

Evolutionary modernization and generational differences in climate change perceptions: The mediating role of values

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As agriculturalists consider climate adaptation strategies and look for ways to communicate with a generationally diverse public, it is important to understand generational differences in personal values and their influence on perceptions of climate change. According to evolutionary modernization theory, younger generations should demonstrate increased post-materialist and self-expressive values and stronger beliefs in climate change. Using structural equation modeling, this study explored generational differences in values and their subsequent influence on participants' climate change beliefs, and the perceived severity and salience of climate change. Generations were similarly moderate in their climate change beliefs. While some generations demonstrated theory-predicted relationships between values and perceptions, others did not, indicating a need to tailor messaging to the unique effect of values on each generation's climate perceptions.

Introduction

The agricultural sector continues to be affected by climate change, largely due to its vast geographical scope and dependence on weather, with potentially significant economic impacts (Malhi et al., 2021; Mendelsohn, 2009; Zhang et al., 2017). As a result, there has been extensive research and discussion on how best to adapt to and mitigate the effects of climate change, including “climate-smart” and sustainable practices (Gopalakrishnan et al., 2019; Sivakumar, 2021; Verma, 2025). Agricultural communication professionals, then, are responsible for communicating the role and impact of these practices with both the industry and the public. Although, most individuals worldwide recognize the existence of climate change and its impacts (IPCC, 2022; Wilson & Orlove, 2021), research has shown that some individuals hold skepticism toward anthropogenic—man-made—climate change and lack concern for the consequences of the changing climate (Scruggs & Benegal, 2012; Wang & Kim, 2018). This skepticism poses a challenge for communicators, underscoring the importance of understanding the public's beliefs about climate change and perceptions of its salience and severity.

A variety of factors have been explored to understand how climate-related beliefs are formed. In their meta-analysis of climate change research, Hornsey et al. (2016) found that individuals' values, ideologies, and political affiliations strongly predict their beliefs about climate change, whereas demographic variables, knowledge, and experience with extreme weather events showed only a small correlation with climate change beliefs. Other studies have shown that recent experiences with extreme weather events increase concern for climate change (Demski et al., 2017; Konisky et al., 2016; Lawson et al., 2023; Ogunbode et al., 2019). Those who recognize the human causes of climate change are more likely to worry about its effects (Gregersen et al., 2020; Lee et al., 2015; Mathers-Jones & Todd, 2023; Shi et al., 2016).

The U.S. workforce is highly diverse, with six active generations, mainly consisting of Generation X and Millennials, and a growing population of Generation Z. As Generation Z

becomes more active in the workforce, their values and beliefs are shaping the future of work, with increasing interest in socially responsible, inclusive, flexible companies (Donelan, 2023). Similarly, Generation Z and Millennials have demonstrated commitment to societal change, with increased interest in activism and social justice compared to previous generations (Tyson et al., 2021; United Way NCA, 2024). In the agriculture space, research has demonstrated that younger generations—Millennials and Generation X—were more engaged in local food systems (Tidwell & Lamm, 2020) and more receptive to genetic modification science (Beattie et al., 2018) than older generations. When making food decisions, Generation Z and Millennials emphasize “clean-label products for improved quality of life” (Eze & Mena, 2024, p. 8). These generations are also more interested in food systems, prioritizing sustainable and ethical production and manufacturing processes, and often engaging in alternative dietary patterns (e.g., additive-free organic, vegan, vegetarian, and clean-label) (Dragolea et al., 2023; Eze & Mena, 2024).

As an issue that has developed over many years, climate change impacts generations differently. While older generations (i.e., Greatest Generation, Silent Generation, and Baby Boomers) may have contributed, directly or indirectly, to today’s climate situation, younger generations (i.e., Gen. X, Millennials, Gen. Z, and Gen. Alpha) must live longest with its consequences (Farber, 2020). Younger generations have been shown to take personal responsibility for climate change and to use environmentally friendly alternatives more frequently than older generations, while older generations were more likely to engage in individual behaviors such as sorting trash and using fewer disposable items (Skeiryte et al., 2022). This difference may result from younger generations’ desire for government action on climate mitigation strategies rather than the individualistic actions preferred by older generations (Norgaard, 2011; Petersen et al., 2019; Skeiryte et al., 2022). Thus, it is clear personal values can shape perceptions of climate change, potentially influencing how different generations of individuals perceive climate change and respond to its impacts.

