If It Heals, It Leads:
An Integrative Framework of the Effects of Solutions Journalism on Cognitive and Behavioral Outcomes

by

Emmanuel Chinezube Maduneme

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Dissertation Committee:

Nicole Dahmen, Chair

S. Senyo Ofori-Parku, Core Member

Autumn Shafer Core Member

Robert Chavez, Institutional Representative

University of Oregon

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DISSERTATION ABSTRACT

Emmanuel Chinezube Maduneme

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Title: If It Heals, It Leads: An Integrative Framework of the Effects of Solutions Journalism on Cognitive and Behavioral Outcomes

This dissertation examined how solutions journalism—news coverage that highlights both problems and their potential solutions—influences audience outcomes through specific psychological mechanisms. While traditional problem-focused journalism can contribute to audience disengagement and fatigue, solutions journalism offers a promising alternative approach. However, the underlying processes through which solutions journalism affects audiences remain understudied. To address this gap, this research introduced the Response Integrative Framework (RIF) to explain how solutions-oriented coverage shapes cognitive and behavioral outcomes through positive emotions and efficacy beliefs.

Two experimental studies with a representative U.S. sample investigated the effects of solutions journalism across different contexts: animal waste pollution (N = 513) and cancer prevention (N = 511). The findings provided strong support for solutions journalism's positive impact on audience outcomes compared to problem-focused coverage. Participants exposed to solutions-oriented stories demonstrated more favorable attitudes toward the news content and experienced higher levels of positive affect without diminishing the perceived importance of the environmental and public health challenges.

Mediation analyses revealed that solutions journalism operates through multiple pathways: it generates positive affect, which enhances both self- and collective-efficacy beliefs, ultimately improving behavioral intentions, news engagement, and attitudes. This sequential

process held consistent across different story topics, suggesting solutions journalism creates an "adaptive response pathway" where problem awareness combined with actionable solutions boosts positive emotional responses and efficacy perceptions.

The research also found that issue importance moderated these effects. As perceived issue importance increased, solutions-oriented coverage yielded stronger positive affective responses compared to problem-oriented stories about animal waste pollution.

These findings contribute to both theoretical understanding and practical applications of solutions journalism. The study extends existing frameworks by demonstrating how solutions coverage can strategically balance problem awareness with solution pathways to foster constructive engagement. For journalism practitioners, the results provide evidence-based guidance for crafting news stories that not only inform but also empower audiences to engage with complex social issues.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1

INTRODUCTION

In the spring of 2021, the *New York Times* published an article in response to a study conducted which found that nearly 90% of news about COVID-19 is negative (Sacerdote et al., 2020). In the New York Times article, the author, Leonhardt admitted that what scholars call *negativity bias* has become an identifying characteristic of news in the United States and around the world (Leonhardt, 2021). "If we're constantly telling a negative story," Leonhardt stated, "we are not giving our audience the most accurate portrait of reality" (Leonhardt, 2021, para. 10).

Leonhardt's realization is symbolic of the digitalization of media which has fundamentally transformed the entire information ecosystem with journalism being one of the few industries bearing the most brunt of this "*creative destruction"* (Wahl-Jorgensen & Hanitzsch, 2019). In what Boczkowski (2021) terms an era of "*abundance of information,*" journalism has been decentered from its traditional role as society's primary information source and meaning making institution. Instead, journalism now operates within a vastly more complex media environment where its authority and influence are increasingly challenged, if not, nearly eliminated.

This structural transformation has engendered a radical reckoning of the relationships news organizations have with their audiences, compelling these organizations to start prioritizing audience concerns and information needs. This reckoning is commonly referred to as the *"audience turn"* in journalism which emphasizes the reorientation of news organizations toward the ways audience experiences and engages with news (Costera Meijer, 2019). It has also kindled a re-evaluation of the core values and norms that govern the practice of journalism. One of those

critical values is the propensity towards negative news content, defined here as the disproportionate focus on causal dynamics of conflict, crisis, and catastrophe in news coverage.

Negative news has become the hallmark and symbol of journalism, and stories that emphasize gloom and doom tend to be considered newsworthy. The inherent negativity and conflict-centeredness of news reporting has turned from "a mere 'news value' to an overarching 'news ideology'" Lengauer, Esser, and Berganza (2012) extended this point, arguing that the innate negativity in news reporting has moved beyond a news value and has become ingrained as a news ideology. Galtung and Ruge (1965) published their seminal work on what makes a story newsworthy, and among the criteria, negativity was one of the 12 main factors of newsworthiness, solidifying the prominence of negative events as newsworthy. In a 1989 *New York Magazine* article titled "Grins, Gore, and Videotape," staff writer Eric Pooley is said to have coined the phrase "if it bleeds, it leads" (Pooley, 1989). Pooley criticized television news's obsession over crime and conflict stories by local TV news at the expense of thoughtful and contextual news reporting:

> *"National and international stories get on the air chiefly when they are horrific—a plane crash, riot, hostage crisis, Thames party-boat disaster, or drug-cartel bombing spree.... The thoughtful report is buried because sensational stories must launch the broadcast: If it bleeds, it leads*" (Pooley, 1989, p. 37).

Pooley's phrase echoes the notion expressed by Harcup and O'Neill (2017) that the more negatively oriented the event is, the more likely it becomes news. Empirical evidence validates this notion. Patterson (2000) found that 84% of Americans say the news is depressing and more than two-thirds said the news is often negative. Patterson (2000) also found a sharp decline in news consumption with participants saying they are tuning out because they consider the news to

be overwhelmingly negative. Since Patterson's study, a recent study has also noted similar patterns in the negativity of news (Rozado et al., 2022). The study attempted to capture the emotionality and sentiment of news headlines between 2000 and 2019 and found that news headlines that evoked negative emotions like fear, disgust, anger and sadness were on an upward trend, while neutral and joyful news headlines were increasingly rare (Rozado et al., 2022). The study also found that overall stories illustrating anger were more prevalent than other negative emotions (Rozado et al., 2022). These research findings underscore the prevalence of negativity in the news media, not just in the United States, but globally.

Negativity in the news does not exist in a vacuum. It would be a dereliction of duty if journalists failed to cover threats and conflict-ridden issues as it is often part of their core functions to provide useful information and act as a watchdog, which literally and figuratively translates to keeping guard against threats. Journalism has a responsibility to cover issues such as corruption, embezzlement, and crime, all of which are usually negatively oriented (Entman, 2005; Eriksson & Östman, 2013). As Soroka and colleagues (2019) put it, "media provide a critical flow of information between elites and citizens and are a vital mechanism for democratic accountability" (p. 18888). Nonetheless, Schudson (2011) argued that traditional journalism often emphasizes conflict ridden stories and fails to pay attention to potential positive policies and solutions implemented to address some of the issues they have covered in the news. Beyond reporting on conflict as part of the core function of journalism, there have been studies that suggest a demand side to negativity from the audience which invariably informs a deference to negative news due the financial benefit for news outlets as such stories were found to increase audience engagement (Robertson et al., 2023; Trussler & Soroka, 2014).

The relentless focus on conflict becomes even more problematic if it results in the negative mental well-being of the audience. According to a 2022 Reuters Institute report, 65% of participants said the news had a negative impact on their mood and they were worn out by it (Reuters Institute, 2022). Other studies have found a connection between negative news and "increased distress, anxiety and depression" (Blades, 2021, para. 3). While people deem it imperative to engage with news updates to maintain awareness, the emotional responses evoked by pessimistic and negative news, such as fear, sadness, and anger, can ensnare individuals in a perpetual cycle of incessant monitoring, which could contribute to a deteriorating emotional state and heightened anxiety during the process of scrolling through news content (Blades, 2021).. Negative news also has been associated with compassion fatigue, a phenomenon where one becomes weary, desensitized and jaded from the "unrelenting media coverage of human tragedy" (Kinnick et al., 1996, p. 687). Kinnick and his colleagues found a strong association between news coverage of social problems and compassion fatigue, and concluded:

> *"While news coverage of social problems may initially serve a facilitating role in attracting attention and resources to problem amelioration, pervasive coverage which emphasizes problems without solutions may actually backfire and create a numbing of concern toward social problems and their victims"* (Kinnick et al., 1996, p. 703).

In response to the prevalent coverage of social problems without potential responses, there has been a push for constructive news practices which emphasize a balancing approach of covering both social problems and social solutions. Solutions Journalism is a form of constructive journalism that attempts to enhance the positivity of news by reporting on the effective responses to the problems, thereby telling the whole story (McIntyre, 2019; McIntyre & Lough, 2019). Solutions journalism stories have been published and aired in prominent news platforms like the *New York Times*, *The Wall Street Journal*, *Washington Post*, *CNN, BBC*

amongst others. This form of journalism has also been found to enhance cognitive and affective outcomes like positive affect and attitudes towards the news and reduced anxiety (Overgaard, 2021; Thier et al., 2019). While solutions journalism has been found to have positive outcomes that are essential for civic action, there have been noted inconsistencies in the theoretical frameworks that underline its effects (Lough & McIntyre, 2021; Thier, 2021). Multiple theoretical frameworks have been employed to explain, describe, and predict solution journalism effects. Some of these theories include framing, positive psychology, social responsibility of the press, among others. Each offers a unique contribution to understanding the role of solutions journalism, but what is lacking is a comprehensive explanation that can be used to predict and explain the influence of this form of news narrative. For instance, framing theory addresses predictive concerns for cognitive and affective outcomes like affect, perceptions, attitudes, and evaluations of the news stories. However, it falls short in explaining the mechanisms through which a solutions journalistic narrative might influence behavioral outcomes like engagement. Thier (2021) stated that despite the surge in research and practice interest in solutions journalism, there is still a lack of knowledge in the ways solutions journalism could affect prosocial civic and democratic action. Thus, there is the need to develop "theories to explain solutions journalism's mechanisms and then test them empirically and rigorously" (Thier, 2021, p. 56).

This dissertation proposes an integrative framework for explaining solutions journalism effects. It synthesizes the relevant features of these theories, applied to studies on solutions journalism to explore the integrative influence of solutions journalism on cognitive, affective, and behavioral outcomes, as well as the potential mechanisms that facilitates the effects of solutions journalism. Thus, taking a psychological perspective, I propose the Response Integrative Framework which premises news information, not only as a form of neutral sets of

facts but as a resource for enhancing social well-being and promoting prosocial outcomes through the surveillance of the social environment and the disclosure of social threats as well as opportunities for responses. The dissertation is divided into two studies exploring the integrative model across two pressing news topics; climate change (Study 1) and cancer prevention (Study 2).

Although the primary objective of the dissertation to advance the theoretical depth of solutions journalism research, the significance of this research also seeks to address a fundamental crisis in contemporary journalism: the erosion of audience engagement and the associated decline in news consumption driven by persistent negativity bias. As the Reuters Institute (2022) revealed, 65% of participants report that news has a negative impact on their mood, contributing to what Carlson (2025) termed "news discouragement" in his 2025 Nieman Lab prediction. Yet hard-hitting and ultimately threat-oriented journalism remains essential for democratic function. The dissertation attempts to addresses this paradox by proposing the Response Integrative Framework (RIF), which positions solutions journalism not merely as an alternative narrative approach or a source of information but as a resource for social wellbeing, fostering constructive civic engagement.

Dissertation Outline

The dissertation is divided into six chapters. Chapter 1 introduces the fundamental problem that has catalyzed this research endeavor: the overwhelmingly negative bias that characterizes contemporary news coverage. It traces the structural transformation in journalism that has led to this "creative destruction," as Wahl-Jorgensen & Hanitzsch (2019) termed it, and positioning solutions journalism as one response to this crisis. Chapter 2 explores the theoretical landscape underpinning solutions journalism, which I characterize as fractured but beneficial in

understanding the processes and effects of solutions journalism. Drawing on these diverse theoretical viewpoints, I postulate the Response Integrative Framework (RIF) with its four key postulations regarding how solutions journalism shapes cognitive and behavioral outcomes through mediating processes of positive emotions and efficacy beliefs.

Chapter 3 then outlines the methodological approach employed across the two studies. It details the experimental design, sampling techniques, and analytical approaches used to test the Response Integrative Framework. Chapter 4 presents the first empirical study examining the RIF within the context of climate change, specifically focusing on animal waste pollution. This study explores how solutions journalism shapes audience responses through psychological pathways, with solutions-oriented stories demonstrating stronger effects than problem-oriented stories. Chapter 5 replicates and extends Study 1 by applying the RIF to the context of cancer prevention. This chapter enables an examination of whether the patterns observed in Study 1 hold across a different topical domain, thereby enhancing the generalizability of the findings. Finally, Chapter 6 synthesizes the findings from both studies to develop a comprehensive understanding of the RIF. This chapter articulates the direct effects of solutions journalism stories and the mediation/moderation effects as postulated by the framework. It also addresses the boundary conditions of the framework, limitations of the research, and implications for both journalism theory and practice. The chapter concludes by arguing that solutions journalism can be one of many tools in the toolbox of journalists who seek to contribute positive value to their communities through rigorous and comprehensive reporting.

CHAPTER 2

LITERATURE REVIEW

News and the Provenance of Negativity Bias

Negative news is often pithily described with the phrases "if it bleeds it leads." Others agree with the expression "bad news is good news, and good news is no news" (Ngange et al., 2024). The phrases suggest that it is more profitable for the media when a story is framed as negative, sensational, and fear or anger-inducing. There is increasing consensus in the literature about the negativity bias that characterizes average news coverage in the United States and around the world (e.g., Andrew et al., 2006; Blumler & Gurevitch, 1995; Cappella & Jamieson, 1996; Strömbäck & Kaid, 2009)

The roots of negativity in American journalism can be traced to the highly partisan newspapers of the 19th century, which primarily served as political party mouthpieces, though this partisanship would give way to a pronounced shift toward objectivity and professional standards in the early to mid-20th century (see Zaller, 1999 for an interesting account). However, concurrent economic pressures and competition for readership spawned the rise of *yellow journalism*, where sensationalism and negative news became powerful tools for attracting audiences. This era was symbolic of the enterprise war between two American newspaper magnates and their publications: Joseph Pulitzer's New York World and William Randolph Hearst's New York Journal (Mott, 1941). *Yellow Journalism* is a form of journalism that employed sensationalist style of news coverage which emphasized fear inducing, large print headlines and elaborate use of images to dramatizes minor issues with the goal of driving up profits for their publication (Mott, 1941).

This tendency toward negativity was later amplified by the advent of 24-hour TV news channels and eventually the internet, creating an environment where media outlets increasingly emphasized scandalous and dramatic content to capture attention in an ever-more crowded landscape. The modern digital era has further intensified this dynamic, as social media algorithms privilege content that generates strong emotional reactions, while increasing political polarization has led outlets to cater to specific ideological audiences, creating echo chambers that reinforce existing biases and perpetuate negative coverage (Robertson et al. 2023).

Why Negativity Thrives

Understanding news negativity also requires an understanding of both the bio-evolutionary and socioeconomic forces that shape how and why audiences are enthralled with negative news, as well as media organizations' quest to meet those demands. Harold Laswell attempted to provide an evolutionary explanation for the appeal of negative information, arguing that human primordial survival instincts could be responsible for our sensitivity towards negative news (Lasswell, 1948). Drawing on human analogies to other animals, Laswell argued that one important function of communication is environment surveillance –with the goal of disclosing threats and opportunities (Laswell, 1948). Laswell also suggested that some individuals act like sentinels who stand “apart from the herd or flock and creating a disturbance whenever an alarming change occurs in the surroundings” (Lasswell, 1948, p. 217). Shoemaker (1996) then built upon the surveillance role of communication to further note that humans in general are hardwired to monitor their environment; a trait shared with other species. Hence, people attend to information about events that break away from the norm and or indicate potential threats. She also suggested that it might explain the threat orientation for which news has some to be known. She noted:

> *"The difference between professional information gatherers such as journalists and the rest of us is that journalists' surveillance is institutionalized and sanctioned, whereas we generally survey the environment for our more informal and personal purposes. Journalists fulfill people's innate desire to detect threats in the environment, keep informed about the world, and devise methods of dealing with these threats, whether real or potential" (Shoemaker, 1996, p. 32).*

In essence, Shoemaker (1996) is arguing that our primordial proclivity for information that is deviant, and threat-identifying could explain the prominence of negativity as a news production and consumption.

Although when asked within a research context, people tend to say they prefer positive stories, but their behavioral outputs tend to be in the contrary (Soroka & McAdams, 2015; Soroka, 2006). It also implies that people are often interested and consume negative information despite its psychological impacts on their mental wellbeing (Rozado et al., 2022; Trussler & Soroka, 2014). Scholars have referred to this as the *demand side* of the *Demand-Supply Continuum* (Soroka et al., 2019). Because humans demonstrate a 'negativity bias' where they tend to weigh negative information more heavily than positive information, it makes negative information appear more useful and attention-grabbing (Shoemaker 1996; Soroka et al., 2019). On the other end is the Supply side which is influenced by journalistic norms of cynicism toward public officials, which emerged on the hills of the post-lapdog press era (J. Zaller, 1999), and was particularly symbolic of the Vietnam and Watergate scandals, transforming journalists from 'silent skeptics' to 'vocal cynics' (Patterson, 1994). This cynicism is further reinforced by a newsmaking process that prioritizes fresh and exciting content, with "political news focused on the "horse race," conflict between politicians, or a series of errors made by individuals in the

system, will provide fresh content much faster than political news that focuses on policy" (Trussler & Soroka, 2014, p. 362).

Another catalyst of negativity bias in the media is economics. This reflects how market and institution-structural factors shape journalists' proclivity toward negativity bias in their reporting. For instance, Dunaway (2013) found that corporate and large chain ownership structures tend to prioritize profit maximization over traditional journalistic values, leading to a higher likelihood of negative coverage compared to independently owned papers. This structural dynamic is further complicated by ownership patterns, where local and independent ownership tends to maintain more neutral coverage, prioritizing journalistic quality over immediate profit concerns, while geographic distance in ownership correlates with increasingly negative coverage patterns (Dunaway, 2013). The latest exemplification of ownership influence on journalism practice was in in January 2025, when the ex-*Washington Post* cartoonist and Pulitzer Prize winner, Ann Telnaes decided to quit following the *Post*'s decision to not run a cartoon which portrayed the owner of the newspaper in a presumably unpalatable fashion.

