservative audience members greatly increased their pro-environmental attitudes. However, tailoring messages to individuals requires considerable resources and may not always motivate the viewer to engage in pro-environmental action.

Another factor that can be manipulated in communication about climate change is the level of threat that is conveyed (Nestler & Egloff, 2012). Unfortunately, messages that are high in threat are often problematic, as has been well documented (Keller, 1999; Leventhal et al., 1965; Nestler & Egloff, 2012; Sheeran et al., 2014). If the messages are too threatening, then the information can be stressful and overwhelming for an individual, and they may feel paralyzed with fear. Similar to Hornsey and Fielding (2020), Reser and Swim (2011) described how messages about the effects of climate change can be detrimental to a person's sense of control and prediction of future events. When a person's ability to control and predict future consequences is threatened, individuals will often reject or ignore information about the threat. Although climate change warnings have been argued to motivate people to change their habits and work towards a cleaner, greener future, the intense fear generated by such messages can serve as a mental block and keep people from considering their actions clearly. Therefore, there needs to be a balance of information and threat that will motivate people to action, but not so much that they feel distressed and avoid the problem.

Besides just presenting people with the right amount of information to motivate change, social norms can be used to show what others are doing as well. Using social norms, which are perceived standards of behavior or beliefs shared by a group, may provide a powerful but efficient alternative strategy to sway human behavior impacting climate change (Devos-Comby & Devos, 2001; Goldstein et al., 2008; Mead et al., 2014). Goldstein et al. (2008) examined the power of social norms on environmentally relevant behavior by varying the message that hotel guests received about the hotel's reusable towel program. Guests were given the option of declining new towels every day (in order to lessen the water and energy waste of constantly washing bath towels) with one of two messages. The first stated that most guests chose to decline getting new towels every day, whereas the second message provided details about water and energy waste. The researchers found that when guests were presented with a descriptive norm, 44.1% of these guests chose to reuse their towel compared to 35.1% of the guests that were presented with solely fact-based environmental communication (Goldstein et al., 2008). In a second experiment, utilizing a more specific descriptive norm (i.e., characteristics like citizen identity, guest identity, or room number of prior guests that used the program) amplified the power of the norm to change behavior, showing a 44.5% reuse rate (Goldstein et al., 2008). Specifically, this tactic worked best when sharing the percentage of prior guests of that same room number that chose to reuse their towels, leading to a 49.3% reuse rate (Goldstein et al., 2008). These findings from Goldstein et al. (2008) suggest that social norms, especially as the group becomes more like yourself, can effectively promote environmental behaviors that could reduce climate change. An important question is how the climate change threat might affect the ability of norms to



drive behavior. In a study by Barth et al. (2018), the researchers hypothesized that increasing ties to one's ingroup, which is the group with which one shares an identity or interest, would provide a psychological defense to threatening information. They found that when exposed to highly threatening climate change material, participants were more willing to adopt ingroup norms when those norms were made salient and also to punish members who did not conform to those norms (Barth et al., 2018). Importantly, Barth et al. (2018) did not utilize norms about protecting the environment in their study, but their work suggests that climate change threat might stimulate adherence to group norms that are relevant to climate change.

### **Present Research**

The current study examined how two different communication factors, specifically fear and social norms, could affect individuals' attitudes about and potential actions toward climate change. Participants were presented with either a short high-fear video or a short low-fear video about climate change's effects. Then, they read one of two written announcements about pro-environmental actions that fellow Americans were taking (Appendix A). These written announcements attempted to make the social norm behavior more or less salient to readers with the aim of encouraging their adherence to that social norm. For example, the high social norm salience paragraph shared specific numbers of people that were partaking in a pro-environmental activity, whereas the low social norm salience paragraph used vague words like "more," "less," or "fewer."