Although research has explored generations and their respective climate change beliefs (Farber, 2020; Milfont et al., 2021; Poortinga et al., 2023; Ross et al., 2019; Swim et al., 2022), to our knowledge, no study has explored values as a mediating factor between generations and climate change perceptions. However, Timmons et al. (2024) explored the impact of generational narratives on climate beliefs with a youth sample, concluding that the communication frame influenced participants’ worry and belief in collective action. They note communicators should avoid messages that highlight differences between socio-demographic subgroups, but should correct misconceptions where they exist, including real—rather than perceived—degrees of belief and worry among older generations. As agriculturalists consider climate adaptation strategies and look for ways to communicate with a generationally diverse public, it is important to understand generational differences in personal values and their influence on perceptions of climate change.

Theoretical Framework

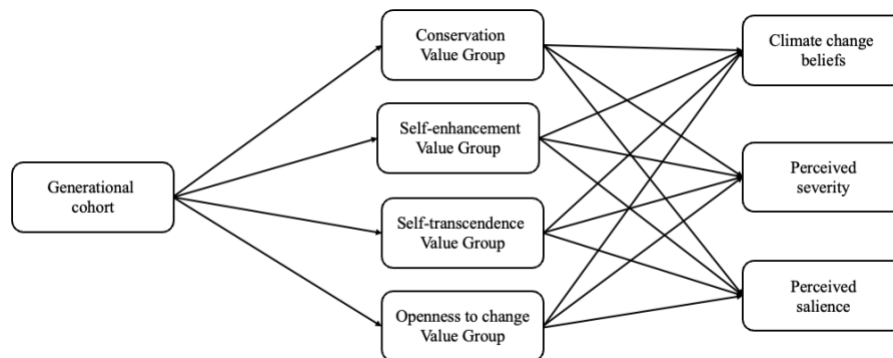
Evolutionary modernization theory suggests that as societies achieve high levels of existential security (i.e., less need to prioritize survival), successive generations develop stronger post-materialist and self-expression values (Inglehart, 2018), enabling greater attention to environmental issues such as climate change and its effects. Within this theory, Inglehart

proposed that intergenerational value change is a leading factor in shaping societal norms, meaning that, as younger generations rise in societal and political influence, so too should the belief in and focus on issues like climate change. However, Inglehart (2018) also noted that change is also path-dependent, as a society’s values are shaped by its historical heritage, not only by rising levels of existential security.

Using evolutionary modernization theory, this study explored value differences across generations, and then examined how values mediated climate change beliefs, perceived salience, and perceived severity (Figure 1). Values were explored using Schwartz’s (1992) value groups, representing Inglehart’s materialism orientation as *conservation* (materialist) versus *self-transcendence* (post-materialist), and the self-expression orientation as *self-enhancement* versus *openness to change* (the latter to be considered more self-expressive). The outcome variables (climate change beliefs, perceived severity, and perceived salience) represent distinct constructs in the climate change literature (McCright et al., 2016) and reflect one’s personal perceptions of the evidence for climate change, the intensity of the threat, and its prominence, respectively. According to the theory, younger generational cohorts should demonstrate higher levels of self-transcendence and openness to change values, and therefore report stronger beliefs in climate change, and perceived salience and severity (Inglehart, 2018). Figure 1 outlines the proposed mediation model that will be tested in this study.

Figure 1

A Proposed Climate Change Perceptions Mediation Model for Values on Generational Cohort



Purpose and Objectives

Using structural equation modeling, this study explored generational differences in values and their subsequent influence on participants’ climate change beliefs, and the perceived severity and salience of climate change. This study was guided by the following research questions:

- RQ1:** How does generational cohort influence individuals’ values related to materialism (conservation versus self-transcendence) and self-expression (self-enhancement versus openness to change)?
- RQ2:** How do individual values related to materialism and self-expression influence perceptions of climate change?
- RQ3:** Do personal values mediate the relationship between generational cohort and perceptions of climate change (salience, severity, and beliefs)?