This negativity dynamic is further amplified in online environments where social media recommendation algorithms further entrench negativity bias by prioritizing content that generates high engagement, with research showing that posts expressing moral outrage are systematically amplified by these algorithms, creating a feedback loop that incentivizes increasingly negative content (Brady et al., 2020; Crockett, 2017).

In all, negativity bias in news falls within Lasswell's (1948) postulation that the function of communication in general is surveillance of the environment for threat, and there is indeed a drive for humans to be drawn to negativity, regardless of the varied motivations, modality or period. However, Laswell (1948) also mentioned that there is a drive of surveillance for

opportunities too. Hence, while people are interested in information that notifies them of threats, they are also driven to information that identifies opportunities. In the next section, we discuss solutions journalism as a type of news practice that informs on both threats and opportunities.

Solutions Journalism Conceptualized

Scholars have proposed solutions journalism – which entails framing news stories in terms of the solutions instead of the problems – as a response to the deluge of negativity in the news (McIntyre & Lough, 2019; Thier et al., 2019). Solution journalism is often defined a socially responsible form of news coverage that seeks "rigorous, compelling coverage of responses to social problems" (Solutions Journalism Network [SJN], n.d.), while adhering to the core functions and values of journalism.

Solution journalism stories "investigate the core causes of social issues, paired with detailed reporting on responses to these problems" (Midberry et al., 2022, p. 3). This type of journalism rigorously investigates a social issue impacting communities but takes it a step further to also investigate potential responses by individuals in the public to address those social issues while emphasizing possible limitations associated with those responses (Thier et al., 2019). In this way, it provides a comprehensive picture of social realities while adhering to the traditional ethical principles of journalism.

Brief History of the Emergence of Solutions Journalism

Although the formal practice of and scholarship on solutions journalism is relatively nascent, scholars in the past have provided a rationale and called for similar forms of journalism. In the 1970s, Johan Galtung proposed a shift from a "diseases model of journalism" to a focus on identifying possibilities for peace amidst war and violent conflict (Galtung & Fischer, 1998). This approach calls on journalists to move beyond simply reporting on the negative aspects of

conflict and instead seek out opportunities for constructive engagement and conflict resolution (Lee & Maslog, 2005; Thier, 2021). By highlighting these possibilities for peace, Galtung believed that journalism could play a crucial role in promoting positive change and reducing the impact of violent conflict on communities (Galtung & Fischer, 1998).

In the late 1980s and early 1990s, public or civic journalism proponents also gained momentum by explicitly promoting public-oriented news practices (Friedland, 2003). Rosen, (1996) noted:

> *"This movement has grown up around thoughtful journalists who have begun to ask themselves how they can play a more constructive role in public life…They consider reducing some of their reflexive cynicism, preparing the news in a way that invites participation, taking citizens seriously when they do get involved, and serving an occasional convener of discussion or even a catalyst for broad-based civic action."* (Rosen, 1996, p. 5).

According to Thier (2021), these scholars were "rejecting the journalistic norm to focus on the negativity that grew out of the professionalism of the press in the early part of the 20th century" (p. 48). The first known account of solutions journalism was by Benesch (1998) who argued in the *Columbia Journalism Review* that "instead of pointing out what's wrong in the hope that someone will fix it, solutions journalism points out what's right, hoping that someone can imitate it" (p.39). Ever since, the concept has picked up steam among practitioners in many countries. For instance, a New York-based organization called Solutions Journalism Network (SJN hereafter) spearheaded the efforts in the US and claims this form of reporting investigates and explains, in a critical and clear-eyed way, examples of people working toward solutions to "provide valuable insights about how communities may more effectively tackle serious problems" (Solutions Journalism Network, [SJN] n.d). In a PBS interview, David Bornstein, a cofounder of SJN noted that the goal of SJN is "to rebalance the news in a way that provides

people a sense of investment and to provide communities with the information they need to participate in a healthy democracy" (PBS, 2022). Many news organizations have also embraced solutions journalism, with some outlets worldwide making it their core business model, such as *Reasons To Be Cheerful* in the United States (Reasons to be Cheerful, n.d.).

It is important to provide clarifications that not all good or positive news qualifies as solutions journalism. Solutions Journalism Network (n.d.) states that a story with a happy ending or a fluff meant to elicit cute emotions does not qualify as solutions journalism. Other forms of news practices that are different from solutions journalism include hero-worship; these are news stories that glorify an individual, effectively relegating the merits of their proffered solutions. Stories that offer social responses as silver bullets are also not solutions journalism as these stories tend to portray the responses as a perfect solution (Solutions Journalism Network [SJN], n.d.). Alternatively, solutions journalism includes rigorous reporting on the identification of the problem, its implications, a major focus on the responses to the problem (the solutions), and a thorough evaluation of the solutions' efficacy and societal significance (K. McIntyre, 2019)

Solution Journalism in the Context of Meta-Journalistic Discourse

The journalistic discourse that has followed the advent of solutions journalism is steeped in questions of objectivity and the journalistic roles journalists should play in their news practice. To understand both issues of objectivity and journalistic roles, it is important to understand the different roles journalists have been thought to play and how it implicates the concept of objectivity.

In the 18th and early 19th centuries, it was not strange for journalists to express a political stance because they relied on the funding of political parties and their role was to inform the public about political debates (May, 2009; J. Zaller, 1999). However, in the United States,

this changed in the 19th and 20th centuries when new technologies like telegraph, the rotary press, and the wire service, enabled the production and distribution of news on a large scale (Brewin, 2013). These changes created a mass market for news, which required journalists to appeal to a diverse and heterogeneous audience (Brewin, 2013). In addition to the growing interest in social scientific methods that favored rationality, empiricism, and detachment, journalists began adopting the principle of objectivity as a way to appeal to broader audiences (Brewin, 2013; Powers, 2009) This meant that journalists had to act as if they were mirrors, simply reflecting the facts of the world to society without coloration. Traditional journalistic practice is thought to venerate this principle and manifests in how their role perceptions and performance as journalists who are neutral and detached from the circumstances of their news story as a way to observe phenomena with a scientific approach.

However, practitioners of *"new journalism"* in the 1960s and 70s, post-structuralists and media sociologists began criticizing this interpretation of the principle of objectivity, suggesting that journalists are not mirrors that reflected a reality, instead they create mediated realities that are just representations of the reality they intend to capture (Tuchman, 1978). The stories a journalist selects or deselects are informed by their values, perceptions of their roles and subjective worldview (Shoemaker et al., 2009; White, 1950). The Hutchins Commission also agreed with this line of thinking in suggesting that there are "no factual report which is uncolored by the opinions of the reporter" (Hutchins Report, 1947, p. 22). In other words, the role and functional identity a journalist takes shapes their approach to news.

Some of the earnest works to piece out journalistic role and functions started with Cohen's (1963) articulation of the orientational dyads of journalists: *neutrals and participants*. The former is detached from their sources and audience and therefore considered very objective,

whereas the latter is more engaged and collaborative (Abdenour et al., 2018; McIntyre et al., 2023). Nine years later, Johnstone et al., (1972) validated Cohen's (1963) neutral/participant orientation. After surveying 1300 journalists in the US, it was found that most of them valued the participant roles like the comprehensive analysis of complex problems more than the neutral role. Several studies (see Beam et al., 2009; Weaver et al., 2009; Willnat et al., 2019) further broke these roles into four: "interpretive (similar to the "participant" journalist), disseminator (similar to the "neutral" journalist), adversarial (journalists who see themselves as adversaries of government and business), and populist mobilizer (journalists who embrace community-based activist reporting)." (Abdenour et al., 2018, p. 183).

In 2014, Fink and Schudson (2014) explored how journalism has changed between the 1950s and 2000s with the intention of capturing the evolution of the structure of news stories as well as the changes in the ways journalists describe themselves. They introduced a fifth function called the contextualist role. Journalists who take on this role "tend to focus on the big picture, providing context for other news. If the conventional story is a well-cropped, tightly focused shot, the contextual story uses a wide-angle lens" (Fink & Schudson, 2014, p. 10). They also suggested the type of journalism has been on the increase and gaining more professional acceptance.

Recently, McIntyre and colleagues (2018) placed solutions journalism within this contextualist function. They noted that a solutions journalist is a combination of the interpretive and populist mobilizer in the sense that they report on both problems and solutions with a larger lens of the issues while providing meaning and depth with the goal of advancing societal wellbeing and development. Their findings show that journalists, especially those who are younger and female, supported the contextual role (McIntyre et al., 2018). Some of the common

types of contextual reporting have been increasingly investigated solutions journalism, constructive journalism, and restorative narrative. Constructive journalism "involves applying positive psychology techniques to news processes and production in an effort to create productive and engaging coverage, while holding true to journalism's core functions" (McIntyre, 2015, p.9; as cited in McIntyre & Gyldensted, 2018). This form of journalism is considered contextual because it is premised on an exhaustive coverage of issues in a way that gives meaning and advances the social wellbeing of the society. Overgaard, (2021) found that constructive COVID news headlines led to less anger and anxiety among respondents. Restorative narrative "focuses on recovery, restoration, and resilience in the aftermath, or in the midst, of difficult times" (Abdenour et al., 2018, p. 181; Dahmen, 2016; Tenore, 2014). It is also an avenue to reconstruct tragic events with the goal of providing meaning and aiding the community in the redevelopment process (Dahmen, 2016).

The fundamental premise of contextual forms of reporting is that news is much more than the "cautious, formulaic, cut-and-dried conventional" dissemination of facts without taking into consideration how these facts fit within the larger context of society and how it impacts that society (Fink & Schudson, 2014, p. 9). Fink and Schudson, (2014) referred to contextual reporting as one of the important journalistic changes in the last five decades.

Journalists who practice these forms of journalism are usually considered being on the active continuum because they are more interested how their stories impact their audiences and are equally in constant engagements with their audience (Bro, 2008). This contrasts with the passive journalists who are detached from the reality of the audience and are most concerned with the preproduction chain of the news (Bro, 2008). Contextual journalism is also consistent, albeit implicitly, with the very prescient Hutchins Commission report which defined the roles

media should play in a free society. They argued the media should provide " a truthful, comprehensive, and intelligent account of the day's events in a context which gives them meaning" (Hutchins Report, 1947, p. 20).

Solutions journalism exemplifies the features of the contextualist function by framing stories not solely in terms of social ills, but by going beyond to cover potential responses with a critical lens. By highlighting the limitations of such responses while adhering to the values of truth, accuracy, and fairness in its coverage, solutions journalism offers a big picture perspective by providing actionable insights. It represents a crucial shift in journalism that aims to inspire positive change and promote societal well-being. In the next section, the theoretical framework that has been applied to explaining solutions journalism as a media effects phenomenon is discussed.

Theoretical Frameworks

The theoretical landscape underpinning solutions journalism could be best described as fractured, but in this case, such fragmentation might have become beneficial in understanding the processes and effects of solutions journalism. While scholars have drawn from various theoretical frameworks including positive psychology, framing, social responsibility, and normative roles, this theoretical diversity has helped position solutions journalism within a broader constellation of related concepts. However, this theoretical potpourri also reflects a significant challenge: it lacks a unified conceptual framework to explain its mechanisms and effects. This theoretical gap is particularly concerning because, as Bro (2019) argues, without a compelling conceptual foundation, solutions journalism risks following the path of civic journalism – fading from prominence despite initial popularity. In the following sections, I explore some of the prominent theories that have been employed to explain the effects of

solutions journalism, their potential limitations, and how they could contribute to a more integrative framework that explains the influence of solutions-focused reporting on audience engagement and perception.

Positive Psychological Approach to Journalism

Positive psychology is a concept proposed by Martin Seligman in 1998 that aims to break away from the pathologizing of the human condition. Rather it focuses on ways to achieve human flourishing and well-being (Seligman & Csikszentmihalyi, 2000). Positive psychology aims to ask questions like how humans can thrive amidst adversities and what parameters enhance positive well-being and growth. Seligman was implicitly responding to an era of psychology research around the Second World War when there was a focus on diagnosing abnormalities and mental illness, rather than studying human flourishing (McIntyre & Gyldensted, 2018). This also coincides with the same period when many psychological studies explored the anti-social impacts of media on children and the masses (Giles, 2003). Positive psychology has provided a broad conceptual framework for solutions journalism, as well as related forms of journalism like constructive journalism. McIntyre and Gyldensted applied it to solutions/constructive journalism in two of their pieces (McIntyre & Gyldensted, 2018a, 2018b). They argued that although "bad news" is a prominent news value, positive psychological principles should apply to journalism such that news need not be limited to exposing social abnormalities like fraud, corruption, crime, and violence. Instead, it should also serve as a tool to promote human flourishing and social growth by covering stories about responses to those issues in a way that encourages prosocial outcomes and community prosperity (McIntyre & Gyldensted, 2018b).

Positive psychology is a grand theory that attempts to provide macro-level postulations about the prospects and directions of the field. It has also spawned multiple mid-range theories that provide predictive capabilities and relationships between constructs. One which has been applied to solutions journalism is the broaden-and-build theory (Overgaard, 2021; Thier & Lin, 2022). The broaden-and-build theory of positive emotions, proposed by Babara Fredrickson, posits that positive emotions such as joy, interest, contentment, and love have a broadening effect on individuals' thought-action repertoires (Fredrickson, 2004). Positive emotions broaden people's thoughts and actions, allowing them to flourish and effectively respond to challenges. On the other hand, negative emotions constrict people's thought-action dynamics.

While positive psychological approaches have been influential in explaining solutions journalism and associated forms like constructive journalism, their limitations are tied to their sole reliance on affective states. Also, positive psychological approaches do not translate into expected behavioral and cognitive outcomes (e.g. Ogunbode et al., 2022). This perspective often prioritizes the role of affective states like positive emotions as the missing link between solutions journalism and behavioral outcomes. For example, Thier and Lin (2022) employed the broaden-and-build perspective to explore the impacts of climate change solutions journalism stories. They predicted that solutions stories would lead to broader positive thought-action statements compared to problem stories. However, they found no differences in thought-action statements between the conditions. While positive emotions are often outcomes of solutions journalism, it may not be sufficient to explain behavioral outcomes or other cognitive processes in participants' responses. It is therefore pertinent to consider other factors and processes beyond affective states when examining the effects and outcomes of solutions journalism.

Framing Theory

Framing is one of many ideas in the social sciences that have been conceptualized in multiple ways across varying fields of research such as cognitive, constructionist, and critical studies (D'angelo, 2002). Goffman (1974) is credited as one of the earliest scholars to have discussed the broad concept of framing (Borah, 2011). Frames, according to Goffman (1974), assist individuals in structuring and comprehending their experiences in their day-to-day existence. He refers to frames as "schemata of interpretation," serving as a framework that enables the transformation of an otherwise random sequence of events into a coherent and significant narrative (Goffman, 1974, p. 21).

Some prominent conceptualizations of framing have also emerged from sociology, economics, psychology, cognitive linguistics, and communication (Hertog & McLeod, 2001; Scheufele & Tewksbury, 2007). The multiplicity of conceptualization seems conflicting in some cases that Hertog and McLeod (2001) referred to it as both "a blessing and a curse" (p. 139). While multiple approaches can drive creativity in research and broaden the theoretical knowledge of different phenomenon across disciplines, it also has muddled the premise and applications of framing theory. This allows room for framing to be "used synonymously with research approaches that are distinctly different" (Borah, 2011, p. 246).

In communication and media studies, two approaches have been prominent; the sociological and psychological approach. The psychological approach is rooted in the work by Sherif (1967) and prospect theory propounded by Daniel Kahneman and Amos Tversky (Kahneman & Tversky, 1979) which argues that people tend to evaluate the potential outcomes of their decisions relative to a reference point (or a frame of reference). This also manifests in the framing of the event. When information is framed in terms of gains, people tend to be risk-

averse, while when information is framed in terms of losses, people tend to be risk-seeking. The psychological conceptualization of framing often amounts to what Nabi et al. (2018) called an *equivalence framing;* the presentation of one outcome differently (for example, 10% gains versus 90% loss of biodiversity).

The sociological approach, which was popularized by (Entman, 1993) is more prominent. Robert Entman defined framing as selecting "some aspects of perceived reality and make them more salient in a communicating text, in such a way as to promote a particular problem definition, causal interpretation, moral evaluation, and/or treatment recommendation" (p.52). In simpler terms, framing according to Robert Entman is a process by which people subjectively make one aspect of an issue more pronounced than the other parts.

Robert Entman's conceptualization of frames also serve a variety of purposes. According to Entman, (1993), frames define problems, provide diagnosis, evaluate, and proffer solution to the problems in focus. Frames also impact the way a message is perceived by the receiver; the receiver is likely to consider the selected frame as the most salient information, and their evaluation and processing of the message are determined by the frame with which the information was presented (Entman, 1993).

Although the structure of framing can be elaborate and complex (Scheufele, 2004), there are two important forms of framing to be delineated in relation to the current dissertation: media frames and audience frames. Gamson and Modigliani (1987) defined media frames as "a central organizing idea or story line that provides meaning to an unfolding strip of events" (p.143), while audience frames refer to a "schemata and closely related concepts such as categories, scripts, or stereotypes connote mentally stored clusters of ideas that guide individuals' processing of information" (Entman, 1993, p. 53). In Hall's (2003) terms, media frames could be referred to

what the journalists selects and deselects in a story (encoding), while audience frame is the mental categorization of such information (audience decoding of information).

Framing and Solutions Journalism: Framing has been a prominent theoretical framework in exploring solutions journalism. In their study, Lough and McIntyre (2018) identified a framing classification consistent with Entman's (1993) definition of framing. They proposed two categories: problem-related frame and solutions-related frame (Lough & McIntyre, 2018). A problem-related frame is characterized by a news story that highlights the identification and assessment of an issue, thus aligning with the first aspect of Entman's framing definition: problem definition. Conversely, a news story can be considered a solution-related frame when it focuses on treatment recommendations and opportunities for action (Lough & McIntyre, 2018). This also echoes Harold Laswell's view of communication as that of environmental surveillance and disclosing social threats. This concept aligns with the watchdog role of journalism, where journalists aim to uncover and expose corruption and public malfeasance. Additionally, Laswell (1948) argued that communication serves the purpose of identifying opportunities as well. The problem/solution framing categorization also aligns with Gerhards and Rucht's (1992) explanation of diagnostic framing, which involves identifying a problem and assigning responsibility, and prognostic framing, which delineates the required course of action.