Participants completed two short questionnaires created by Milfont and Duckitt (2010) that measure environmental attitudes and actions. It was predicted that participants who viewed the high-fear video and read the low-salience paragraph would have the

weakest pro-environmental scores, while participants who viewed the low-fear video and read the high-salience paragraph would have the strongest pro-environmental scores. Those who see the high-fear video are more likely to feel distressed and therefore be unable to appropriately process the message to take-action, and they would not feel as motivated by social norms. Conversely, those who see the low-fear video are more likely to feel a lower amount of stress, thus motivating them to act, and they would be further motivated by social norms in the high salience paragraph.

### **Method**

#### **Participants**

Seventy-one participants were recruited for the study using SONA, a subject management system administered by the Psychology Department at Butler University. Participants received extra credit in their psychology courses for participating. Of the 71 participants, 27.4% were first-year students, 32.9% were sophomores, 20.5% were juniors, and 19.2% were seniors. Of the 71 participants, 80.8% indicated that they were white, 4.1% indicated Black/African American, 4.1% indicated Hispanic, Latino, or of Spanish Origin, 6.8% indicated Asian, and 2.7% indicated Other. Of the 71 participants, 16.4% were male, 80.8% were female, and 1.4% identified as Other. Lastly, regarding participant's political affiliation, 17.8% indicated that they were strong democrats, 26.0% were moderate democrats, 15.1% were slight democrats, 21.9% were moderates, 5.5% were slight republicans, 4.1% were moderate republicans, 4.1% were strong republicans, and 4.1% described themselves as Other.

#### **Design**

The design of the current study conformed to a 2 (Fear: high, low) x 2 (Social Norm Salience: high, low) analysis of variance (ANOVA). The main dependent variables

were environmental attitudes and action as measured by the Attitudes and Actions scale provided by Milfont and Duckitt (2010).

## **Materials**

### ***Public Service Announcement Videos***

Participants watched one of two videos that were hosted on YouTube. These videos were used for manipulating the independent variable Fear. Two different videos were used to induce either a low fear level (low-fear) or a high fear level (high-fear).

**Low-Fear Video.** The low-fear condition video “The Climate is Changing” by sgPub is publicly accessible on YouTube (sgPub, 2021). It is two-minutes long, and it displays scenes of droughts, fires, falling glaciers, and flooding. A male narrator describes what is happening to our climate, and dramatic music is heard in the background. The video shows scenes of strategies the government can take to protect our society, such as flood protection. Halfway through the video, the background music shifts to be less dramatic and more uplifting and shows scenes of solar panels, water treatment plants, and the narrator speaks on how we can impact the climate crisis. At the end, the video presents the link for [MakeEveryDropCount.gov.sv](http://MakeEveryDropCount.gov.sv).

**High-Fear Video.** The high-fear condition video “Change Your Actions, Stop Climate Change #Film4Climate” by Connect4Climate is publicly accessible on YouTube (Connect4Climate, 2016). It is one-minute and six-seconds long, and begins with a quote by former President Barack Obama about climate change while playing dramatic music in the background. It shows factory smokestacks, congested highways, and large waves crashing over bridges. Similar to the aforementioned low-fear video, it shows falling

glaciers, droughts, and flooding. There is no narrator, and the final scene says “Change your actions. Stop Climate Change.”

### ***Written Announcements***

Participants read one of two announcements about climate change. The announcements were created by the researcher of the current study. While both announcements largely contained the same message, the content varied slightly. In the high social norm salience announcement, it showed the exact percentages of people involved in the activity (e.g., 50% of Americans are responsibly disposing of their waste). Conversely, the low social norm salience paragraph provided vague explanations and did not provide exact numbers of Americans partaking in pro-environmental actions (e.g., some people are reducing their waste). See Appendix A for the full examples of the written announcements.