Methods

Data Collection

Data for this study were collected as part of a larger study that assessed U.S. individuals' perceptions of climate risk using a quantitative researcher-designed survey instrument. The items for each scale were constructed based upon a review of the literature. A panel of experts in agricultural communication research methods and climate communication reviewed the instrument to ensure validity. The Ohio State University Institutional Review Board approved the study. Pilot data were collected between October 23 and 26, 2023, using a sample recruited by Qualtrics Research Services to ensure reliability. A total of 85 responses were collected during the pilot study. Acceptable reliability measures were achieved across constructs ($\alpha > .70$). The data analyzed for this study were collected from November 7 and December 8, 2023 and yield a final sample of 2,191.

Participants

The population for this study was U.S. residents aged 18 years and older. Qualtrics Research Services, a third-party company, was consulted to obtain a sample similar to the U.S. population across the four U.S. Census-defined regions (minimum 500 responses per region), with additional quotas set for gender, state, and community type as defined by the U.S. Census. The cost was \$7.20 per response. Regional quotas were met, and the final sample had the most representation from the South ($n = 584$, 26.7%), followed by the West ($n = 539$, 24.6%), the North ($n = 536$, 24.5%), and the Midwest ($n = 532$, 24.3%). Participants were 50.3% female ($n = 1,102$), 49.1% male ($n = 1,075$), and 0.6% other/non-binary individuals ($n = 14$). The participants in the sample said they were mainly from urban or suburban areas ($n = 1,481$, 67.6%), with 32% residing in rural areas ($n = 710$). The average participant age was 46 years. Qualtrics conducted quality checks to confirm that no duplicate respondents were included, and that no speeding or straight-lining issues occurred. Partial responses were not recorded.

Generational Cohorts

Generations were established using generational boundaries set by the U.S. Census Bureau, Pew Research Center, and Beresford Research (Brunjes, 2019; Colby & Ortman, 2014; Dimock, 2019; Hogan et al., 2008), resulting in five generations in this study: Generation Z, 1997-2012 (ages 11-26) ($n = 267$); Millennials, 1981-1996 (ages 27-42) ($n = 782$), Generation X, 1965-1980 (ages 43-58) ($n = 558$), Baby Boomers, 1946-1964 (ages 59-68) ($n = 526$), and the Silent Generation, 1928-1945 (ages 78-95) ($n = 78$). Participants were assigned to their respective generational group based on their reported age. As data were collected in 2023, the ranges represent ages at the time of participation, not age at time of analysis. Both Generation Z and the Silent Generation had smaller group sizes than the other generations, which may impact the results. Note that at the time of the study, some members of Generation Z were younger than 18, which limited their inclusion and may not fully represent the perspectives of this generation.

Measures

Personal Value Orientations

Participants were asked to indicate their level of perceived importance on 10 distinct values using Schwartz's (1992) personal value scale (1 = *opposed to my principles* to 9 = *of supreme importance*): "achievement," "benevolence," "conformity," "hedonism," "power," "security," "self-direction," "stimulation," "tradition," and "universalism." Participants were presented with the definitions of each value as they considered their responses (Table 1). Schwartz (2012) proposed organizing similar-value groups according to their underlying relationships (Table 2). For this study, responses were collapsed to the four suggested value orientations: 1) *conservation*, with the values of "security," "conformity," and "tradition," 2) *openness to change*, with the values of "hedonism," "stimulation," and "self-direction," 3) *self-enhancement*, with the values of "achievement" and "power," and 4) *self-transcendence*, with the values of "universalism" and "benevolence."