Framing has a bearing on both the influence of news content and the way in which audiences perceive news issues (Iyengar, 1994). Cappella and Jamieson (1996) found that a problem-only frame made people more cynical, whereas frames that include conflict-resolution or problem-solution are more effective in engendering the audience engagement as well as a positive outlook on the issue.

The literature on solutions journalism often evaluates its effects on three categories of outcomes: 1) Cognitive outcomes like attitudinal evaluations of the stories as well as the issues covered, audience perceptions (news trust, optimism), and efficacy beliefs. 2) Affective outcomes, the most of prominent of which is affect. 3) Behavioral outcomes (intentions to take civic action prescribed in the news story, news engagement metrics). In a systematic review, Lough and McIntyre (2021) found that most studies often find positive effects of solutions framed stories on attitudinal and emotional outcomes. While these findings suggest that solutions framing positively influences some cognitive and affective outcomes, the evidence regarding behavioral outcomes like actual engagement is inconsistent at best, and non-extant at worse. One study concluded that "reading about an effective solution did not, however, impact on readers' behavioral intentions or actual behaviors." (McIntyre, 2019, p. 16). Additionally, other findings on solution framing reveals that the sole effect of framing does not have a direct effect on efficacy beliefs. This means other mediating and moderating factors are at play which should receive more attention.

Further, Lecheler & De Vreese (2012) called for increasing scholarly interests beyond the sole effects of media frames towards the underlying mechanisms and factors that might enhance either by mediating or moderating the effects of frames. In other words, solely framing a news story in terms of social solutions might not be enough to encourage civic action, instead other factors might need to be accounted for to realize its influence.

Extended Parallel Process Model and Solutions Journalism

A framework which has only started to receive attention in the solutions journalism literature (e.g. Maduneme & Cohen, 2024) and might fill some of the gaps in previous theories by illuminating some potential mechanisms useful in understanding the effects of solutions

journalism is the Extended Parallel Process Model (EPPM hereafter). Propounded by Kim Witte (1994), the EPPM is a descriptive fear-appeal model that explains how people react to fear-inducing messages as well as the requisite conditions under which attitudinal and behavioral change might be affected. The EPPM is an improvement on Leventhal et al's (1983) concept of danger/fear control and Rogers' (1975) protection motivation theory. It proposes that individuals evaluate such messages based on two key factors: the perceived level of threat and the perceived level of efficacy (Witte, 1994). In this model, threat refers to "a danger or harm that exists in the environment whether individuals know it or not" (Witte, 1994, p. 114). Perceived threat is a combination of perceived severity (belief about seriousness of the threat) and perceived susceptibility (likelihood of experiencing the threat). Efficacy, on the other hand, refers to "effectiveness, feasibility, and ease with which a recommended response impedes or averts a threat" (Witte, 1994, p. 114). Efficacy is broken into two dimensions: response efficacy which refers to the effectiveness of the recommended response in averting the threat and self-efficacy, an individual's perceived ability to execute the recommended response (Witte, 1994).

The EPPM model postulates that people first appraise threat information and their ability to cope with it. If they perceive the threat as serious and the response as effective, they will be motivated to adopt adaptive responses (danger control). However, if they perceive the threat and/or response as irrelevant or ineffective, they will engage in maladaptive actions like attempting to reduce the fear by avoidance (fear control) (Witte, 1994). The model denoted that fear appeals can backfire if they induce too much fear without providing sufficient efficacy information. In other words, if individuals' perception of the threat information is higher than their perceived self-efficacy, the model suggests the individual might engage in maladaptive actions. Perceived Efficacy is defined here as one's "beliefs in one's capabilities to organize and

execute the courses of action required to produce given levels of attainments." (Bandura, 1998, p. 53).

From the EPPM model, solutions journalism can then be understood as a communication approach that balances news coverage of a problem (threat) and solutions to that problem (efficacy). By presenting the severity and susceptibility of a problem through rigorous coverage, solutions journalism can increase the perceived threat of the issue. However, unlike traditional fear appeals that only emphasize social threats, solutions journalism also increases the perceived efficacy of solutions by highlighting their effectiveness, feasibility, and benefits. In balancing threat and efficacy, solutions journalism can motivate audiences to engage in danger control processes, which manifests in this context as the adoption and support of prosocial outcomes. For example, let us consider the coverage of crime in a community, solutions journalism stories tend to focus on the threats of crime-related activity, while highlighting the susceptibility of residents of such communities to crime related outcomes by way of making the story personally relevant to members of the said community. They then would go on to cover the potential responses to those crime related issues, thereby providing a response efficacy, and ultimately enhancing the self-efficacy of community members in engaging in such responses to the crime situation. In this way, solutions journalism can provide compelling evidence of effective solutions and inspire audiences to take action and participate in civic life by showcasing the actions taken by people to solve social problems.

Some scholars have made similar arguments grounded in the EPPM framework to explain how news narratives can be conceptualized as either threat-oriented or efficacy oriented. Hart and Feldman, (2014) drew on EPPM to investigate how climate change threat and efficacy information has been communicated in U.S. network television news stories. They conceptualize

threat information as news content that stresses the social impacts and risks of a social issue (e.g. climate change). The efficacy messages were operationalized as the potential opportunities and solutions to climate issues. They found that "while news coverage frequently conveys the threat of climate change, it provides an inconsistent efficacy message" (Hart & Feldman, 2014, p.325). Jugert and colleagues also examined narrative information similarly using the EPPM as a framework (Jugert et al., 2016). In their study of four experiments, they operationalized social responses to an issue as efficacy cues. For instance, they had participants read a news article "about the role of young people …in fostering environmental-friendly mobility behavior" (Jugert et al., 2016, p. 14). They found that those exposed to the efficacy information condition reported feeling more efficacious and were likely to engage in pro-environmental behaviors (Jugert et al., 2016).

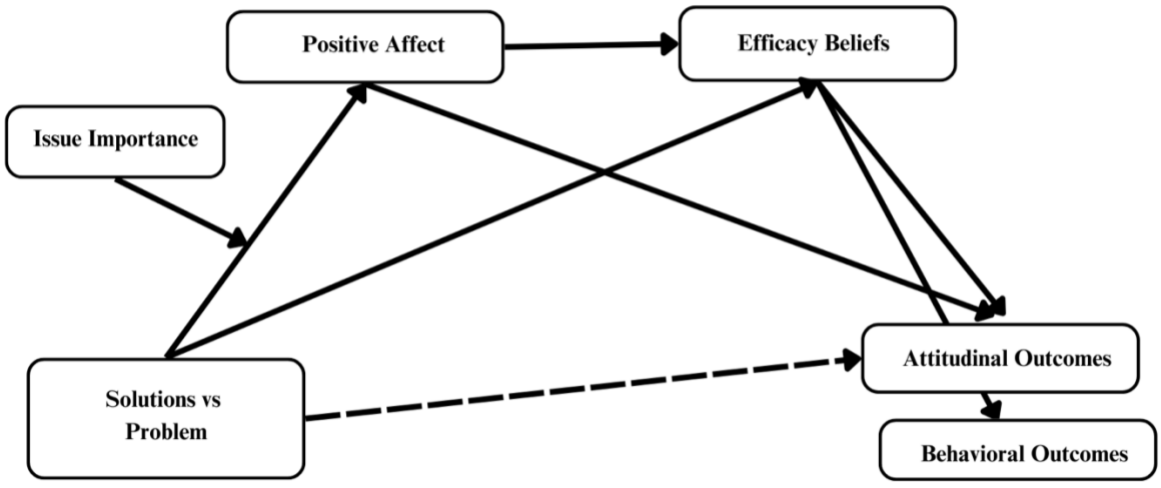
Postulating the Response Integrative Framework

The EPPM is an essential framework that provides potential explanations for the mechanisms that facilitate the effects on solutions journalistic stories. It highlights the significance of perceived efficacy as both message and audience attributes in this way, it builds upon the predictive constraints of framing theory by outlining potential underlying mechanisms that might help understand the effects of solutions journalism. In the following section, I draw on the postulations of framing theory, positive psychology and the EPPM model to hypothesize relationships and predictions in what I will refer to as **Response Integrative Framework**. The selected nomenclature is meant to reflect a collage of different theories to explain how solutions journalism might impact civic and prosocial outcomes.

The Response Integrative Framework (RIF from hereon) aims to explain the conditions under which people's exposure to solutions-oriented text can influence their cognitive and

behavioral outcomes. It is richly guided by the principles of positive psychology and Laswell's first communication function: surveillance (Lasswell, 1948; Seligman & Csikszentmihalyi, 2000). Drawing from positive psychology, The RIF premises news information as a resource for enhancing social well-being and promoting prosocial outcomes through the surveillance of the social environment and the disclosure of social threats as well as opportunities. The relevant concepts that explain the relationship between solutions-oriented information and prosocial outcomes include message framing, perceived issue relevance/importance, positive affect, efficacy beliefs, and cognitive and behavioral outcomes. In the following section, I define these concepts and provide a rationale for their role in the RIF. See Figure 1 for a conceptual model of the RIF conceptual model.

Figure 1: *Conceptual Model of Hypothesized Response Integrative Framework Model*



Postulation 1: Media Framing Have Effects on Cognitive and Affective Outcomes

Here, media framing is defined using Lough & McIntyre's (2018); problem/solution frame. A problem-related frame is characterized by a news story or information that highlights the identification and assessment of an issue. Conversely, a news story/information can be

considered a solution-related frame when it focuses on the identification, assessment, treatment recommendations, and opportunities for action (Lough & McIntyre, 2018). Also, as I illustrated in Maduneme & Cohen (2024), and the aforementioned section, solutions journalism can also be understood through the lens of the Extended Parallel Process Model (EPPM) which suggests that combining message features of threat and efficacy could influence audience outcomes (Maduneme and Cohen, 2024; Popova, 2012). Maduneme and Cohen (2024) note that, "a solutions journalism approach exemplifies the second and third proposition of the EPPM theory, which posits that when people perceive a high level of threat and a high level of efficacy via a message, they are likely to engage in adaptive behaviors that reduce the danger, such as following the recommendations of the message" (Maduneme & Cohen, 2024, p. 5, Witte, 1994).

As we have established, solutions-framed stories have been shown to positively impact people's perception of an issue and their evaluation of the story. There is ample evidence on the influence on attitudinal and emotional related variables like attitudes toward the story and affect. For instance, Thier & Lin (2022) investigated the impacts of solutions journalism on attitudes and information seeking behaviors. They found that those who were exposed to solutions stories had favorable attitudes toward the news story itself, as well as a greater inclination to endorse a potential remedy to the issue at hand. Meier (2018) also found that those who read or listened to a solutions framed stories expressed favorable attitudes toward the stories as well. Solutions framed stories have also been consistently found to positively impact emotions and affect. In a systematic review to explore the common effects of solutions/constructive journalism, Lough and McIntyre, (2021) found that out of 22 studies analyzed, 17 examined the effects of solutions stories on emotions/affect. All 17 studies support the evidence that solutions stories drive positive emotions and affect. These findings are therefore in line with the fundamental premise

of framing theory which suggests that media frames influence positive attitudinal and affective outcomes.

We therefore hypothesize the following:

H1: Participants who read solution-oriented news stories will report more favorable attitudes toward the news article than participants who read problem-oriented news stories and control.

H2: Participants who read solution-oriented news stories will report higher levels of positive affect than participants who read problem-oriented news stories and control.

H3: Participants who read solution-oriented news stories will report lower levels of negative affect than participants who read problem-oriented news stories and control.

Postulation 2: Efficacy Beliefs as Mediator of Solutions Oriented Stories and Cognitive/Behavioral Outcomes

Efficacy beliefs are also considered the foundation upon which one engages in a maladaptive or adaptive action. Evidence for efficacy beliefs spans varied disciplines, from education (Goddard et al., 2000) to sports (Chow & Feltz, 2014) and health (Klassen & Klassen, 2018). In these studies, those with higher efficacy tended to engage in productive actions compared to those with low efficacy. Bandura (1998) also noted that people with low efficacy about a task tend to avoid those demanding tasks or engage in less demanding ones.

Efficacy often plays a dual role in persuasive communication, functioning both as audience perception and as a message cue. As an audience perception, efficacy encompasses individuals' beliefs in their capability to perform a recommended behavior (perceived self-efficacy). Perceived efficacy as an audience cognition can also be categorized into different

dimensions, but the two common dimensions which are of interest are the personal and the collective dimensions (Bandura, 1998). Personal or self-efficacy refers to beliefs about the capacity in achieving individual-oriented attainments. In other words, one's beliefs about their personal ability to achieve a task. In contrast, collective efficacy is group oriented and assesses beliefs about in-group abilities to achieve a group-oriented task. Bandura (1998) pointed out that increased collective efficacy is more predictive within the contexts of group tasks, whereas those with higher self-efficacy experience is related to increased personal productivity. As a message cue, efficacy refers to components within the communication that provide clear instructions or assurances about the effectiveness of the recommended action (response efficacy). Incorporating such cues enhances the persuasive impact of fear appeals. Tannenbaum et al. (2015) conducted a meta-analysis revealing that fear appeals are more effective when they include efficacy statements, as these provide clear guidance on how to mitigate the presented threat.

High levels of these efficacy beliefs are crucial for motivating individuals to adopt suggested behaviors. Witte and Allen (2000) found that strong fear appeals combined with high-efficacy messages produce the greatest behavior change, whereas strong fear appeals with low-efficacy messages lead to defensive responses. Albert Bandura noted the overemphasis on people's self-efficacy at the preclusion of other more important forms of efficacy (Bandura, 1998, 2000). He stated that "people do not live their lives as isolates. They work together to produce the results they desire" (Bandura, 1998, p. 65). Self-efficacy falls under psychological approaches that overemphasize the individual's capacity and efficacy expectancies without taking into consideration how the dynamic might change when the individual is a part of a social group.

Collective efficacy aligns with the fundamental premise of social psychology that people's cognitions and behaviors impact and are, in turn, impacted by their social environments. One of the earliest social psychological theoretical frameworks that indicates how people are socially influenced is Triplett's (1898) social facilitation thesis which suggested that people perform better when in concert with other people than they do individually. Formative scholars in social psychology like Kurt Levin also established the individual as part of and product of their social arrangements. In his Field theory, Lewin (1939) argued that people's behavior is a function of the individual and their social environments. There has also been evidence corroborating the group-based role of collective efficacy. Jugert et al. (2016) found that participants were likely to engage in pro-environmental behaviors as part of their group in mitigating climate change when they reported a higher collective efficacy.

A solutions journalism approach serves as an efficacy message cue, which is one of the propositions of the EPPM theory positing that people tend to engage in recommended behaviors that are indicative of message acceptance when they perceive a high level of threat and a high level of efficacy via the message, such as the effectiveness of the recommendations (Witte, 1994). By serving as a message threat and efficacy cue, solutions journalism presents both the threats and concrete examples of successful interventions, thereby potentially enhancing both self and collective efficacy beliefs among audience members. Efficacy beliefs are often associated with adaptive behavioral outcomes. Thus, when individuals encounter solution-focused news coverage, they may experience increased perceptions of self and collective efficacy. These strengthened efficacy beliefs, in turn, can catalyze positive shifts in attitudes and behavioral intentions. The mediational pathway operates through cognitive appraisal processes (e.g. Niven, 2013), where solutions-oriented narratives provide vicarious learning experiences

and concrete action frameworks, and in this way, bolstering individuals' perceived capability to engage with social issues.

Scholars have found that combining threat and efficacy messages about an issue can increase viewers' self-efficacy (Sarrina Li & Huang, 2020; Xue et al., 2016). Maduneme and Cohen (2024) also found that solutions journalism stories (which typically combines the threats and recommended solutions to an issue) predicted collective efficacy beliefs of participants. They also found that collective efficacy beliefs mediated the effects of solutions journalism stories on behavioral intentions. Although these studies tend to focus on one issue at a time, they suggest that media stories that combine the threats of an issue and efficacy of addressing such issues are likely to increase efficacy beliefs than stories that do not combine the two elements, which are important factors when considering how people engage in civic behavioral action. By applying it to different story topics in this dissertation, we hypothesize that:

H4a: Efficacy beliefs mediate the effects of solution-oriented news stories attitudes toward a news article to the problem in the story.

H4b: Efficacy beliefs mediate the effects of solution-oriented news stories on intentions to engage in actions covered in the story in the story.

H4c: Efficacy beliefs mediate the effects of solution-oriented news stories on news engagement to the problem in the story

Postulation 3: Affect Mediates the Relationship Between Solutions Journalism, Efficacy and Cognitive/Behavioral Outcomes

Affect is another important factor that has been substantially explored in relation to solutions journalism. When media professionals cover a story, they often seek to enhance the

emotive appeal of the story to attract public interest. Affect is the collective description for all feeling states, commonly amongst them are emotions and moods. The definition of emotion that has received prominence is by Reeve (2018) who defined it as "short-lived, feeling-purposive-expressive-bodily responses" (p. 288). Hence, emotion is mostly the physical and interpretive response to stimuli "and may arise relatively automatically or following a cognitive appraisal of a stimulus" (Niven, 2013, p. 49). Moods, on the other hand, last longer, and are not a direct result of exposure to stimuli and have no peculiar identifiable expression (Ekman & Davidson, 1994).

Affect generally consists of two main perspectives, the dimensional and discrete perspectives. While the discrete perspective proposes emotions such as anger, fear, and joy, etc., as separate entities, each with specific functions, the dimensional perspective emphasizes emotions as valence (ranging from feeling pleasant to unpleasant) and arousal (ranging from feeling quiet to active) (Harmon-Jones et al., 2017; Kuppens et al., 2013, p. 917).

Affect as valence is often associated with news and solutions journalism literature and would be what forms the basis of this dissertation. Although having its roots in psychology, Affect has been theorized from different perspectives, including socio-psychological and critical lenses. The critical perspective poses affect as a subjective experience that is largely shaped by socio-cultural factors rooted in the dominant hegemonic systems (Hogan, 2016).The psychological approach, on the other hand, which Hogan (2016) refers to as *Affective Science,* is mostly concerned with the structure of the different dimensions of affect. This approach involves examining the various factors that give rise to these emotions, the behavioral responses they elicit, the modes of expression that accompany them, as well as the personal and subjective dimensions that underpin the emotional experience (Hogan, 2016). This dissertation takes the psychological approach to affect.