### ***Environmental Attitudes Inventory (EAI)***

For the dependent variable, all participants were asked to complete two previously validated subscales from Milfont and Duckitt’s (2010) Environmental Attitudes Inventory (EAI) to measure their climate change related attitudes and actions. The participants were presented with the “Support for interventionist conservation policies” 10-question subscale, which measures attitudes towards conservationist policies for industries (Milfont & Duckitt, 2010). Hereafter, this scale will be referred to as Attitudes. For example, one item on scale one asks to what extent “Governments should control the rate at which raw materials are used to ensure that they last as long as possible” (Milfont & Duckitt, 2010). These responses were recorded on a seven-point scale anchored by strongly agree to strongly disagree. The participants were also presented with the

“Environmental movement activism” 10-question subscale, which measures actions like joining an environmentalist organization or showing support for environmental policies (Milfont & Duckitt, 2010). Hereafter, this scale will be referred to as Actions. For example, one item in the Actions scale is “I often try to persuade others that the environment is important” (Milfont & Duckitt, 2010). The wording of this subscale was altered slightly to measure *intended* actions. The full list of items is presented in Table 1.

### **Procedure**

Participants were able to access a Qualtrics link through the SONA subject management system. The first screen that the participants encountered was the consent form. The next screen that participants encountered was about demographic information, so participants indicated their year in college, race, and gender. Participants were then randomly assigned to one of the two video conditions. After watching the video, participants were then randomly assigned one of the written announcements. Following the video and written announcement, participants then responded to a series of 20 items representing 2 different scales. The first scale Attitudes was comprised of 10 7-point Likert items designed to measure pro-environmental attitudes. The second scale Actions likewise consisted of 10 7-point Likert items designed to measure pro-environmental actions. These scales were two of the scales used by from Milfont and Duckitt (2010) and the items are presented in Table 1. Participants were also asked how they identify politically ranging from strong Democrat to strong Republican. Participants were then presented with the debriefing form and given the option to have their results excluded. This redirected participants to the SONA subject management system to receive credit for participating.

## Results

Before examining the main hypotheses, the two scales Attitudes and Actions were tested for reliability using Coefficient Alpha (Goforth, 2015). The results of these analyses showed that both scales exhibited high reliabilities ( $\alpha=.83$  and  $\alpha=.88$ , respectively).

To test the main hypotheses and research questions of interest, each of the two scales were analyzed in separate a 2 (Fear Level: Low vs. High) X 2 (Salience: Low vs. High) between groups ANOVAs. Means, standard deviations and the number of participants in each condition are presented in Table 2. As can be seen in Table 2, the 2 X 2 ANOVA for the Attitudes scale showed no significant main effect of Fear Level ( $F(1, 68) = 0.16$ , ns), no significant effect of Norm Salience ( $F(1, 68) = 0.00$ , ns), nor a significant Fear Level by Norm Salience interaction ( $F(1, 68) = 0.09$ , ns). The 2 X 2 ANOVA for the Actions scale showed no significant main effect of Fear Level ( $F(1, 68) = 1.00$ , ns), no significant effect of Norm Salience ( $F(1, 68) = .51$ , ns), nor a significant Fear Level by Norm Salience interaction ( $F(1, 68) = .57$ , ns).

Finally, two independent samples Welch-corrected t-tests were conducted to see if Democrats and Republicans differed on how they responded to the two scales. On the Attitudes scale, Democrat participants ( $M = 6.1$ ,  $SD = .53$ ) scored significantly higher than Republican participants ( $M = 4.9$ ,  $SD = .89$ ),  $t(10.5) = 3.8$ ,  $p = .003$ . On the Actions scale, Democrat participants ( $M = 5.4$ ,  $SD = .75$ ) did not score significantly different than Republican participants ( $M = 4.8$ ,  $SD = .1.1$ ),  $t(51) = 1.8$ , ns.

### Discussion

The present research examined how different communication strategies could impact peoples' environmental attitudes and actions. Participants watched one of two climate change PSAs (Connect4Climate, 2016; sgPub, 2021) which used varying amounts of fear-inducing strategies and then read one of two paragraphs written by the researcher that had either high or low amounts of social norm salience (Appendix A). Participants then completed the Attitudes scale "Support for interventionist conservation policies" and the Actions scale "Environmental movement activism" from Milfont and Duckitt's (2010) Environmental Attitudes Inventory, each of which consisted of 10 items measuring a participants' attitudes and actions on a seven-point Likert scale anchored by "strongly agree" to "strongly disagree." It was hypothesized that participants who were presented with the low-fear video by sgPub (2021) and the high social norm salience paragraph would have the strongest pro-environmental attitudes and actions. Additionally, it was hypothesized that participants who were presented with the high-fear video by Connect4Climate (2016) and the low social norm salience paragraph would have the weakest pro-environmental attitudes and actions. Upon analyzing the results, there were no significant main effects from the videos or written announcement manipulations, nor was there an interaction for either of the scales.