Table 1

Schwartz Personal Values Definitions

Personal Value	Definition
Achievement	Success, capability, ambition, influence on people and events
Benevolence	Helpfulness, honesty, forgiveness, loyalty, responsibility
Conformity	Obedience, honoring parents and elders, self-discipline, politeness
Hedonism	Gratification of desires, enjoyment in life, self-indulgence
Power	Social power, authority, wealth
Security	National security, family security, social order, cleanliness, reciprocation of favors
Self-Direction	Creativity, freedom, curiosity, independence, choosing one's own goals
Stimulation	Daring, a varied and challenging life, an exciting life
Tradition	Respect for tradition, humbleness, accepting one's portion in life, devotion, politeness
Universalism	Broad-mindedness, beauty of nature and arts, social justice, equality, wisdom, unity with nature, environmental protection

Table 2

Personal Value Groups and Associated Values

Value Group	Associated Values
Conservation	Conformity, Security, Tradition

Openness to Change	Hedonism, Self-direction, Stimulation
Self-Enhancement	Achievement, Power
Self-Transcendence	Benevolence, Universalism

Climate Change Beliefs

Participants were presented with five statements regarding their climate change beliefs and were asked to rate their levels of agreement using a 5-point Likert-type scale (1 = *strongly disagree*, 5 = *strongly agree*). Items in this measure were adapted from a study conducted by McCraight et al. (2016). The statements included: “The scientific evidence that the climate is changing is very solid,” “The scientific evidence that the climate is changing because of human activities is very solid,” “Claims that the climate is changing are based more on politics than on science,” “Many scientists do not believe the climate is changing,” and “Many scientists do not believe we are experiencing climate change primarily caused by human activities.” Reliability for this measure was achieved ($\alpha = .85$) *a priori*.

Perceived Salience

To measure perceived salience, which refers to the recognition that something is noticeable, important, or prominent, participants were asked to respond to the prompt “To me, the topic of climate change is...” Then, they were asked to rate their view with four items: “Not at all important” to “Very important,” “Not of any interest” to “Very great interest,” “Not very relevant” to “Very relevant,” and “Not of any concern” and “Very great concern.” (1 = *not...*, 5 = *very...*). Reliability for this four-item measure was achieved ($\alpha = .93$) *a priori*.

Perceived Severity

Participants were presented with a series of statements regarding their climate change beliefs and were asked to rate their levels of agreement with five items using a 5-point Likert-type scale (1 = *not at all serious*, 2 = *slightly serious*, 3 = *neutral*, 4 = *moderately serious*, 5 = *extremely serious*). Statements were created to measure participants’ perceptions of the severity of the threat climate change posed to themselves, their local community, the United States, people across the world, and nature. Reliability for this measure was achieved ($\alpha = .94$) *a priori*.

Data Analysis

We used structural equation modeling (SEM), specifically covariance-based SEM, to analyze our data using R version 4.3.2. SEM can best handle the relationship among latent variables, while it is equally suited when we have a combination of latent and observed variables (Mueller & Hancock, 2018). In our conceptual framework, all outcomes and mediators are latent variables while the exogenous variable is an observed categorical variable (see Figure 1). With this combination of latent and observed variables in our overall model, SEM is justified as a suitable analysis technique. Following the recommended two-step approach, we first evaluated the measurement model and then evaluated the hypothesized structural paths among the variables (Weston & Gore, 2006). We estimated the model using robust maximum likelihood. Outliers for

beliefs, salience, and severity were assessed using z-scores for the measures, overall and split by groups; no outliers were identified.

SEM - Measurement Model

We assessed the measurement model using chi square, comparative fit index (CFI), Tucker Lewis index (TLI), root mean square error of approximation (RMSEA) with confidence interval, and standardized root mean square residual (SRMR), interpreting common cutoff guidelines (Kline, 2023). For example, acceptable value for CFI and TLI is considered ≥ 0.90 , $RMSEA \leq 0.06$, and $SRMR \leq 0.08$ (Hair et al., 2009; Kline, 2023). We also conducted confirmatory factor analysis (CFA) to assess standardized factor loadings for each latent construct to ensure all observed items represent respective latent constructs. We used the commonly accepted benchmark of ≥ 0.5 to measure factor loadings (Hair et al., 2009).

SEM - Structural Model

After we ensured all measurement indices were met, we estimated several relationships in the structural model. The model included standardized path coefficients, significance, standard error, z statistics, and explained variance (R^2) for both direct and indirect effects (Hair et al., 2009). We estimated the direct and indirect effects for the paths proposed in the conceptual framework developed based on theoretical and literature foundations.