Affective valence can also play multiple functions; it could serve as information, spotlight, and motivation (Peters et al., 2006). Affect as information captures a situation whereby one's feelings about an event or object provide them with an informational cue which guides their decision. Commonly cited evidence to demonstrate this was a set of studies by Damasio (1994) who essentially argued that our affective evaluation of an event or attribute is linked to bodily and somatic states such that when these bodily features are triggered by an attribute, that affective response serves literally as information. Affect could also be a spotlight. Peters et al. (2006) argued that this works in a two-step process: the affective evaluation or reaction focuses attention on a piece of information, which we then use in making a decision. In this sense, our attention to a piece of information mediates our affective evaluation and the final decision or judgment. Affect also acts as a motivation to process information as well as spur behavioral outcomes (Peters et al., 2006). When an event or attribute is associated with a positive affect, we might be motivated to approach and engage. In contrast, we might withdraw if it is negatively evaluated (Chen & Bargh, 1999; Peters et al., 2006).

It is important to note that these functions should not be considered mutually exclusive as they interact with each other in the complicated process of decision-making and judgments. For instance, one's affective evaluation of the solutions journalism story might serve as both a motivator and a piece of information, which then spotlights newer information, thereby mediating the individual's cognitive and behavioral responses to the news story. Affective evaluations have been found to serve as motivation for behavioral outcomes. Brosch (2021) summarized a barrage of evidence showing that both positive and negative affective evaluations could enhance and discourage behavioral outcomes.

In relating affect to solutions journalism, research has also shown that solutions journalism is often associated with positive affective states, both as valence and as discrete emotions (Lough & McIntyre, 2021; Thier et al., 2019; Thier & Lin, 2022). The evidence on the effect of solutions journalism (as well as associated approaches like constructive journalism) on affect is nuanced and complex. Across multiple experimental studies, solution-oriented and constructive news stories consistently elicited more positive affect compared to traditional problem-focused news (Baden et al., 2019; McIntyre & Sobel, 2017). When negative emotions were present, they manifested with less intensity in constructive news formats, with studies documenting smaller increases in negative emotions or smaller decreases in positive emotions compared to non-constructive approaches (Kleemans et al., 2017, 2019). These affective benefits have been observed across various media formats, from text news stories (McIntyre, 2019) to audio news summaries (McIntyre, 2020) and radio reports (Meier, 2018).

Solutions journalism effects on emotions appears to be particularly pronounced under specific conditions and across diverse audiences and different age groups; from children (Kleemans et al., 2017) to adults (Hermans & Prins, 2020), indicating the consistency of emotional responses even across age groups. Furthermore, solutions journalism stories have demonstrated particular effectiveness in generating "inspirational" emotional responses (Hermans & Prins, 2020) and fostering more hopeful perceptions of news content (Meier, 2018). It is important to note that the placement of emotion-evoking content within stories (whether at peak moments, endpoints, or throughout) did not significantly impact readers' affect ,(K. McIntyre, 2015) suggesting that the mere presence of constructive elements, rather than their strategic placement, drives emotional responses. Recent work also reemphasizes how positive affect can mediate the effects of solutions journalism on attitudinal and behavioral outcomes

(Maduneme & Cohen, 2024; Their & Lin, 2022). As such, in order to explain the relationship between solutions journalism stories and behavioral outcomes, it is pertinent to take into consideration the effects of affect such that those who see a solutions journalism story and feel positive affect might be willing to engage in news related and social outcomes. This is based on the broaden-and-build theory which suggests that positive emotions broaden people's momentary thought-action repertoires and build their enduring personal resources, ranging from physical and intellectual resources to social and psychological ones (Fredrickson, 2001). When individuals experience positive emotions, they are more likely to explore, create, and engage with their environment, leading to increased participation in prosocial behaviors and civic engagement activities. From the foregoing, it also becomes reasonable to expect that affect mediates the effects of solutions journalism such that positive affect – emanating from seeing a solutions journalism story – may be associated with cognitive and behavioral outcomes.

H5a: Affect mediate the effects of solution-oriented news stories on attitudes toward a news article to the problem in the story.

H5b: Affect mediate the effects of solution-oriented news stories on intentions to engage in actions covered in the story in the story.

H5c: Affect mediate the effects of solution-oriented news stories on news engagement to the problem in the story

Affect can also mediate the relationship between solutions journalism and efficacy beliefs. Bandura (1998) postulated that one's affective state is a crucial source of one's belief in their self-efficacy. Bandura (1998) implicitly arguing that affect plays an informational and motivational role as individuals' affective evaluation of a task or event might give us information about our levels of self-efficacy beliefs.

In relating this to efficacy beliefs and solutions journalism, it is then possible and within reason to argue that a solutions news story might lead people to make positive affective evaluations. Ultimately, they might get a boost in their efficacy beliefs about engaging in that action. One study found that participants who were experimentally induced to feel happy (versus sad and neutral) reported feeling more efficacious compared to other groups (Kavanaugh, 1985). Recently, Maduneme and Cohen (2024) explored the particular question of the mediating role affect plays in the relationship between solutions journalism and outcomes. They found that solutions-oriented stories indirectly increased pro-environmental behavioral intentions through positive affect (Maduneme & Cohen, 2024). Thus, I hypothesize:

H6a: Affect mediate the effects of solution-oriented news stories on efficacy beliefs

By extension, we therefore expect a serial mediation effect such that:

H6b Affect mediates the effects of solution-oriented news stories on efficacy beliefs on attitudes toward a news article to the problem in the story,

H6c Affect mediates the effects of solution-oriented news stories on intentions to engage in actions covered in the story in the story,

H6d: Affect mediates the effects of solution-oriented news stories on news engagement to the problem in the story

Postulation 4: Issue Importance Moderates the Relationship Between Solutions Journalism and Affect

The relationship between solutions journalism and affect has been one of the most consistent findings in the literature, with many studies concluding that solutions journalism is generally associated with affective responses (Hermans & Prins, 2020; Kleemans et al., 2017;

Lough & McIntyre, 2021; McIntyre, 2015; McIntyre, Lough, & Manzanares, 2018; Thier & Lin, 2022; Thier et al., 2019). However, recent research suggests that this relationship may not be straightforward, as contextual factors could moderate the effects of solutions journalism on affective responses. For example, while earlier studies often found that solutions journalism was linked to positive affect, Their and Lin (2022) observed contrary to these findings, that "both solutions and problem stories tended to arouse high-arousal, negative-valence emotions."

These discrepancies highlight the nuanced relationship between solutions journalism and affect, suggesting that further research is needed to understand the conditions under which solutions journalism produces either positive or negative emotional responses.

One key factor that might explain the nuanced relationship between solutions journalism and affect is issue importance. Issue importance is a prominent moderator of message characteristics and different outcomes (Krosnick & Petty, 1995b). Issue importance can be defined as "an individual's subjective sense of the concern, caring, and significance he or she attaches to an attitude" (Boninger et al., 1995, p. 160). Within social psychology research, issue importance is recognized as a central concept in understanding attitude strength and change (e.g., Boninger et al., 2014; Lecheler et al., 2009; Visser et al., 2003). It stems from an individual's subjective beliefs about both the attitude itself and the attitude object (Krosnick & Petty, 1995b). Importance extends to how much concern, relevance, and significance an individual attaches to the issue being covered in news coverage. Research has shown that importance is crucial for developing strong and resistant attitudes toward political and other issues (e.g., Krosnick, 1988; Pelham, 1991).

Given the existential challenges facing contemporary journalism, issue importance becomes an essential theoretical construct and practical imperative in understanding audience

engagement. In an era where news organizations struggle to maintain relevance and sustainability, issue importance serves as a fundamental lens through which we can examine the evolving relationship between journalism and audience. The industry's current discourse increasingly recognizes that survival depends not merely on information conveyance, but on delivering news that resonates with and is relevant to audiences' personal, professional, and civic needs (Schrøder, 2019; Toff et al., 2023).

Issue importance typically manifests across multiple levels: personal, social group, and national. An individual may consider an issue highly important to themselves personally, even if it has limited relevance at broader social or national levels (Lecheler et al, 2009). Conversely, issues may hold significant importance at national or social group levels while having minimal direct personal impact on certain individuals. For example, someone might view affordable housing as critically important to their situation, while feeling less affected by climate change policies, or vice versa. However, studies show that when political elites elevate certain issues like immigration, housing costs, and climate change to prominence, the public tends to encounter more issue-relevant messaging and framing in their media environment (Lecheler et al, 2009). While increased exposure does not automatically elevate an issue's perceived importance among individuals, it does provide them with a broader range of issue-related considerations to evaluate (Zaller, 1999; Zaller, 1992). Nonetheless, personal importance is a more potent predictor of personal outcomes than national or social importance. While personal issue importance and issue relevance are distinct constructs, I use both terms interchangeably to the extent that personal importance could theoretically be considered a derivative of issue relevance given their shared emphasis on “intrinsic importance” and “personal meaning” (Petty & Cacioppo, 1986, p. 145).

The role of personal importance in processing information and emotional response is well researched with these studies consistently showing that when individuals perceive information as personally relevant, they engage more deeply with the content, leading to stronger emotional reactions (Balzarotti & Ciceri, 2014; de Hoog, 2013). Nadeau et al (1995) found that the perceived importance of an issue significantly influences emotional responses, particularly anxiety and hope. When individuals consider an issue highly important, they tend to experience more intense emotional reactions, especially heightened anxiety about potential threats or negative outcomes related to that issue.

Solutions journalism, characterized by its focus on responses to social problems rather than just the problems themselves, may be associated with increased positive affect, particularly for individuals who consider the issue as important to them. In the context of solutions journalism, when a news story addresses a topic of high personal relevance, readers may process the information more systematically and experience more intense emotional responses. Solutions journalism's potential to foster positive affect, especially when addressing issues that audiences consider personally significant, can be understood through the lens of cognitive appraisal theory which argues that emotional responses are not direct reactions to the content itself but are shaped by how individuals evaluate the content's relevance to them personally and their perceived ability to respond effectively (Lazarus & Folkman, 1984). This perspective provides a framework for understanding how solutions journalism may encourage positive emotional responses in readers who find the issue highly important.

Guided by the mechanisms of cognitive appraisal theory, solutions journalism can moderate emotional responses, particularly through its effect on the two-stage appraisal process: primary appraisal, which involves assessing the significance/relevance of the issue, and

secondary appraisal, where individuals evaluate their ability to respond. Solutions journalism adds value in the secondary appraisal stage by offering examples of responses or solutions to important issues, thus enhancing readers' perceived coping resources. One vital indicator of proactive coping mechanism that becomes relevant in this context is efficacy beliefs. This combination of high issue importance and an emphasis on actionable responses creates conditions that favor positive affect. Undergirded by the Fredrickson's (2001, 2004) Broaden and Build postulations, the positive emotions from seeing a solutions story covering a personally important issue could then transform the news experience from one that might have been overwhelming or disempowering to one that engenders a sense of efficacy and empowerment. Invariably, the individual is willing to engage in cognitive and behavioral outcomes related to the issue. Thus, it is within reason to expect a serial moderated mediation effect such that when covering issues audience find personally important, solutions journalism stories (compared to problem-oriented or control stories) may be particularly effective in generating positive emotions and invariably, increasing efficacy beliefs among audiences. Thus, I hypothesize:

H7: As participants' perception of issue importance increases, those who read solution-oriented news stories will report higher affect compared to participants who read problem-oriented news stories.

CHAPTER 3

METHODOLOGY

The dissertation is divided into two studies. The first study examined the proposed Response Integrative Framework and associated hypothesized relationships using a climate change related story topic (animal waste pollution). The second study replicated the first using a public health topic (cancer prevention). To test the hypotheses, an experimental method was employed. Wrench et al. (2008) noted that "an experiment occurs when a researcher purposefully manipulates one or more variables in the hope of seeing how this manipulation affects other variables of interest" (p. 338). Both studies use independent posttest-only experimental designs with three conditions: 1) Control, 2) Problem Condition, and 3) Solutions Story Condition. The research was conducted online through Qualtrics, a survey platform widely used by researchers across disciplines (Douglas et al., 2023). An independent group posttest only design typically involves multiple groups and participants randomly assigned to different independent variable groups (Wrench et al., 2008). Subsequently, they responded to the mediating, moderating and dependent variables just once. This is in contrast to the pretest/posttest where participants are initially measured, exposed to stimuli, and measured again (Wrench et al., 2008). The main independent variable is the story frame (solution-frame vs problem-frame vs control). The moderating variable is issue importance. The mediating and dependent variables include affect valence, attitudes, self/collective efficacy, behavioral intentions, and news engagement.

Population/ Sampling

A nonrandom quota sampling technique was employed, which refers to sample drawn from the general U.S. population to match certain specified characteristics (Wrench et al., 2008), in this case, the U.S. census demographic distributions. The two main criteria were that the

participants must be above 18 years and reside in the United States. The survey was conducted in English. Participants were recruited using Cloud Research, a third-party research/recruitment service that assisted in recruiting from *Connect*, online platforms for recruiting participants. *Connect* has become standard recruitment sources for academic research (Douglas et al., 2023). Cloud Research services have been employed in most social science research because of their ability to evaluate the quality of participation by ensuring participants were human and met the criteria for participation (Douglas et al., 2023). The compensation was around $1.50 for each participant.

Power Analysis

To determine the appropriate sample size, an a priori power analysis was conducted based on a small to medium effect size (f^2= 0.027 - 0.03) from previous studies of similar interest (McIntyre, 2019; Overgaard, 2021), as well as a significance level of .05, with a power of .80, and N_{tested} predictors = 4. The analysis indicated that a minimum sample size of 304 participants would be required to detect effects in this range. A similar sample size was required for both studies. Hence, a total maximum sample size of around 1,024 participants was recruited for both studies.

Stimuli Materials

Stimulus materials were be obtained from the *Solution Story Tracker (https://storytracker.solutionsjournalism.org/)*, a database owned by the Solutions Journalism Network, an organization that promotes, educates journalists, and curates stories that qualify as solutions reporting. The website has over 10,000 news stories, varying across different topics worldwide and from a myriad of news outlets. These stories have been approved by the organization to meet solution journalism criteria.

The selected stories for this research focused on two distinct topics across two studies: animal waste pollution (Study 1) and cancer prevention (Study 2). To maintain consistency and experimental control, all stories were presented in a magazine-like layout (see supplementary materials) with identical bylines and photos across conditions. The stories were adapted from existing news coverage, with careful attention paid to maintaining journalistic integrity while adjusting the framing to meet experimental conditions. For Study 1 (animal waste pollution), the problem-oriented version emphasized the challenges and issues associated with animal waste pollution, while the solutions-oriented version incorporated both the challenges and specific responses through biofuel technology development in the United States. Similarly, for Study 2 (cancer prevention), the problem-oriented story focused on the public health challenges of managing a cancer diagnosis and treatment, while the solutions-oriented version addressed both problems and responses related to cancer treatment support in the United States. A control condition was also included for both studies, featuring a neutral but topic-relevant short piece that maintained similar length and format without emphasizing either problems or solutions.

For both studies, I maintained consistent core information across conditions while varying the framing emphasis. For instance, both problem and solution conditions had similar sections emphasizing the problems with their respective issues but differed in their emphasis on the later sections of the story (see supplementary materials).

Both problem-oriented versions were approximately 400-500 words, while the solutions-oriented versions were approximately 400-500 words. This approach aligns with prior research examining differential effects of solutions-focused versus problem-focused narratives, where stimulus materials of comparable length have been utilized to ensure experimental control while maintaining ecological validity (McIntyre, 2019; Meier, 2018; Thier et al., 2019).

To ensure that any observed effects could be attributed to the textual framing rather than visual elements, a consistent visual approach was maintained across all conditions in both studies. Generic images relevant to each topic were selected and used consistently across problem-oriented and solutions-oriented stories. This standardization of visual elements across conditions helps isolate the effects of the textual manipulation while maintaining ecological validity in the presentation format.

To control for potential familiarity effects, some names within the stories were replaced with fictional alternatives. This modification helped ensure that participants' responses would not be influenced by prior knowledge of or attitudes toward specific individuals mentioned in the stories. All other source attributions and citations were maintained to preserve the journalistic integrity of the content.

Manipulation checks were conducted to determine whether participants viewed the story conditions as anticipated. The story frame was measured using a similar question from (McIntyre, 2019) which asked participants the extent to which they agreed the story is a solutions-oriented story. Responses are rated on a 5-point Likert scale (strongly agree/strongly disagree). Randomization checks across key variables like age, gender, and ethnicity were also conducted to ensure the random assignment of participants into groups was successful and groups were not systematically homogenous. All tests were run on the R statistical software (R. Developement Core Team, 2010).

Procedure

Approval for the studies was obtained from the University of Oregon's Institutional Review Board (IRB No STUDY00001232) Participants were entered into the Qualtrics survey and began by signing an informed consent form. The participants were then presented with a

cursory description of the study. They were then exposed to any of the combinations of story conditions/topics. Following exposure to the stimuli, participants were asked to respond to various outcome measures.

Methodological Concerns (Reliability and Validity)

Wrench et al. (2008) defined reliability "as the accuracy that a measure has in producing stable, consistent measurements." (p. 248). Reliability can be considered as a study's consistency and accuracy when replicated, essentially assessing its truthfulness and replicability. Given the human-centric nature of social sciences, the most appropriate approach for assessing study reliability involves the use of scalar reliability. Scalar reliability focuses on the reliability of the measurement scales used in this study (Wimmer & Dominick, 2013; Wrench et al., 2008). The common method for checking reliability in social sciences is Cronbach's alpha (Wrench et al., 2008). Cronbach's alpha is calculated based on the correlations between specific items, indicating how consistently they measure the same construct. The variables in this project were operationalized using well-established instruments grounded in the literature with a reliability score of more than 0.78, which is an acceptable threshold for reliability (Wimmer & Dominick, 2013; Wrench et al., 2008).