The most interesting finding of the current study was that participants who identified as Democrats had higher pro-environmental attitudes on the Attitudes scale compared to those who identified as Republicans. However, those who identified as Democrats did not significantly differ from those who identified as Republicans on the Actions scale. There are two theories that are interesting to consider given these results:

Cognitive Dissonance (Festinger, 1957; McGrath, 2017) and Basking in the Reflected Glory (BIRG; Bernache-Assollant et al., 2007; Gollwitzer et al., 2009).

First, the theory of cognitive dissonance states that when a person's attitudes and actions do not align, this creates discomfort in the individual (Festinger, 1957; McGrath, 2017). Interestingly, from the current data, it is possible that those participants who identified as Democrat may have been experiencing cognitive dissonance because the results indicate their attitudes and actions do not currently match. This may have highlighted for them that they need to be acting. If we were to follow up with these participants, it may be likely that their responses to the Actions scale could change. On the other hand, perhaps the Democrat participants may not be feeling cognitive dissonance because they are still taking appropriate actions (e.g. carpooling to work, reducing animal-based product intake), but those behaviors aren't included in the Actions scale.

The second theory that could illuminate the contrast in attitudes and actions selections of those who identified as Democrats is BIRGing (Bernache-Assollant et al., 2007; Gollwitzer et al., 2009). Because the Democrat participants were voting for policies that are relatively more pro-environment, they may have felt as if that was sufficient and that they did not need to take more action. In fact, it may be possible that through reading the written announcement, regardless of social norm salience, the participants may have identified with the people engaging in the activism and therefore basked in the glory.

The current study did have several limitations. First, the study lacked manipulation checks, which ensure that participants have paid attention and understood



the essential information in the manipulation. For example, there could have been a question after the video to assess how much fear they had related to climate change and the future of the planet. Likewise, a question could have been presented following the written communication that assessed whether they felt that there were more people engaging in climate change activism or fewer. Second, the videos that were used for the study were not created specifically for this study. Ratings of whether they induced fear could be helpful for future studies. In addition, for greater control of the content, the researchers could create their own climate change videos. Similarly, the same could be mentioned for the creation of the social norm written announcements. Piloting them to see if participants understood the social norm manipulation would have been beneficial. Lastly, a pretest-posttest design would have been useful to further understand how the Fear Levels and Salience impacted participants' attitudes and actions after watching the videos. Although the current study did not find any effects of the manipulations, it is possible that the different conditions may have altered attitudes and actions that were held prior to encountering the manipulations. College students are increasingly aware of the climate crisis, so the fear levels in the videos and social norm salience levels in the paragraphs may not have changed their existing attitude and action scores because they were already aware of the information and their feelings towards it (Teksoz, 2011).

Given the results of the current study, future research should examine how Democrats may feel cognitive dissonance if their party-aligned attitudes toward the environment do not coincide with their everyday actions towards the environment and measure what, if any, actions they are doing to reduce that cognitive dissonance, such as BIRGing. Likewise, based on the research by Hornsey and Fielding (2020) and Goldstein

et al. (2008), messages can be tailored to be more specific, and therefore more effective, towards the audience. For example, a PSA could be created at each university to foster a sense of similarity with the viewer. Future research could also investigate how to increase Republicans' pro-environmental attitudes and actions using messages that revolve around conservative ideas.