Results

Descriptive Results

Climate change beliefs were similar across generations with all groups reporting moderate levels of belief. Baby Boomers reported the highest scores for beliefs in climate change ($M = 3.42$, $SD = 1.12$), followed by Generation X ($M = 3.37$, $SD = 0.91$), Silent ($M = 3.36$, $SD = 1.13$), Millennials ($M = 3.35$, $SD = 0.81$), and Generation Z ($M = 3.20$, $SD = 0.69$). Millennials had the strongest perceptions of climate change severity ($M = 3.88$, $SD = 0.98$), followed by Generation X ($M = 3.71$, $SD = 1.18$), Silent ($M = 3.60$, $SD = 1.31$), Generation Z ($M = 3.59$, $SD = 0.96$), and Baby Boomers ($M = 3.53$, $SD = 1.39$). Millennials also had the strongest perceived salience of climate change ($M = 4.09$, $SD = 1.02$), followed by Generation X ($M = 3.92$, $SD = 1.24$), Generation Z ($M = 3.86$, $SD = 1.05$), Silent ($M = 3.77$, $SD = 1.40$), and Baby Boomers ($M = 3.72$, $SD = 1.43$).

Measurement Model Findings

When we retained all items in each latent construct, we found a poor model fit with all fit indices below the recommended cutoff points. After we conducted confirmatory factor analysis (CFA), we realized that three items in climate change beliefs (“Claims that the climate is changing are based more on politics than on science,” “Many scientists do not believe the climate is changing,” and “Many scientists do not believe we are experiencing climate change primarily caused by human activities.”) had less than 0.5 factor loadings despite an acceptable Cronbach’s alpha. To resolve the issue, we removed these items and evaluated the model again.

The new model showed great improvement in model fit indices with all indices following common guidelines (Robust CFI = 0.94, Robust TLI = 0.92, Robust RMSEA = 0.08, 90 percent CI [0.07 to 0.08], SRMR = 0.05) (Hair et al., 2009; Kline, 2023). All items loaded significantly on their intended latent constructs ($p < .001$). Standardized factor loadings ranged from 0.63 to 0.80 for the value constructs, 0.86 to 0.88 for climate beliefs, 0.83 to 0.89 for perceived severity, and 0.88 to 0.89 for perceived salience, indicating strong convergent validity. All constructs also had a Cronbach's alpha value greater than 0.8, which indicated acceptable reliability.

Structural Model Findings

RQ1: How does generational cohort influence individuals' values related to materialism (conservation versus self-transcendence) and self-expression (self-enhancement versus openness to change)?

Millennials, Generation X, and Baby Boomers all showed significantly higher conservation values compared to Generation Z (Table 3). The effect on conservation values was strongest for Millennials ($\beta = 0.16, p < .001$), followed by Baby Boomers ($\beta = 0.14, p < .001$), and Generation X ($\beta = 0.10, p = .003$). Self-transcendence values followed the same pattern. The Silent generation did not differ significantly from Generation Z in conservation and self-transcendence values. While Millennials showed significantly higher openness to change and self-enhancement values compared to Generation Z, all other generations had significantly lower openness to change and self-enhancement values, with only one non-significant effect: the effect of Generation X on openness to change. Explained variance in value dimensions was modest, with R^2 values of 0.01 for conservation, 0.15 for openness to change, 0.15 for self-enhancement, and 0.02 for self-transcendence.