Another important consideration is the validity of the measures. According to Wrench et al. (2008), validity "refers to the degree to which the instrument measures what it is intended to measure" (p. 266). Experiments are mainly designed to test causal claims or causal relationships (A causes B). Internal validity is an important criterion for validating these claims. A study design is said to have strong internal validity when no other unknown variable explains the relationship between cause and effect variables. Morling (2020) noted that a post-test between-subject experimental design, like the one employed by this study, increases the internal validity

of the study by eliminating potential threats that might mar the quality of the study findings, such as regression to the mean and selection effects among others. The dissertation design controls for the regression to the mean threat by providing a comparable group instead of measuring twice (Morling, 2020). Another threat might be systematic selection bias where the groups are systematically different based on a feature different from the intended manipulated features. This issue is addressed using randomization. By randomly assigning people to different groups, the commonalities between groups are based only on the conditions that they have been assigned to.

However, the prioritization of internal validity means there might be limitations in terms of external validity. External validity "refers to how well the results of a study can be generalized across populations, settings, and time" (Wimmer & Dominick, 2013, p. 30). While the study employed a quota sampling method to ensure representation within the sample, this approach does not fully guarantee that the findings are applicable to broader, real-world contexts. Furthermore, the study is not a field experiment, which limits its ability to capture the natural complexities and uncontrollable variables that characterize real-world environments. Field experiments, by contrast, provide stronger external validity because they take place within natural settings, allowing for a more accurate assessment of how participants might behave outside of a controlled research environment. This limitation suggests that while the study provides valuable insights, its findings should be interpreted with caution when considering their generalizability to broader populations and settings.

CHAPTER 4

STUDY 1: CLIMATE CHANGE (WASTE POLLUTION)

As previously mentioned, the overall objective of this dissertation is to explore how solutions journalism affects audience outcomes through differing moderating and mediating processes. The previous chapter already outlined the broader research methodology as it pertains to the entire two studies. This chapter outlines the research participants, measures, data analysis, results and contextual discussions for Study 1, which addresses the hypotheses within the context of climate change, specifically animal waste pollution.

Study Context

Climate Change in the United States

Climate change has manifested in increasingly visible and devastating ways across the United States. Rising sea levels, intensified extreme weather events, and catastrophic wildfires serve as stark reminders of our changing environment (Intergovernmental Panel on Climate Change, 2023). These direct manifestations of climate change, coupled with constant media coverage and scientific warnings, have given rise to a phenomenon known as eco-anxiety - a persistent fear of environmental doom that particularly affects younger generations (American Psychological Association & ecoAmerica, 2017, p. 68). Contributing to this crisis is the often-overlooked role of animal waste pollution, which acts as a significant multiplier of climate change effects. Agricultural waste, particularly from industrial livestock operations, represents a substantial source of greenhouse gas emissions (Center for Biological Diversity, 2024; EPA, 2024).

Animal waste contributes to methane emissions with manure and enteric fermentation accounting for more than a third (36%) of those emissions. Methane is also “more than 80 times

more potent than carbon dioxide over a 20-year period" (Center for Biological Diversity, 2024; EPA, 2024). Other emissions include nitrous oxide and carbon dioxide from the transportation and processing of animal waste products. For instance, The EPA noted that "agricultural soil management activities including deposition of livestock manure were the largest contributors to U.S. N2O emissions in 2022, accounting for 75% of total N2O emissions" (EPA, 2015). Beyond its impact on the environment more broadly, agricultural waste poses a significant threat to public health. Poor animal waste management from industrial livestock operations means untreated manure might contaminate groundwater with pathogens. Atmospheric emissions also release harmful gases that eventually compromise air quality and contribute to acid rain (EPA, 2014). In rural communities, these pollutants have been linked to respiratory issues and decreased property values (Hribar, 2010).

The role of environmental journalism in covering issues like manure management in animal feeding operations is particularly significant in this context. News media serves as a primary channel through which Americans seek information about climate change threats and opportunities (Hackett et al., 2017). While traditional climate change coverage tends to focus on broad environmental impacts and energy sector emissions, the specific contribution of livestock and associated waste pollution does not always receive comparatively similar attention (Godde et al., 2021). This coverage gap deserves particular attention within climate change journalism for two main reasons: 1.) it emphasizes animal waste pollution as a concrete, manageable aspect of climate change that could be addressed through specific policy and technological solutions, 2.) it also connects abstract global climate concerns with local environmental and health impacts that directly affect communities. Thus, it offers a reasonable and significant context to research the role of solutions journalism on civic and cognitive outcomes. Therefore, this first study

hypothesizes that exposure to solution-oriented news stories, compared to problem-oriented ones, will generate more favorable outcomes among participants. These relationships are expected to operate through two primary mediating mechanisms: efficacy beliefs and positive affect, which are hypothesized to influence various outcomes including attitudes, engagement, and behavioral intentions. Additionally, the study proposes that the magnitude of these effects will be moderated by participants' perception of issue importance, with stronger effects anticipated when the issue is perceived as more significant.

Methods

Measures

The measures were adapted to the specific domain of interest (animal waste pollution). The measured variables are as follows:

Issue Importance: Issue importance was measured using an adapted one-question measure from Robison (2021) as well as Vidigal and Jerit (2022) which asked respondents "How important are environmental issues to you personally? Participants rated their response on a 5-point Likert scale 1 (not at all) to 5 (extremely important).

Attitudes towards the news story: Following McIntyre (2019), the study employed an adapted measure from Kalyanaraman & Ivory (2009), asking participants to rate their agreement with 15 adjectives like "engaging, enjoyable, well written, etc. Responses are on a 5-point scale (Strongly Agree to Strongly Disagree). The items were summed to create an index ($\alpha = .95$).

Behavioral Intentions: Following previous studies Coleman et al. (2022), participants will be asked to rate their agreement with statements like, *Endorse taxpayers' money to support local waste-to-energy initiatives, etc.* on a 7-point Likert scale. The items were summed to create an index ($\alpha = .89$).

News Engagement: News engagement was measured using an adapted measure by Lu & Luqiu, (2020). Participants were asked on a 5-point Likert scale, how likely or unlikely they are to "*share the article on social media", "read more articles from the author/the news platform," and read more articles about the issue."* The responses ranged from 1 (Very Unlikely) to 7 (Very Likely). The items were summed to create an index (α= .86).

Affect: Affect is both a mediating and outcome variable. Affect was measured using the Holistic Unipolar Discrete Evaluative Scale (HUE) adapted from Peters & Slovic (2007). The scale comprises 10 items concerning the story they read. The five positive HUE measures were "happy," "friendly," "enthusiastic," "love," and "excited." (α = .93). The negative HUE measures were "upset, angry," "annoyed," "disgusted," and "afraid." Responses ranged from Likert (1 = does not apply/describe to 4 = completely describes) (α = .82). For the purpose of the mediation analysis, I followed previous research (Maduneme & Cohen, 2024; Silverstein et al., 2023) to reverse code the negative measures such that all 10 items were summed to create a positive affect index (α= .80).

Efficacy Beliefs: An adapted scale was employed to measure self-efficacy beliefs (Huang, 2016; Maduneme, 2024; Maduneme & Cohen, 2024). On a 5-point scale, participants rated their agreement with the following 4 statements (e.g. "*My actions can contribute to addressing environmental pollution*.") The items were summed to create an index (α = .91). Collective Efficacy was operationalized using an adapted measure by Chen (2015). It is a 3-item self-reported measure scored on a 7-point rating scale (1 = strongly disagree, 7 = strongly agree). One of the questions is *"I am certain that we will find ways to turn environmental pollution around."* One item was dropped to improve the reliability of the scale. The remaining items were then summed to create an index (α = .87).

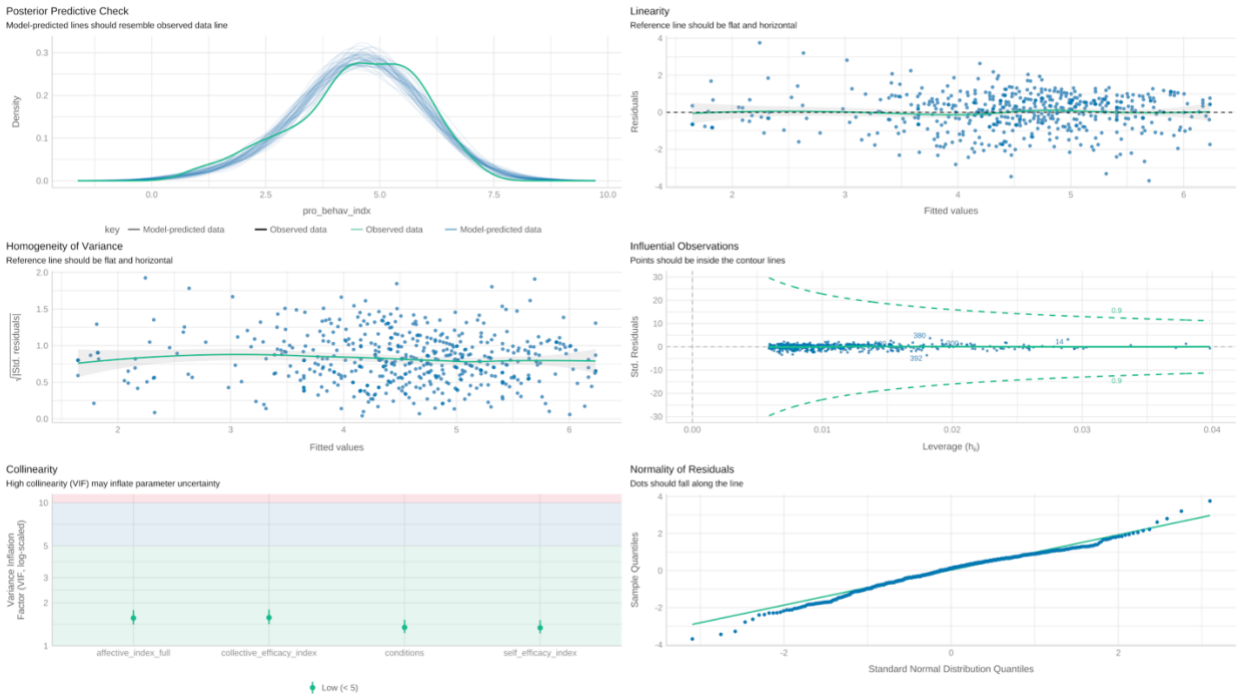
Demographic information, such as political affiliation (ranging from Very Liberal to Very Conservative), age, gender, educational background, and racial/ethnic background, was collected for this study. Age was assessed by asking, "How old are you right now? Please respond in whole numbers (e.g., 12, 45, 32)." Gender was determined using the question: " What gender best describes you?" Participants were presented with five options (Binary/Third gender, Man, Woman, Prefer not to say, and Prefer to self-describe). Educational background was evaluated with the question: "What is the highest level of education that you have completed (No high school, Graduated high school/ GED, Some college, associate's degree, bachelor's degree, Graduate or professional degree)?" Racial/ethnic background was ascertained by asking, "What is your ethnicity?" Participants had the following options: Native American/American Indian, Black/African American, Hispanic/Latin(o/a/x), White, Asian/Pacific Islander, More than one.

Diagnostics

All tests were run on the R statistical software (R. Developement Core Team, 2010). Main variables were centered to avoid multicollinearity issues. General Linear Model assumptions were checked by regressing the independent variables on all key continuous variables in the dataset. We examined the posterior predictive accuracy, linearity, homoscedasticity, influential observations, multicollinearity, and normality of residuals. The diagnostic plots as seen in Figure 2, suggest that the regression model's assumptions are generally met with some minor concerns. The posterior predictive check displayed good alignment between the model-predicted and observed data distributions, indicating adequate model fit. The linearity assumption appears to be reasonably satisfied. The homogeneity of variance plot reveals some mild but generally level heteroscedasticity. Multicollinearity diagnostics show favorably low Variance Inflation Factors (VIF < 5) for all predictors. The

normality assumption is reasonably met, as evidenced by the Q-Q plot showing close adherence to the diagonal line, with only minor deviations in the tails as is often expected.

Figure 2. *Model assumptions for all variables in animal waste pollution study 1.*



Data Quality: The initial sample was N= 513. Data quality screening was implemented through multiple criteria to ensure response validity. The Affect measure consisted of 10 items (5 positive and 5 negative emotions), and response patterns were examined for Straight lining behavior, which means if participants answered both groups of questions similar, it would indicate non-thoughtful response. Survey completion time was evaluated using statistical thresholds, where responses were flagged if they fell below 1.5 (SD) standard deviations below the mean duration (indicating potentially rushed responses) or exceeded 3 (SD) standard deviations above the mean duration (suggesting possible inattention or interruptions during completion). These timing thresholds were calculated based on the mean completion time in minutes. Cases that exhibited multiple quality concerns - specifically, the overlap between

attention check failures and affect response straight lining, as well as the intersection of problematic completion times and straight-lined affect responses - were identified as having poor data quality and removed from the dataset. Additionally, one observation (obs 237) was removed from the dataset due to missing values across all key variables.

Regarding influential observations, the residuals versus leverage plot identified few potentially influential cases, though none exceeded Cook's distance boundaries, suggesting their influence may not be severely problematic for the model. For further verification, multivariate (Mahalanobis distance > 20) and univariate (z-scores, IQR) outlier detection methods were employed to identify potential influential cases (Tabachnick et al., 2013). A few potentially influential cases (<5) were identified but fell within acceptable bounds. However, instead of removing outliers, robust statistical methods were used to minimize their impact on the analyses.

Statistical Analytical Strategy

For hypotheses H1 to H3, Yuen's trimmed means ANOVA was conducted for each dependent variable: attitude towards the story, positive affect, and attitude towards the solutions. Yuen's trimmed means ANOVA is a robust alternative to the traditional f-test, particularly when data violate normality assumptions or contain outliers (Velina et al., 2016; Yuen & Dixon, 1973). By removing a specified percentage of the highest and lowest values (typically 20%) before calculating the means, this method minimizes the influence of extreme scores while preserving the original sample size. The traditional (Fisher/Welch's) ANOVA tests were also conducted as robustness checks given that Yuen's mean tend to reduce statistical power via the trimming of samples.

For the moderated mediation analyses (H4-H7), we used Hayes' PROCESS macro (Models 6 & 83), a tool for mediation, moderation, and conditional process analysis in R (Hayes,

2022). Furthermore, to account for potential non-normality and outliers in the mediation analyses, a bootstrapping approach was employed. Bootstrapping is a non-parametric resampling technique that involves repeatedly sampling from the original dataset with replacement to create multiple simulated samples (Brownstone, 1990; Salibian-Barrera & Zamar, 2002). This method provides a robust estimate of the sampling distribution and confidence intervals for the indirect effects, making it less sensitive to departures from normality and the presence of outliers.

By combining traditional (Fisher/Welch's) and robust ANOVA tests (Yuen's trimmed means ANOVA) alongside with bootstrapping for the mediation analyses, the study aimed to obtain accurate and reliable results while preserving the original sample and mitigating the influence of extreme cases. These robust statistical approaches enhance the validity of the findings and provide a more comprehensive understanding of the relationships between the experimental conditions, the mediating/moderating and dependent variables.

Results

Manipulation checks were conducted to determine whether participants perceived the story conditions as intended. The extent to which participants viewed the story as solutions-oriented was assessed using an item adapted from McIntyre (2019) rated on a 5-point Likert scale from strongly disagree to strongly agree. Levene's test of equality of variance was significant indicating unequal variance, so a Kruskal-Wallis test was conducted to examine differences in manipulation check scores across three conditions (Control, Problem, and Solutions). As expected, the test revealed a statistically significant difference between conditions, (χ^2 (2) = 170.58, p = 9.12e-38, $\epsilon^2_{ordinal}$ = 0.34), indicating a large effect. Participants in the solutions condition agreed most strongly that the story was solutions-oriented (M = 6.00), followed by those in the problem condition (M = 3), and lastly those in the control condition (M

= 4). Dunn's pairwise contrasts revealed the solutions condition elicited higher ratings than both the problem condition ($p < .001$), and control condition, ($p < .001$). The problem condition also produced higher ratings than control ($p < .001$). These results indicate the story frames effectively manipulated participants' perceptions as intended.

Randomization Checks

To check if participant characteristics were evenly distributed across conditions, chi-square tests of independence were conducted for gender, political orientation, state, and education level. No significant associations were found between condition and gender ($\chi2(6) = 3.98$, $p = .680$), political orientation ($\chi2(8) = 3.25$, $p = .918$), state ($\chi2(86) = 80.27$, $p = .654$), ethnicity ($\chi2(10) = 8.58$, $p = 0.57$) or education ($\chi2(12) = 17.54$, $p = .130$). These results suggest successful randomization, with key demographic variables being balanced across the experimental groups.

Descriptive Statistics

Descriptive statistics and correlations for variables are shown in Tables 1 and 2. The final sample included 510 participants with a median age of 44 (IQR: 31, 59). The majority were White (69%), followed by Black/African American (13%), Hispanic/Latin(o/a/x) (10%), Asian/Pacific Islander (3.5%), and Multi-Ethnic/Multi-Racial (3.9%). Over half of the sample identified as men (49%), while 50% identified as women. Those who identified as Non-Binary/Third Gender accounted for 0.4%, and participants who preferred not to say represented 0.2%. Regarding education, 9.6% received a high school diploma or GED, 16% had "some college" education, 50% held a bachelor's degree, and 13% had a graduate or professional degree. Politically, 15% identified as "very liberal," 30% as "somewhat liberal," 18% as "centrist," 24% as "somewhat conservative," and 12% as "very conservative." Compared to the

U.S. population, the current sample is around the same age range (the U.S. median age is 38.9) (US Census Bureau, 2022).