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Table 1

*Survey Items from Milfont and Duckitt's (2010) Attitudes and Actions Scale*

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“Support for Interventionist Conservation Policies” referred to as “Attitudes”

“Support for conservation policies regulating industry and the use of raw materials, and subsidizing and supporting alternative eco- friendly energy sources and practices, versus opposition to such measures and policies”

1. Industry should be required to use recycled materials even when this costs more than making the same products from new raw materials.
2. Governments should control the rate at which raw materials are used to ensure that they last as long as possible.
3. Controls should be placed on industry to protect the environment from pollution, even if it means things will cost more.
4. People in developed societies are going to have to adopt a more conserving life-style in the future.
5. The government should give generous financial support to research related to the development of alternative energy sources, such as solar energy.
6. I don't think people in developed societies are going to have to adopt a more conserving life-style in the future (R).
7. Industries should be able to use raw materials rather than recycled ones if this leads to lower prices and costs, even if it means that the raw materials will eventually be used up (R).



8. It is wrong for governments to try and compel businesses and industry to put conservation before producing goods in the most efficient and cost-effective manner (R).
9. I am completely opposed to measures that would force industry to use recycled materials if this would make products more expensive (R).
10. I am opposed to governments controlling and regulating the way raw materials are used in order to try and make them last longer (R).

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“Environmental Movement Activism” referred to as “Actions”

“Personal readiness to actively support or get involved in organized action, versus disinterest in or refusal to support or get involved in organized action.”

1. If I ever get extra income, I will donate some money to an environmental organization.
  2. I would like to join and actively participate in an environmentalist group.
  3. I don't think I would help to raise funds for environmental protection (R) .
  4. I would NOT get involved in an environmentalist organization (R).
  5. Environmental protection costs a lot of money. I am prepared to help out in a fund-raising effort
  6. I would not want to donate money to support an environmental cause (R).
  7. I would NOT go out of my way to help recycling campaigns (R).
  8. I often try to persuade others that the environment is important.
  9. I would like to support an environmental organization
  10. I would never try to persuade others that environmental protection is important (R).
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Table 2

*Means and Standard Deviations for the Participants for the Attitudes and Actions Scale*

Variable			<i>Attitudes Scale</i>		<i>Actions Scale</i>	
Fear	Norm Salience	Number of Participants	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Low	No	14	5.9	.2	5.2	.2
Low	Yes	19	5.9	.2	5.2	.2
High	No	24	5.8	.2	5.0	.2
High	Yes	16	5.8	.2	5.3	.2

## Appendix A

## Written Announcements Utilized for Social Norm Manipulation

*Low Social Norm Salience Announcement.* A study was recently conducted across the United States, and it sought to examine the green habits of everyday Americans. By sending a survey to randomly selected mailing addresses throughout the fifty states, over 10 million citizens over the age of 18 responded. Upon analyzing their responses, our team found that some participants are responsibly disposing of their waste, which includes not littering and following municipal recycling and garbage regulations. Additionally, compared to 2010, more participants are consciously reducing their plastic waste, such as ditching single use plastics in favor of reusables, choosing glass jars over plastic, and opting for less packaging waste. Likewise, more people today than in 2012 are reducing their consumption of animal products, and this includes choosing plant milk, opting for vegan alternatives at restaurants, and cooking more vegan meals. Our study also asked about usage of private automobiles, and results indicated that more Americans, mainly those in urban settings, are choosing to take the bus, bike, or carpool with others instead of driving themselves.

*High Social Norm Salience.* A study was recently conducted across the United States, and it sought to examine the green habits of everyday Americans. By sending a survey to randomly selected mailing addresses throughout the fifty states, over 10 million citizens over the age of 18 responded. Upon analyzing their responses, our team found that 50% of Americans are responsibly disposing of their waste, which includes not littering and following municipal recycling and garbage regulations. Additionally, compared to just 35% in 2010, now 65% of Americans are consciously reducing their plastic waste, such as ditching single use plastics in favor of reusables, choosing glass jars over plastic, and opting for less packaging waste. Likewise, now 20% of Americans, which is an increase from just 5% in our 2012 poll, are reducing their consumption of animal products, and this includes choosing plant milk, opting for vegan alternatives at restaurants, and cooking more vegan meals. Our study also asked about usage of private automobiles, and results indicated that 20% more Americans than five years ago are taking the bus, biking, or carpooling with others. However, this was found to be most applicable to participants in urban locations.