Table 3

Structural Path Estimates from Generational Cohort to Personal Values (N = 2,191)

Dependent Variable	Predictor	β (Std.)	SE	z	p
Conservation	Millennials	0.16	0.12	4.48	< .001
	Generation X	0.10	0.12	2.98	.003
	Baby Boomer	0.14	0.13	4.01	< .001
	Silent Gen	0.03	0.23	1.46	.145
Openness to Change	Millennials	0.14	0.13	3.77	< .001
	Generation X	-0.07	0.14	-1.89	.059
	Baby Boomer	-0.28	0.14	-8.35	< .001
	Silent Gen	-0.15	0.27	-6.14	< .001
Self-Enhancement	Millennials	0.15	0.13	4.17	< .001
	Generation X	-0.07	0.13	-2.03	.042
	Baby Boomer	-0.28	0.13	-8.46	< .001
	Silent Gen	-0.09	0.23	-4.13	< .001
Self-Transcendence	Millennials	0.22	0.12	5.81	< .001
	Generation X	0.13	0.13	3.77	< .001
	Baby Boomer	0.15	0.13	4.09	< .001
	Silent Gen	0.03	0.23	1.35	.176

Note. Generation Z serves as the reference group; $p < .05$ indicates statistical significance.

RQ2: How do individual values related to materialism and self-expression influence perceptions of climate change?

We considered three climate change perceptions as final outcomes in the study: climate beliefs, perceived severity, and perceived salience. Conservation values negatively influenced all three climate change perceptions (Table 4). While openness to change also had negative effects on all outcomes, it was only significant for perceived severity ($\beta = -0.38, p = .017$) and perceived salience ($\beta = -0.32, p = .036$). Finally, both self-enhancement and self-transcendence positively and significantly influenced all three outcomes. The structural model explained substantial variance in the climate constructs, with R^2 values of 0.37 for climate beliefs, 0.36 for perceived severity, and 0.32 for perceived salience.

Table 4

Structural Path Estimates from Personal Values to Perceptions of Climate Change (N = 2,191)

Dependent Variable	Predictor	β (Std.)	SE	z	p
Climate Beliefs	Conservation	-0.58	0.07	-5.65	< .001
	Openness to Change	-0.19	0.09	-1.25	.212
	Self-Enhancement	0.45	0.09	3.13	.002
	Self-Transcendence	0.84	0.08	7.05	< .001
Perceived Severity	Conservation	-0.56	0.08	-5.40	< .001
	Openness to Change	-0.38	0.10	-2.38	.017
	Self-Enhancement	0.53	0.10	3.54	< .001
	Self-Transcendence	0.92	0.09	7.53	< .001
Perceived Salience	Conservation	-0.51	0.08	-5.26	< .001
	Openness to Change	-0.32	0.11	-2.10	.036
	Self-Enhancement	0.52	0.11	3.63	< .001
	Self-Transcendence	0.81	0.09	7.04	< .001

Note. $p < .05$ indicates statistical significance.

RQ3: Do personal values mediate the relationship between generational cohort and perceptions of climate change (salience, severity, and beliefs)?

To address our third objective, we estimated standardized indirect effects of generational cohort on climate outcomes via value orientations (Table 5). For climate belief, conservation value consistently served as a negative mediating pathway, with significant indirect effects for Millennials ($\beta = -0.01, p = .001$), Generation X ($\beta = -0.06, p = .009$), and Baby Boomers ($\beta = -0.08, p = .001$). In contrast, self-transcendence emerged as the strongest positive mediator across generations, showing significant indirect effects for Millennials ($\beta = 0.18, p < .001$), Generation X ($\beta = 0.11, p < .001$), and Baby Boomers ($\beta = 0.12, p < .001$). Self-enhancement displayed more heterogeneous patterns, with positive indirect effects for Millennials ($\beta = 0.07, p = .010$) but negative effects for Baby Boomers ($\beta = -0.13, p = .004$) and the Silent generation ($\beta = -0.04, p = .015$). Indirect effects through openness to change were generally small and not statistically significant.