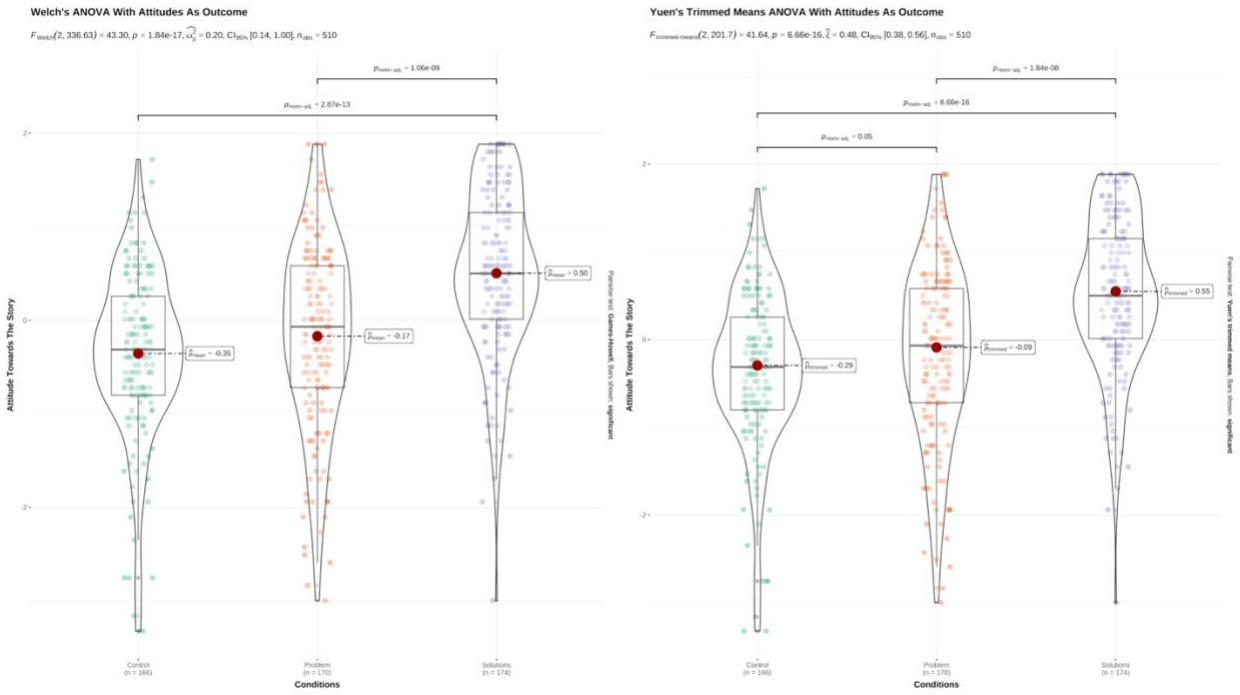
Testing Hypotheses 1- 3

Hypotheses 1 – 3 predicted that participants who read solution-oriented news stories will report 1) more favorable attitudes toward the news article, 2) higher levels of positive affect, and 3) lower levels of negative affect than participants who read problem-oriented news stories and control stories. To test these hypotheses, Yuen's trimmed means ANOVA was conducted for each dependent variable: attitude towards the story, positive affect, and negative affect.

H1: Participants who read solution-oriented news stories will report more favorable attitudes toward the news article than participants who read problem-oriented and control news stories.

As seen in Figure 3, A Yuen's trimmed means one-way ANOVA revealed a significant difference in attitudes across the three conditions (Control, Problem, Solutions), $F(2, 201.7) = 41.64$, $p < .001$, $\xi^2 = 0.48$, 95% CI [0.38, 0.56]. Post-hoc comparisons indicated significant differences between all pairs of conditions (all ps < .05), with the Solutions condition ($M_{trimmed} = 0.55$) showing the highest attitudes, followed by the Problem condition ($M_{trimmed} = -0.09$), and the Control condition ($M_{trimmed} = -0.29$) showing the lowest attitudes. As a sensitivity analysis, a Welch's one-way ANOVA was conducted, which similarly revealed significant differences across conditions, $F(2, 336.63) = 43.30$, $p < .001$, $\xi^2 = 0.20$, 95% CI [0.14, 1.00], n = 510. Games Howell post-hoc comparisons showed significant differences between all condition pairs (all ps < .001), maintaining the same pattern of results as the Yuen's analysis.

Figure 3. *ANOVA for attitudes in animal waste pollution study 1*

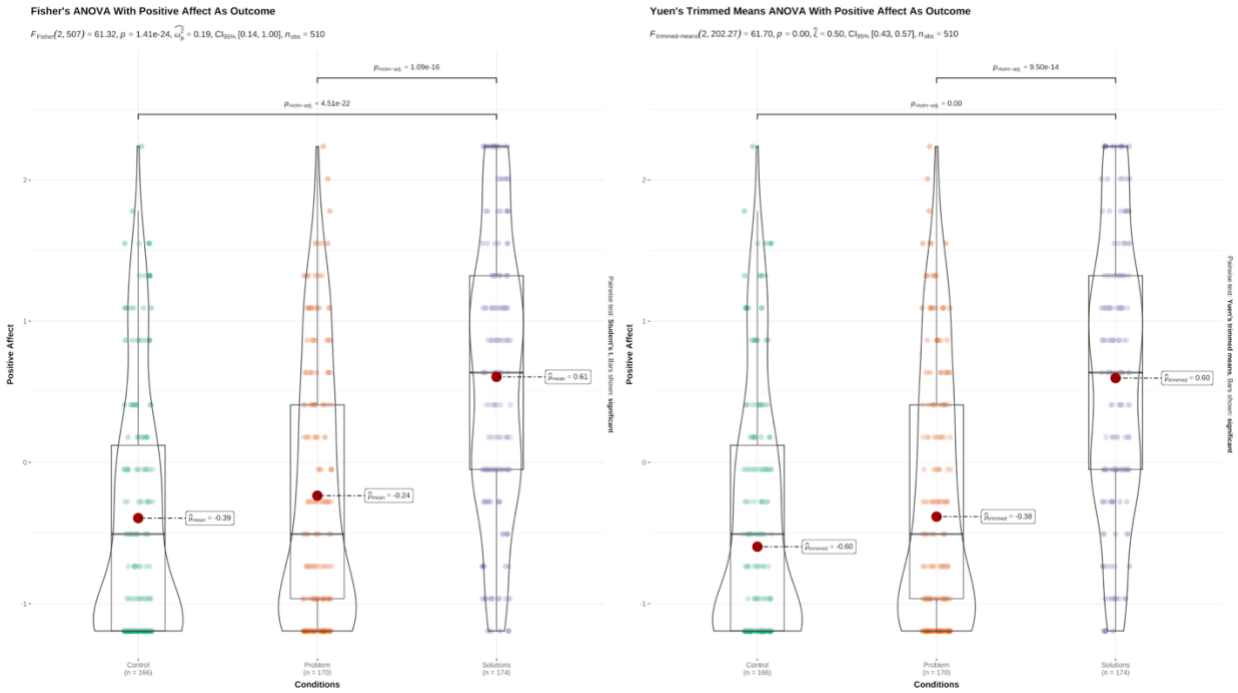


H2: Participants who read solution-oriented news stories will report higher levels of positive affect and lower levels of negative affect than participants who read problem-oriented and control news stories.

Similarly for second hypothesis (H2), A Yuen's trimmed means one-way ANOVA revealed a significant difference in Positive Affect across the three conditions (Control, Problem, Solutions), $F(2, 202.27) = 61.70$, $p < .001$, $\xi^2 = 0.50$, 95% CI [0.43, 0.57] (See figure 4). Post-hoc comparisons indicated significant differences between all pairs of conditions (all ps < .001), with the Solutions condition (M = 0.60) showing the highest positive affect, followed by the Problem condition (M = -0.38), and the Control condition (M = -0.60) showing the lowest positive affect. As a sensitivity analysis, a Fisher's one-way ANOVA was conducted, which similarly revealed significant differences across conditions, $F(2, 507) = 61.32$, $p < .001$, $\omega^2 = 0.19$, 95% CI [0.14, 1.00], n = 510. Games-Howell post-hoc comparisons again showed

significant differences between all condition pairs (all ps < .001), maintaining the same pattern of results as the Yuen's analysis.

Figure 4. *ANOVA for positive affect in animal waste pollution study 1*

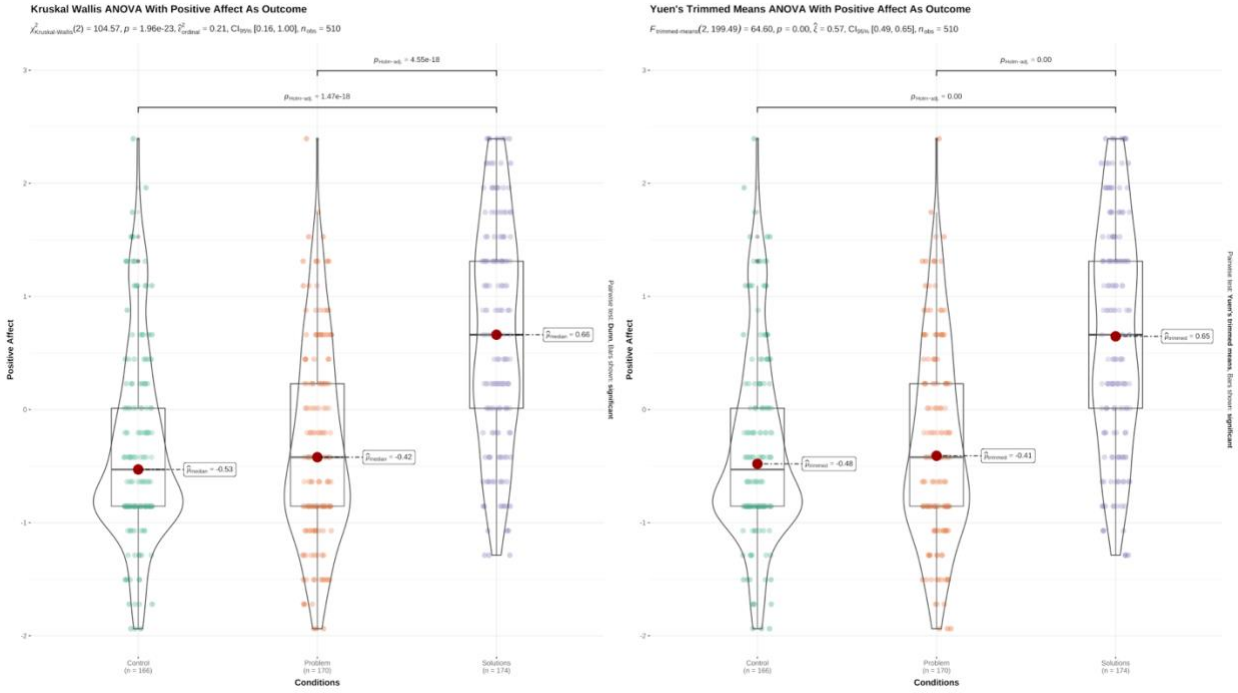


H3: Participants who read solution-oriented news stories will report lower levels of negative affect than participants who read problem-oriented news stories.

Finally, for the third hypothesis (H3), A Yuen's trimmed means one-way ANOVA revealed a significant difference in Negative Affect across the three conditions (Control, Problem, Solutions), $F(2, 182.03) = 12.21$, $p < .001$, $\xi^2 = 0.32$, 95% CI [0.18, 0.48] (See figure 5). Post-hoc comparisons indicated significant differences between all pairs of conditions (all ps < .001), with the Problem condition (M = -0.008) showing the highest negative affect, followed by the Control condition (M = -0.46), and the Solutions condition (M = -0.50) showing the lowest negative affect. As robustness check, a Welch's one-way ANOVA was conducted, which similarly revealed significant differences across conditions, $F(2, 335.7) = 8.69$, $p < .001$, $\omega^2 =$

0.04, 95% CI [0.01, 1.00], n = 510. Games-Howell Post-hoc comparisons again showed significant differences between all condition pairs (all ps < .001). Across H1 and H3, Yuen's test provided a similar *F* statistic to Fisher's ANOVA and both effect sizes were within similar ranges, indicating consistency across both tests despite their differences in handling outliers.

Figure 5. *ANOVA for negative affect in animal waste pollution study 1*



Testing Hypothesis 4-6: Serial Moderated Mediation Effects

To test hypotheses 4 -7 which are indirect effects of story conditions on outcomes (attitudes towards the story, pro-environmental behaviors, and news engagement), a serial moderated mediation analysis was conducted using Hayes PROCESS (Model 83) to examine the indirect effects of the story conditions on pro-environmental behavior through affective response (M1) and efficacy beliefs (M2), with issue importance as a moderator of affective response. The story conditions were dummy coded: X1 (1 = problem-oriented story, 0 = other conditions) and X2 (1 = solutions-oriented story, 0 = other conditions). Bias-corrected bootstrap confidence

intervals (5000 samples) were used to test the significance of the indirect effects. Two separate models were computed for self and collective efficacy beliefs, while maintaining positive affect as the first mediator (M1) and issue importance as the moderator. This allowed us to investigate whether the effects of story framing operate through different types of efficacy beliefs. PROCESS macro also divides the moderator values by the 16th, 50th, and 84th percentiles to allow for the examination of conditional effects. See Figures 6 to 8 for models of all the outcomes.

Outcome: Attitudes toward a news article

H4a: Efficacy beliefs mediate the effects of solution-oriented news stories attitudes toward a news article to the problem in the story.

H5a: Affect mediate the effects of solution-oriented news stories attitudes toward a news article to the problem in the story.

H7: As participants perception of issue importance increases, those who read solution-oriented news stories will report higher affect and by extension, efficacy beliefs compared to participants who read problem-oriented news stories.

Self-Efficacy Model: We conducted a serial moderated mediation analysis to examine the effects of story framing on attitudes toward the news story. The model included affective response (M1) and self-efficacy (M2) as mediators, with issue importance as a moderator. The model explained significant variance in positive affect ($R^2 = 0.29$), self-efficacy ($R^2 = 0.18$), and attitudes towards the story ($R^2 = 0.51$). Significant interactions between story framing and issue importance were found for both problem-oriented and solutions-oriented stories in predicting affective responses. For the indirect effects of positive affect (M1), the model showed significant moderated mediation for both problem-oriented (X1: Index = 0.09, 95% CI [0.01, 0.19]) and solutions-oriented (X2: Index = 0.14, 95% CI [0.03, 0.25]) stories through the affective response path. The indirect effects through self-efficacy alone were not significant for either the problem-

oriented (b = 0.0193, 95% CI [-0.0404, 0.0780]) or solutions-oriented (b = -0.0237, 95% CI [-0.0808, 0.0287]) stories.

For the serial moderated mediation through affective response and self efficacy, ***(Conditions X Issue Importance Interaction ≫ Positive Affect ≫ Self Efficacy ≫ Attitudes)***, the model showed significant indices of moderated mediation for both problem-oriented (X1: Index = 0.0172, 95% CI [0.0029, 0.0382]) and solutions-oriented (X2: Index = 0.0259, 95% CI [0.0081, 0.0528]) stories through the serial mediation path.

Collective Efficacy Model: We also conducted a serial moderated mediation analysis with affective response (M1) and collective efficacy (M2) as mediators, with issue importance as a moderator. The model explained significant variance in positive affect ($R^2 = 0.2930$), collective efficacy ($R^2 = 0.2165$), and attitudes towards the story ($R^2 = 0.494$). Significant interactions between story framing and issue importance were found for both problem-oriented and solutions-oriented stories in predicting affective responses.

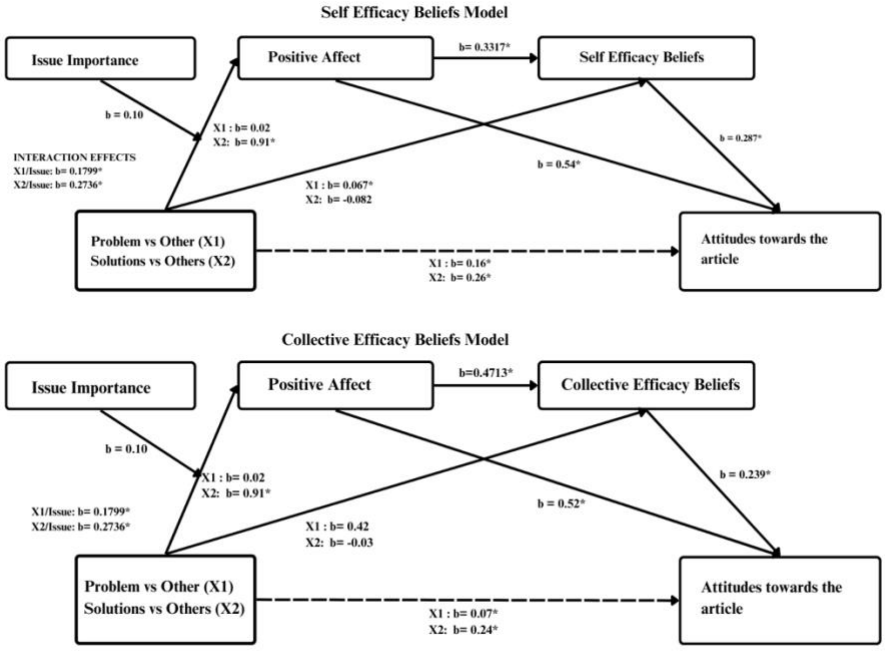
With regards to positive affect, the model showed significant indices of moderated mediation for both problem-oriented (X1: Index = 0.0938, 95% CI [0.0082, 0.1862]) and solutions-oriented (X2: Index = 0.1426, 95% CI [0.0382, 0.2503]) stories through the affective response path. The solutions-oriented story consistently showed stronger effects compared to the problem-oriented story, with the strength of relationships increasing as issue importance increased. The indirect effect through collective efficacy alone was significant for the problem-oriented story (beta = 0.1014, 95% CI [0.0544, 0.1718]) but not for the solutions-oriented story (beta = -0.0085, 95% CI [-0.0600, 0.0375]).

For the serial moderated mediation through affective response and collective efficacy, *(Conditions X Issue Importance Interaction ≫ Positive Affect ≫ Collective Efficacy ≫*

Attitudes), the model showed significant indices of moderated mediation for both problem-oriented (X1: Index = 0.0203, 95% CI [0.0040, 0.0447]) and solutions-oriented (X2: Index = 0.0309, 95% CI [0.0094, 0.0622]) stories through the serial mediation path. Again, the solutions-oriented story showed stronger effects, with the strength of relationships increasing as issue importance increased.

Notably, the indirect effects through positive affect alone were substantially larger than those through the serial path or collective efficacy alone, highlighting the important role of emotional responses in shaping attitudes towards news stories. Interestingly, the problem-oriented story had a unique direct effect through self and collective efficacy. While both showed positive directions, there was a significant relationship between the problem-oriented story condition and self-efficacy, but not for collective efficacy. This suggests different mechanisms may be at play depending on the story-framing approach.