Table 5*Indirect Effect of Generation on Climate Beliefs Through Personal Values (N = 2,191)*

Generation	Mediator	<i>Std. Indirect Effect</i>	<i>SE</i>	<i>z</i>	<i>p</i>
Millennials	Conservation	-0.10	0.06	-3.43	.001
	Openness to Change	-0.03	0.05	-1.17	.243
	Self-Enhancement	0.07	0.05	2.58	.010
	Self-Transcendence	0.18	0.08	4.87	< .001
Generation X	Conservation	-0.06	0.05	-2.62	.009
	Openness to Change	0.01	0.03	1.06	.290
	Self-Enhancement	-0.03	0.04	-1.69	.091
	Self-Transcendence	0.11	0.07	3.51	< .001
Baby Boomers	Conservation	-0.08	0.06	-3.23	.001
	Openness to Change	0.05	0.10	1.25	.212
	Self-Enhancement	-0.18	0.10	-2.90	.004
	Self-Transcendence	0.12	0.08	3.78	< .001
Silent Gen	Conservation	-0.02	0.09	-1.41	.160
	Openness to Change	0.03	0.14	1.24	.213
	Self-Enhancement	-0.04	0.11	-2.43	.015
	Self-Transcendence	0.03	0.12	1.36	.173

Note. Generation Z serves as the reference group; $p < .05$ indicates statistical significance.

We next examined indirect effects of generation on perceived climate change severity through personal values (Table 6). Conservation values again functioned as a negative mediating pathway, with significant indirect effects for all generations except the Silent generation. In contrast, self-transcendence consistently emerged as a positive mediator, showing significant indirect effects for Millennials ($\beta = 0.20, p < .001$), Generation X ($\beta = 0.12, p < .001$), and Baby Boomers ($\beta = 0.133, p < .001$). Self-enhancement displayed mixed patterns, with positive indirect effects for Millennials ($\beta = 0.08, p = .005$) but negative effects for Baby Boomers ($\beta = -0.15, p = .001$) and the Silent generation ($\beta = -0.05, p = .010$). Indirect effects through openness to change were significant for Millennials ($\beta = -0.05, p = .049$) and Baby Boomers ($\beta = 0.11, p = .019$), and the Silent generation ($\beta = 0.06, p = .024$).

Table 6*Indirect Effect of Generation on Perceived Severity Through Personal Values (N = 2,191)*

Generation	Mediator	<i>Std. Indirect Effect</i>	<i>SE</i>	<i>z</i>	<i>p</i>
Millennials	Conservation	-0.09	0.06	-3.38	.001
	Openness to Change	-0.05	0.06	-1.97	.049
	Self-Enhancement	0.08	0.07	2.80	.005
	Self-Transcendence	0.20	0.10	4.98	< .001
Generation X	Conservation	-0.06	0.06	-2.60	.009
	Openness to Change	0.03	0.04	1.50	.133
	Self-Enhancement	-0.04	0.06	-1.75	.080
	Self-Transcendence	0.12	0.09	3.57	< .001
Baby Boomers	Conservation	-0.08	0.07	-3.18	.001

	Openness to Change	0.11	0.12	2.34	.019
	Self-Enhancement	-0.15	0.12	-3.21	.001
	Self-Transcendence	0.13	0.09	3.84	< .001
Silent Gen	Conservation	-0.02	0.09	-1.40	.161
	Openness to Change	0.06	0.18	2.26	.024
	Self-Enhancement	-0.05	0.14	-2.58	.010
	Self-Transcendence	0.03	0.15	1.37	.172

Note. Generation Z serves as the reference group; $p < .05$ indicates statistical significance.

We also examined indirect effects of generation on perceived climate change salience through personal values (Table 7). Conservation values functioned as a negative mediating pathway for all generations except the Silent generation. Self-transcendence consistently emerged as a positive mediator across cohorts, except in the Silent generation, where the effect was not statistically significant. The self-enhancement value displayed heterogeneous indirect effects, operating positively for Millennials ($\beta = 0.08, p = .004$) but negatively for Baby Boomers ($\beta = -0.15, p = .001$) and the Silent generation ($\beta = -0.05, p = .009$). Indirect effects through openness to change were generally weaker, reaching statistical significance only for Baby Boomers ($\beta = 0.09, p = .039$) and the Silent generation ($\beta = 0.05, p < .05$).