Figure 6. *Serial mediation model predicting attitudes towards the story study 1*



Outcome: News Engagement

H4c: Efficacy beliefs mediate the effects of solution-oriented news stories on news engagement

H5c: Affect mediate the effects of solution-oriented news stories on news engagement.

H7: As participants perception of issue importance increases, those who read solution-oriented news stories will report higher affect and by extension, efficacy beliefs compared to participants who read problem-oriented news stories.

Self-Efficacy Model: A serial moderated mediation analysis was also conducted to examine the effects of story framing on news engagement. The model included affective response (M1) and self-efficacy (M2) as mediators, with issue importance as a moderator. The model explained significant variance in positive affect ($R^2 = 0.2943$), self-efficacy ($R^2 = 0.1886$), and news engagement ($R^2 = 0.2963$). Significant interactions between story framing and issue importance were found for both problem-oriented and solutions-oriented stories in predicting affective responses. For the indirect effects of positive affect (M1), the model showed significant indices of moderated mediation for both problem-oriented (X1: Index = 0.0275, 95% CI [0.0049, 0.0693]) and solutions-oriented (X2: Index = 0.0419, 95% CI [0.0107, 0.0899]) The solutions-oriented story consistently showed stronger effects compared to the problem-oriented story, with the strength of relationships increasing as issue importance increased. The indirect effects through self-efficacy alone were not significant for either the problem-oriented (Effect = 0.0297, 95% CI [-0.0659, 0.1178]) or solutions-oriented (Effect = -0.0364, 95% CI [-0.1219, 0.0467]) stories.

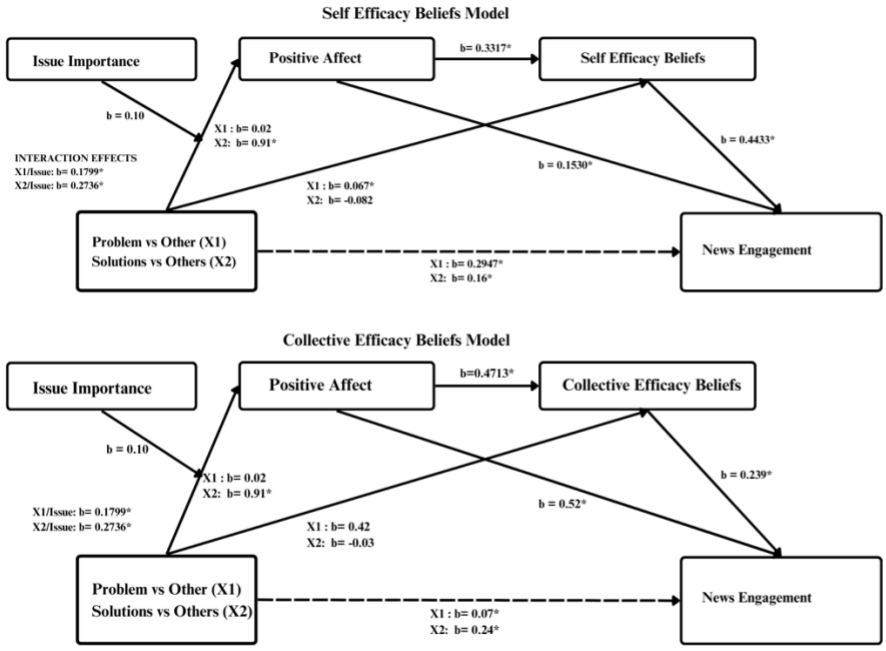
For the serial moderated mediation through affective response and self efficacy, ***(Conditions X Issue Importance Interaction ≫ Positive Affect ≫ Self Efficacy ≫ News Engagement),*** the model showed significant indices of moderated mediation for both problem-oriented (X1: Index = 0.0265, 95% CI [0.0045, 0.0570]) and solutions-oriented (X2: Index = 0.0402, 95% CI [0.0123, 0.0772]) stories through the serial mediation path. Again, the solutions-

oriented story showed stronger effects, with the strength of relationships increasing at incremental levels of issue importance

Collective Efficacy Model: Similarly, a serial moderated mediation analysis was conducted for the model with collective efficacy as one of the mediators. The model explained significant variance The model explained significant variance in positive affect ($R^2 = 0.2930$), collective efficacy ($R^2 = 0.2165$), and news engagement ($R^2 = 0.2014$). Significant interactions between story framing and issue importance were found for both problem-oriented and solutions-oriented stories in predicting affective responses. The interaction between story framing and issue importance explained an additional 1.15% of the variance in affective response ($\Delta R^2 = 0.0115$, $F(2, 503) = 4.11$, $p = .017$). For the indirect effects of positive affect (M1), the model showed significant indices of moderated mediation for both problem-oriented (X1) and solutions-oriented (X2) stories through the affective response path.

The indirect effect through collective efficacy alone was significant for the problem-oriented story (beta = 0.1214, 95% CI [0.0634, 0.1987]) but not for the solutions-oriented story (beta = -0.0102, 95% CI [-0.0708, 0.0452]). For the serial moderated mediation through affective response and collective efficacy ***(Conditions X Issue Importance Interaction ≫ Positive Affect ≫ Collective Efficacy ≫ News Engagement),*** the model showed significant indices of moderated mediation for both problem-oriented (X1: Index = 0.0243, 95% CI [0.0045, 0.0525]) and solutions-oriented (X2: Index = 0.0370, 95% CI [0.0117, 0.0728]) stories through the serial mediation path. Like previous findings, the solutions-oriented story consistently showed stronger effects, with the strength of relationships increasing as issue importance increased.

Figure 7. *Serial mediation model predicting news engagement study 1*



Outcome: Pro-environmental Behavioral intentions

H4b: Efficacy beliefs mediate the effects of solution-oriented news stories pro-environmental behavioral intentions.

H5b: Affect mediate the effects of solution-oriented news pro-environmental behavioral intentions.

H7: As participants perception of issue importance increases, those who read solution-oriented news stories will report higher affect and by extension, efficacy beliefs compared to participants who read problem-oriented news stories.

Self-Efficacy Model: I explored the indirect effects of the story conditions on pro-environmental behavior through affective response (M1) and self-efficacy (M2), with issue importance as a moderator of affective response. The model accounted for 29.42% of the variance in affective response ($R^2 = 0.29$), 18.87% of the variance in self-efficacy ($R^2 = 0.1886$), and 48.79% of the variance in pro-environmental behavior ($R^2 = 0.4879$). The interaction between story framing and issue importance explained an additional 1.15% of the variance in affective response ($\Delta R^2 = 0.0115$, $F(2, 503) = 4.10$, $p = 0.017$). The interaction between the

problem-oriented story and issue importance was significant (b = 0.1799, SE = 0.0845, 95% CI [0.0166, 0.3486]). Similarly, the interaction between the solutions-oriented story and issue importance was significant (b = 0.2736, SE = 0.1007, 95% CI [0.0709, 0.4692]). These interactions indicate that the effect of story framing on affective response varied depending on the level of issue importance.

For the indirect effects through affective response, the indexes of moderated mediation for both conditions were significant: problem-oriented story (X1): Index = 0.0275, SE = 0.015, 95% CI [0.0053, 0.0669], solutions-oriented story (X2): Index = 0.0420, SE = 0.0203, 95% CI [0.0102, 0.0921]. For the serial moderated mediation effects through affective response and self-efficacy ***(Conditions X Issue Importance Interaction ≫ Positive Affect ≫ Self Efficacy ≫ Pro-environmental Behavioral intentions),*** both the indices of moderated mediation for the problem-oriented story (X1: index = 0.0334, SE = 0.0165, 95% CI [0.0051, 0.0699]) and solutions-oriented story (X2: index= 0.0508, SE = 0.0205, 95% CI [0.0146, 0.0953]) were significant, providing evidence for a serial moderated mediation. However, only the solutions-oriented story had significant relative conditional effects across levels of issue importance. For the solutions-oriented story (X2), the conditional indirect effects at low issue importance (b = 0.1307, SE = 0.0284, 95% CI [0.0837, 0.1959]), at moderate issue importance (b = 0.1903, SE = 0.0350, 95% CI [0.1305, 0.2688]), and high issue importance (b = 0.2385, SE = 0.0491, 95% CI [0.1560, 0.3500]). The problem-oriented was not significant (b = 0.0248, SE = 0.0171, 95% CI, [-0.0051, 0.0631].

Collective Efficacy Model: Similarly, a serial moderated mediation analysis was conducted for the model with collective efficacy as one of the mediators. The model accounted for 29.42% of the variance in affective response ($R^2 = 0.29$, $F(6, 503) = 34.74$, $p < .0001$),

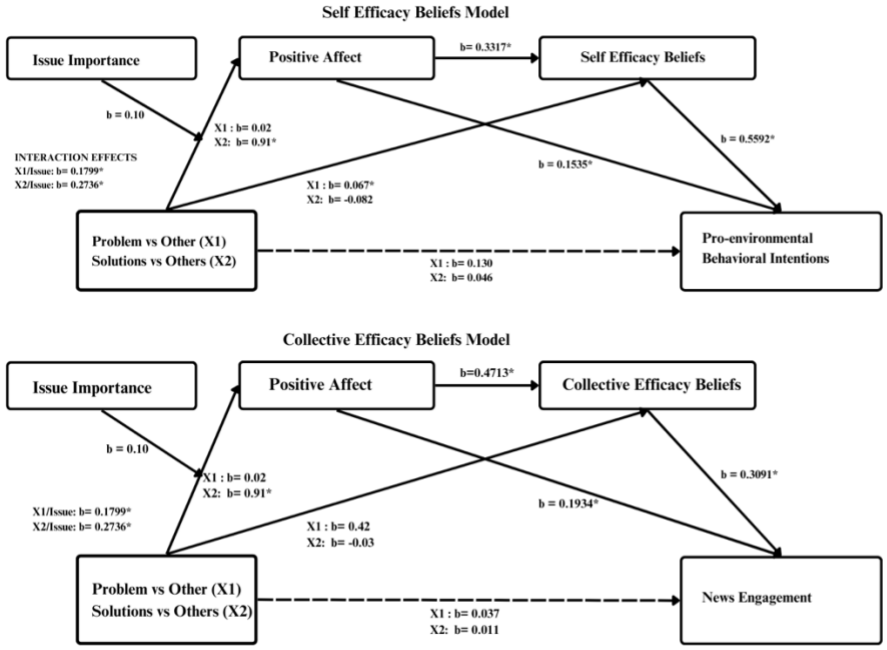
21.50% of the variance in collective efficacy ($F(4, 505) = 34.89$, $p < .001$, $R2 = 0.22$), and 30.64% of the variance in pro-environmental behavior ($R^2 = 0.3064$, $F(5, 506) = 44.7094$, $p < .0001$). The interaction between story framing and issue importance explained an additional 1.15% of the variance in affective response ($\Delta R^2 = 0.0115$, $F(2, 503) = 4.11$, $p = .017$).

For the mediation paths predicting affective response, there were significant main effects for story conditions. The interaction between the problem-oriented story and issue importance was significant (b = 0.1799, SE = 0.0845, 95% CI [0.0197, 0.3487]). Similarly, the interaction between the solutions-oriented story and issue importance was significant (b = 0.2732, SE = 0.1007, 95% CI [0.0741, 0.4726]). These interactions indicate that the effect of story framing on affective response varied depending on the level of issue importance. For the indirect effects of M1 (affective response), the index of moderated mediation for the problem-oriented story (X1) was significant (Index = 0.0348, SE = 0.0191, 95% CI [0.0064 0.0842]). For the solutions-oriented story (X2), the index of moderated mediation was also significant (Index = 0.0529, SE = 0.0253, 95% CI [0.0131, 0.1147]).

For the indirect effects of M1-M2 (affective response to collective efficacy), both the problem-oriented story (X1) and solutions-oriented story (X2) showed significant indices of moderated mediation. For X1, the index was 0.026, SE = 0.0130, 95% CI [0.0045, 0.0556]). For X2, the index was 0.0399, SE = 0.0166, 95% CI [0.0121, 0.0782]). For the serial moderated mediation through affective response and collective efficacy *(Conditions X Issue Importance Interaction ≫ Positive Affect ≫ Collective Efficacy ≫ Pro-environmental Behavioral intentions)*, both the indices of moderated mediation for the problem-oriented story (X1) and solutions-oriented story (X2) were significant, providing evidence for a serial moderated mediation. However, like the self-efficacy model, only the solutions-oriented story had

conditional effects across levels of issue importance. For the solutions-oriented story (X2), the conditional indirect effects were: at low issue importance (b = 0.1026, SE = 0.0251, 95% CI [0.0611, 0.1625]), at moderate issue importance (b = 0.1495, SE = 0.0316, 95% CI [0.0971, 0.2263]), and high issue importance (b = 0.1873, SE = 0.0429, 95% CI [00.1181, 0.2909]). Like the self-efficacy model, The problem-oriented was not significant (b= 0.0294, SE = 0.0199, 0.0171, 95% CI, [-0.0050, 0.0737].

Figure 8. *Serial mediation model predicting pro-environmental intentions study 1*



Discussion (STUDY 1)

The objective of this chapter was to explore the postulations of the Response Integrative Framework (RIF), which proposes a theoretical model for how solutions journalism influences audience outcomes through various moderating and mediating processes. This framework was examined within the context of climate change, specifically focusing on animal waste pollution, an often-overlooked yet significant contributor to climate change effects (Godde et al., 2021).

Agricultural waste, particularly from industrial livestock operations, represents a substantial source of greenhouse gas emissions, with manure and enteric fermentation accounting for a considerable portion of methane emissions (Center for Biological Diversity, 2024; EPA, 2024). The role of environmental journalism is particularly significant in this context, as news media serves as a primary channel through which Americans seek information about climate change threats and opportunities.

The findings in this first study suggest that solutions news story framing shapes audience responses through distinct psychological pathways, with solutions-oriented stories generally demonstrating stronger effects than problem-oriented stories. This relationship was consistently moderated by issue importance – the higher the perceived importance of the issue, the stronger the impact of the story orientation. The analyses revealed that story framing primarily influenced outcomes through affective responses, either directly or through a serial pathway leading to efficacy beliefs. The role of efficacy beliefs (both self and collective) varied across outcomes. While solutions-oriented stories showed stronger effects through the affective pathway, problem-oriented stories uniquely influenced outcomes through collective efficacy for all outcomes.

Finally, the consistent significance of the positive affective pathway across all analyses - whether examining pro-environmental behavioral intentions, news engagement, or attitudes toward the story - highlights the essential role of emotional responses in mediating the relationship between story framing and outcomes. This emotional pathway appeared particularly potent when the issue was perceived as highly important, suggesting that affective engagement may be a key mechanism through which news stories influence audience responses to environmental issues. In all, the first study provides broad support for the Response Integrative Framework, such that solutions journalism stories on animal waste pollution can positively

influence important cognitive and behavioral outcomes beneficial to journalism and of civic importance. However, climate change issues are just one of the many topics that are impacting people's livelihoods. Another issue of concern is public health, specifically cancer prevention. In the next chapter, I explore if the Response Integrative Framework holds within this different yet nuanced topical context.

CHAPTER 5

STUDY 2: CANCER PREVENTION

This chapter replicates Study 1 but in a cancer prevention context. It outlines the research participants, measures, data analysis, results, and contextual discussions addressing the hypotheses. First, it is important to understand the context of cancer and its pertinence as a topic for exploring the effects of solutions journalism on cognitive and civic outcomes.

Study Context

Cancer in the United States

Cancer remains one of the most significant public health challenges in the United States with devastating personal impacts and substantial societal costs. According to the American Association for Cancer Research**,** approximately two million new cancer (all types combined) cases have been diagnosed in 2024, with 611,720 cancer-related deaths already recorded at the time of writing this dissertation (American Association for Cancer Research, 2024).The economic implications of cancer further underscore the urgency of addressing this crisis. With annual costs projected to reach $5.3 trillion (about $16,000 per person in the US) over the next three decades in the United States (Chen et al., 2023), cancer places an enormous burden on healthcare systems, insurance providers, and individuals. This financial strain extends beyond direct medical costs to include lost productivity, reduced quality of life, and increased family caregiving responsibilities(Chen et al., 2023). Early detection through regular screening presents a crucial opportunity for intervention, particularly for cancers such as breast, cervical, and colorectal cancer, where early treatment can significantly improve outcomes (Shih et al., 2022). Although there has been a decline in cancer rates over decades, attributable to better detection techniques and increased preventive behavior like reduced smoking among the general

population, progress has been only in certain types of cancer with others on the rise (American Association for Cancer Research, 2024). Also, participation rates in preventive programs remain suboptimal across many demographic groups, specifically, underserved and marginalized groups (American Association for Cancer Research, 2024). This is further exacerbated by systemic factors like inequities in access to preventive care and treatments. The American Association for Cancer Research noted that "many segments of the U.S. population experience stark inequities in the cancer burden" (American Association for Cancer Research, 2024, para 1).

Studying the news coverage of cancer provides a compelling window into how the news media can shape both individual health decisions and broader policy responses to public health challenges like cancer. Given cancer's widespread impact and the existence of evidence-based prevention and treatment strategies, examining how journalists frame cancer stories –whether through a traditional problem-focused lens or solutions journalism approaches – can shed light on effective health communication approaches. Research in this area can help identify best practices for engaging audiences while avoiding both fatalism and false hope. By studying how journalists cover these proven interventions, researchers can better understand how solutions-oriented reporting might help bridge the gap between existing evidence-based practices and public engagement with them. This is especially relevant given that many cancer prevention/management solutions require both individual behavior change and systemic policy reforms (Chang, 2016; Klein et al., 2021).

Thus, like in the first study, it is hypothesized that exposure to solution-oriented news story, compared to the problem-oriented story, will generate more favorable attitudes toward the news article, while fostering higher positive and low negative affect among participants. These relationships are expected to operate through two primary mediating mechanisms: efficacy

beliefs and affect, which are hypothesized to influence various outcomes including attitudes, news engagement, and behavioral intentions. Additionally, the study proposes that the magnitude of these effects will be moderated by participants' perception of issue importance, with stronger effects anticipated when the issue is perceived as more significant.