Table 7

Indirect Effect of Generation on Perceived Salience Through Personal Values (N = 2,191)

Generation	Mediator	<i>Std. Indirect Effect</i>	<i>SE</i>	<i>z</i>	<i>p</i>
Millennials	Conservation	-0.08	0.06	-3.36	.001
	Openness to Change	-0.04	0.06	-1.80	.072
	Self-Enhancement	0.08	0.07	2.86	.004
	Self-Transcendence	0.18	0.09	4.90	< .001
Generation X	Conservation	-0.05	0.06	-2.58	.010
	Openness to Change	0.02	0.04	1.42	.155
	Self-Enhancement	-0.04	0.06	-1.74	.082
	Self-Transcendence	0.11	0.07	3.53	< .001
Baby Boomers	Conservation	-0.07	0.06	-3.15	.002
	Openness to Change	0.09	0.13	2.07	.039
	Self-Enhancement	-0.15	0.13	-3.27	.001
	Self-Transcendence	0.12	0.09	3.79	< .001
Silent Gen	Conservation	-0.02	0.09	-1.40	.161
	Openness to Change	0.05	0.18	2.02	.044
	Self-Enhancement	-0.05	0.14	-2.61	.009
	Self-Transcendence	0.03	0.14	1.37	.172

Note. Generation Z serves as the reference group; $p < .05$ indicates statistical significance.

Conclusions, Implications, and Recommendations

According to evolutionary modernization theory (Inglehart, 2018), younger generations should demonstrate higher levels of post-modernist and self-expressive values, as they should be more secure and worry less about survival. In this study, we used Schwartz's (1992) personal

value scale and value orientation groups (Schwartz, 2012) to represent the dichotomous values discussed by Inglehart (2018). Consistent with the theory, Generation Z demonstrated stronger alignment with openness to change values (i.e., self-expressive values) than older generations, except Millennials. However, they also expressed stronger alignment with the opposite pole, self-enhancement, than older generations. This indicates that while they may support collective self-expression, Generation Z also values personal growth. Again, the exception was the Millennial cohort, who were more strongly aligned with self-enhancement values. In direct opposition to evolutionary modernization theory, older cohorts showed stronger alignment with self-transcendence values than Generation Z. This suggests that Generation Z likely does not hold stronger post-materialist values than older cohorts, possibly due to economic challenges related to inflation, loan debt, and financial insecurity (Donelan, 2023). However, older generations also expressed stronger conservation values than Generation Z, indicating the youngest generation may be less concerned with “sticking to the status quo.”

For most generations, values played a mediating role in climate change beliefs, perceived salience, and perceived severity. For Millennials, Generation X, and Baby Boomers, self-transcendence values were a consistent, positive mediator, whereas conservation values were a consistent, negative mediator. This relationship is consistent with the influence of post-materialist values predicted by evolutionary modernization theory. For these generational cohorts, as post-materialist values increase (i.e., stronger self-transcendence values and weaker conservation values), they demonstrate stronger climate change beliefs than Generation Z. The self-expression value, represented by the poles openness to change and self-enhancement, demonstrated mixed indirect effects on climate change perceptions. While Baby Boomers and the Silent generation aligned with the theory (openness to change serving as a positive mediator and self-enhancement serving as a negative mediator), Millennials demonstrated an inverse relationship with these variables, which suggests they may view climate change as an element of their own personal growth and identity (self-enhancement values). These values did not demonstrate significant mediation effects for Generation X. It is important to note that these results are relative to the reference group, Generation Z, therefore, we cannot make comparisons between the other generational groups.

For agricultural communications researchers and professionals, this study offers insights into the unique connections among different generations, their values, and subsequent perceptions of climate change. Contrary to the theory, Generation Z did not have the highest climate change beliefs; instead, all generations were similarly moderate. However, there were variations in how generations perceived the severity and salience of climate change. As noted by Timmons et al. (2024), communicators should promote messaging that corrects generational misconceptions and avoid emphasizing differences. However, communicators should still tailor messaging for each generation, appealing to values that positively align with climate perceptions for each group. Future research should further explore how generational differences in values influence support for personal and public climate mitigation strategies, including agricultural-specific practices related to food systems, sustainable practices, and alternative diet patterns (Dragolea et al., 2023; Eze & Mena, 2024). We also suggest that future research more thoroughly examine how the economic realities of Generation Z’s upbringing shaped their values and subsequent perspectives on climate change.

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