Methods

Measures

The measures were adapted to the specific domain of interest (cancer prevention). The measured variables are as follows:

Issue Importance: Issue importance were measured using an adapted scale from Robison, (2021) as well as Vidigal and Jerit (2022) which asked respondents “How important is cancer to you personally? Participants rated their response on a 5-point Likert scale 1 (not at all) to 5 (extremely important).

Attitudes towards the news article: Following McIntyre (2019), the study employed an adapted measure from Kalyanaraman & Ivory (2009) will ask participants to rate their agreement with 15 adjectives like “engaging, enjoyable, well written, etc. Responses are on a 5-point scale (Strongly Agree to Strongly Disagree). The items were summed to create an index. ($\alpha = .95$)

Behavioral Intentions: Intention to engage in Cancer prevention behavior was adapted from Coleman et al., (2022). A 7-item scale measuring participants' likelihood to engage in various cancer-related actions (e.g., "Support efforts the story described to support cancer patients," "Vote for elected officials who support this kind of cancer-related initiative") rated on a 7-point scale from 1 (Extremely Unlikely) to 7 (Extremely Likely). ($\alpha = .91$)

News Engagement: News engagement was measured using a measure by Lu & Luqiu, (2020) and was assessed using two items measuring the likelihood to "Share the article on social media"

and "Read more articles from the author/news platform" rated on a 5-point scale from 1 (Extremely unlikely) to 5 (Extremely likely). The items were summed to create an index (*Pearson's r* = .66)

Affect: Affect is both a mediating and outcome variable. Affect was measured using the Holistic Unipolar Discrete Evaluative Scale (HUE) adapted from Peters & Slovic (2007). The scale comprises 10 items concerning the story they read. The five positive HUE measures were "happy," "friendly," "enthusiastic," "love," and "excited" (α = .93). The negative HUE measures were "upset, angry," "annoyed," "disgusted," and "afraid." (α = .86). Responses ranged from Likert (1 = does not apply/describe to 4 = completely describes). For the mediation analysis, I followed previous research (Maduneme & Cohen, 2024; Silverstein et al., 2023), to reverse code the negative measures and all 10 items were summed to create a positive affect index (α = .85)

Self-efficacy: An adapted scale was employed to measure self-efficacy (Huang, 2016; Maduneme, 2024; Maduneme & Cohen, 2024) (e.g., "My actions can contribute to enhancing cancer prevention," "I have the ability to take action to improve cancer prevention") rated on a 7-point scale from 1 (Strongly Disagree) to 7 (Strongly Agree) (α = .83).

Collective Efficacy: This will be operationalized using an adapted measure by Chen (2015). It is a 3-item self-reported measure scored on a 7-point rating scale (1 = strongly disagree, 7 = strongly agree). (e.g., "I am sure that we can achieve progress because we are all pulling in the same direction to address cancer," "I am certain that we will find ways to turn cancer around" One item was dropped to improve the reliability of the scale. The remaining items were then summed to create an index (α = .78).

Demographic information, such as political affiliation (ranging from Very Liberal to Very Conservative), age, gender, educational background, and racial/ethnic background, was collected for this study. Age was assessed by asking, "How old are you right now? Please respond in whole numbers (e.g., 12, 45, 32)." Gender was determined using the question: " What gender best describes you?" Participants were presented with five options (Binary/Third gender, Man, Woman, Prefer not to say, and Prefer to self-describe). Educational background was evaluated with the question: "What is the highest level of education that you have completed (No high school, Graduated high school/ GED, Some college, Associate's degree, Bachelor's degree, Graduate or professional degree)?" Racial/ethnic background was ascertained by asking, "What is your ethnicity?" Participants had the following options: Native American/American Indian, Black/African American, Hispanic/Latin(o/a/x), White, Asian/Pacific Islander, More than one.

Diagnostics

Several data quality checks were performed to ensure the integrity of the dataset. The analysis of duration outliers revealed 13 observations that fell outside the range of +3 standard deviations and -1.5 standard deviations from the mean for the duration of minutes spent. This asymmetric range was chosen to account for the typically positively-skewed nature of duration data (Letué et al., 2018). In terms of participant attention, 44 participants failed the embedded attention check, which required selecting a specific option based on survey instructions. While these participants were retained in the dataset, their responses were flagged for potential consideration in sensitivity analyses. Response pattern analysis identified 38 cases of Straight lining behavior on the affect scale, where participants provided identical responses for both positively and negatively worded items. These responses were marked as potentially low-quality data points and warranting careful consideration in subsequent analyses. Two observations

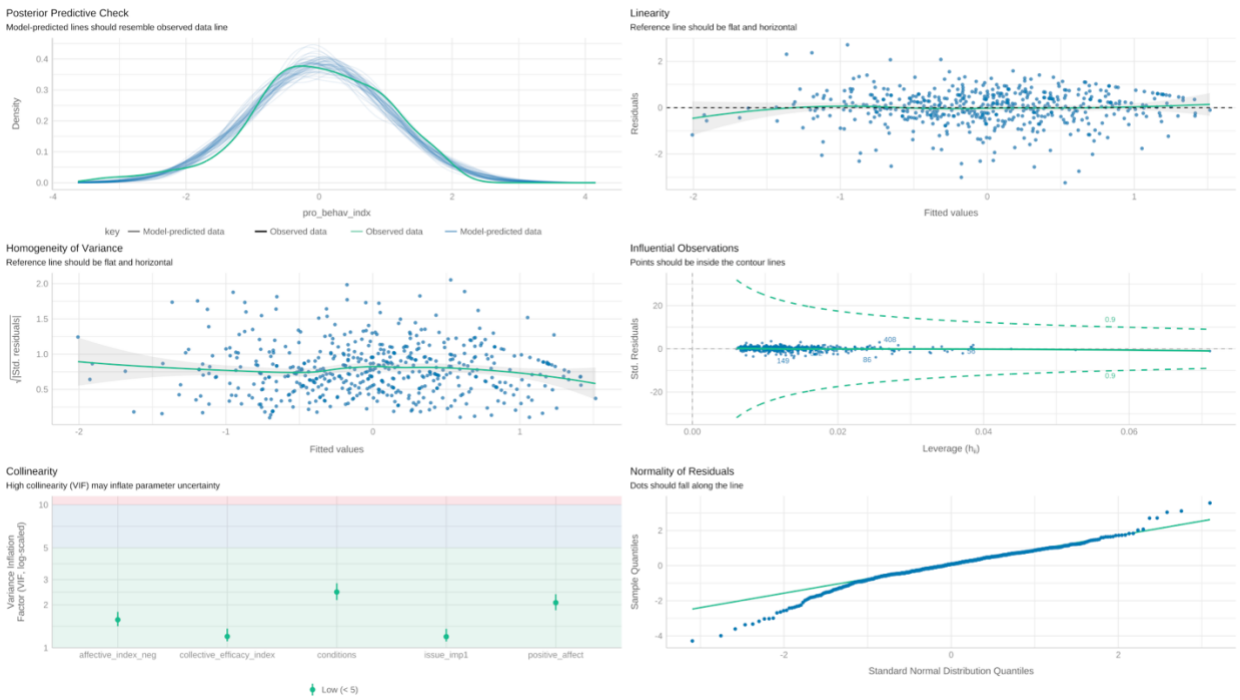
notably triggered concerns across multiple quality indicators, failing two out of the three data quality checks and therefore, we removed from the analysis.

Data Quality: The dataset initially exhibited missing values at approximately 14% of the data, with individual items showing missing rates below 8%. To address this, A mode imputation was implemented, resulting in a complete dataset of 511 observations, an increase from the original range of 503-510 observations. Post-imputation analysis revealed minimal impact on the data's statistical properties: means and standard deviations showed negligible changes, while the overall shape of the distributions, as measured by skewness and kurtosis, remained largely unchanged. Percentile analysis further confirmed the preservation of the original data structure, with most percentiles either maintaining their original values or showing only minor shifts. The consistency of these results across all variables suggests that the imputation procedure was successful in preserving the underlying data characteristics while effectively addressing the missing value issue without introducing significant statistical bias.

Assumption Checks: General Linear Model assumptions were checked by regressing pro-environmental behavioral intentions variable on all key continuous variables in the dataset (See Figure 9). The posterior predictive check demonstrated good alignment between model-predicted and observed data distributions. Examination of linearity through residual plots revealed a relatively flat reference line with residuals randomly scattered around zero, though with some minor deviations at the extremes of the fitted values. The homogeneity of variance assumption was assessed through a spread-location plot, which showed generally consistent variance across the range of fitted values, with only slight heteroscedasticity at higher values. Multicollinearity diagnostics indicated acceptable Variance Inflation Factors (VIF) for all predictors, with values falling below the critical threshold of 5, suggesting minimal multicollinearity concerns. The

normality of residuals, as depicted in the Q-Q plot, showed generally good adherence to the expected distribution, with some minor deviations in the tails but no severe violations that would compromise the model's validity. The influential observations analysis revealed no significant outliers beyond the standard Cook's distance boundaries, indicating that no single observation unduly influenced the model's estimates. Overall, while some minor deviations from ideal conditions were observed, the diagnostic analyses suggest that the assumptions underlying the general linear model were reasonably met, supporting the validity of the statistical inferences drawn from the analysis. Using Mahalanobis distance with a threshold of 20, two multivariate outliers were identified for the whole model.

Figure 9. *Model assumptions for all variables in cancer prevention study 2*



Statistical Analytical Strategy

Instead of removing outliers, robust statistical methods were used to minimize their impact on the analyses. For hypotheses H1 to H3, Yuen's trimmed means ANOVA was

conducted for each dependent variable: attitude towards the story, positive affect, and attitude towards the solutions. Yuen's trimmed means ANOVA is a robust alternative to the traditional F-test, particularly when data might violate normality assumptions or contain outliers (Velina et al., 2016; Yuen & Dixon, 1973). By removing a specified percentage of the highest and lowest values (typically 20%) before calculating the means, this method minimizes the influence of extreme scores while preserving the original sample size.

Similar to the first study, all moderated mediation analyses (H4-H7) used Hayes' PROCESS macro (Models 6 & 83) (Hayes, 2022). Furthermore, to enhance the robustness of the mediation analyses, a bootstrapping approach was employed. Bootstrapping is a non-parametric resampling technique that involves repeatedly sampling from the original dataset with replacement to create multiple simulated datasets. This method provides a robust estimate of the sampling distribution and confidence intervals for the indirect effects, making it less sensitive to departures from normality and the presence of outliers. By using Yuen's trimmed means ANOVA and bootstrapping in the mediation analyses, the study aimed to obtain accurate and reliable results while preserving the original sample and mitigating the influence of extreme cases. All mediation analyses controlled for political affiliation.

Results

Manipulation checks were conducted to determine whether participants perceived the story conditions as intended. The extent to which participants viewed the story as solutions-oriented was assessed using an item adapted from McIntyre (2019), rated on a 5-point Likert scale from strongly disagree to strongly agree. Due to violations of homogeneity of variance, as indicated by Levene's test (F (2, 508) = 25.04, $p < .001$), a Kruskal-Wallis test was conducted to examine differences in manipulation check scores across three conditions (Control, Problem, and

Solutions). As expected, the test revealed a statistically significant difference between conditions, ($\chi^2(2) = 252.08$, $p < .001$, $\varepsilon^2 = .49$), indicating a large effect. Participants in the solutions condition agreed most strongly that the story was solutions-oriented followed by those in the control condition and lastly those in the problem condition. Dunn's post-hoc pairwise comparisons with Holm's pvalue adjustment for multiple comparisons showed that participants in the solutions condition (Mdn = 6.00) rated the story as significantly more solutions-oriented than those in both the problem condition (Mdn = 2.00, $p < .001$) and the control condition (Mdn = 3.00, $p < .001$) These results indicate the story frames effectively manipulated participants' perceptions as intended.

Randomization Checks

Randomization checks were conducted to ensure equivalent distribution of demographic characteristics across experimental conditions. Chi-square tests revealed no significant differences in the distribution of gender ($\chi^2(6) = 6.43$, $p = .377$), political orientation ($\chi^2(8) = 1.89$, $p = .984$), geographic location by state ($\chi^2(90) = 83.57$, $p = .670$), education level ($\chi^2(12) = 14.33$, $p = .280$), or ethnicity ($\chi^2(10) = 10.87$, $p = .370$) across conditions. These results suggest successful randomization, with demographic characteristics being similarly distributed across experimental conditions.

Descriptive Statistics

Descriptive statistics and correlations for variables are shown in Tables 3 and 4. The final sample included 511 participants with 40% aged 50-60+, followed by 30-39 (22%), 18-29 (20%), and 40-49 (18%). The majority were White (69%), followed by Hispanic/Latin(o/a/x) (26%), Asian/Pacific Islander (2.5%), Native American/American Indian (1.0%), and Multi-Ethnic/Multi-Racial (0.8%). The gender distribution was nearly equal, with 50% identifying as

women and 49% as men. Those who identified as Non-Binary/Third Gender accounted for 0.4%, and participants who preferred not to say represented 0.2%. Regarding education, the majority held a Bachelor's degree (41%), while 18% had a graduate or professional degree, another 18% had some college education, 14% held an Associate's degree, and 9% graduated high school or earned a GED. A small percentage had some high school (0.4%) or no high school education (0.8%). Politically, 31% identified as "somewhat liberal," 22% as "somewhat conservative," 20% as "centrist," 19% as "very liberal," and 9.4% as "very conservative." The sample's diverse age distribution, with 40% in the 50-60+ range, suggests a slightly older demographic compared to the U.S. median age of 38.9 years (US Census Bureau, 2022).

Testing Hypotheses 1- 3

H1: Participants who read solution-oriented news stories will report more favorable attitudes toward the news article than participants who read problem-oriented and control news stories.

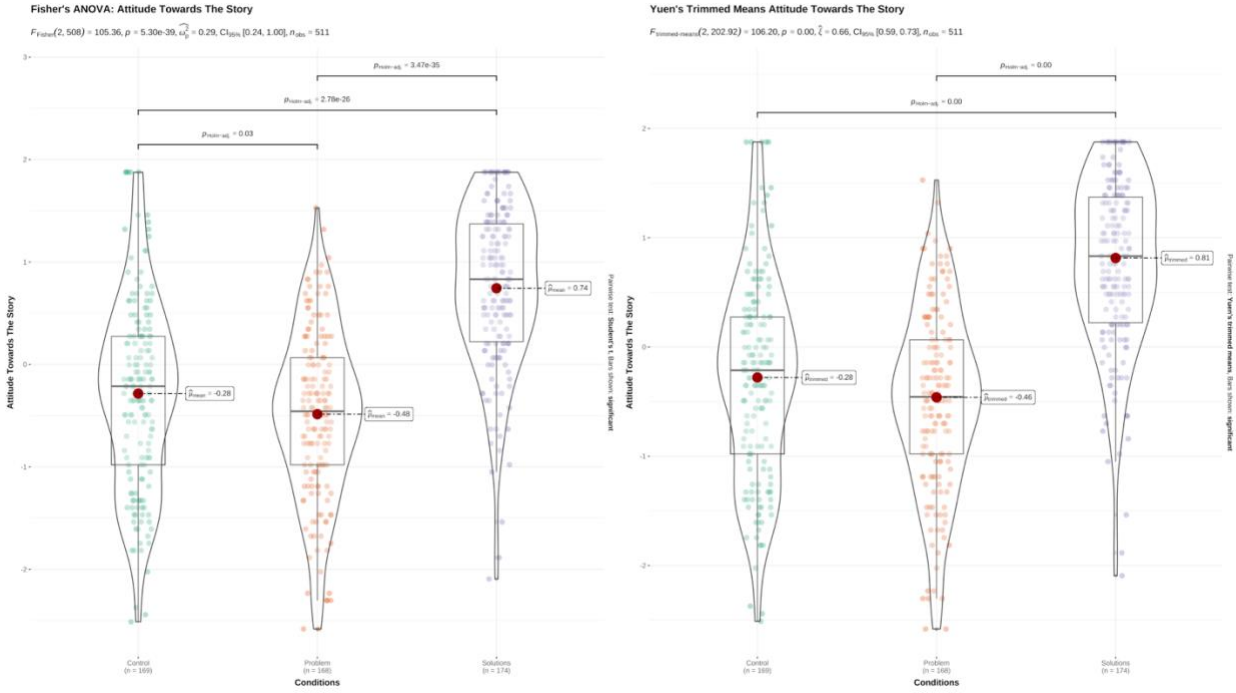
To test hypotheses H1 to H3, Yuen's trimmed means ANOVA was conducted for each dependent variable: attitude towards the story, positive and negative affect. Yuen's trimmed means ANOVA is a robust alternative to the traditional F-test, particularly when data violate normality assumptions or contain outliers. By removing a specified percentage of the highest and lowest values (typically 20%) before calculating the means, this method minimizes the influence of extreme scores (Keselman et al., 2002; Velina et al., 2016; Yuen & Dixon, 1973).

For the first hypothesis (H1), Levene's test of equality of variance showed no significant differences in variance between the groups, $F(2, 508) = 2.02$, $p = .134$, indicating that the assumption of homogeneity of variance was met. A robust one-way Yuen's trimmed means test was conducted to examine the effect of story conditions on attitudes toward the story, revealing significant differences between conditions ($F(2, 202.92) = 106.20$, $p < .001$, $\xi = 0.66$, 95% CI [0.60, 0.72]) (See Figure 10). Post-hoc comparisons using Games-Howell tests showed that

participants in the solutions condition ($M_{trimmed}$ = 0.81) reported significantly more positive attitudes compared to both the problem condition ($M_{trimmed}$ = -0.46) and the control condition ($M_{trimmed}$ = -0.28). The control condition also demonstrated significantly more positive attitudes than the problem condition ($p < .001$).

A model comparison approach was employed to assess the robustness of the analysis method. While both the Yuen's trimmed means test and Fisher's ANOVA detected significant differences (Fisher's ANOVA: *F(2, 508)* = 105.36, $p < .001$, $\eta 2 = 0.29$, 95%CI [0.24, 1.00]), the Yuen's test provided a similar *F* statistic to Fisher's ANOVA and both effect sizes were within similar ranges, indicating consistency across both tests despite their differences in handling outliers.

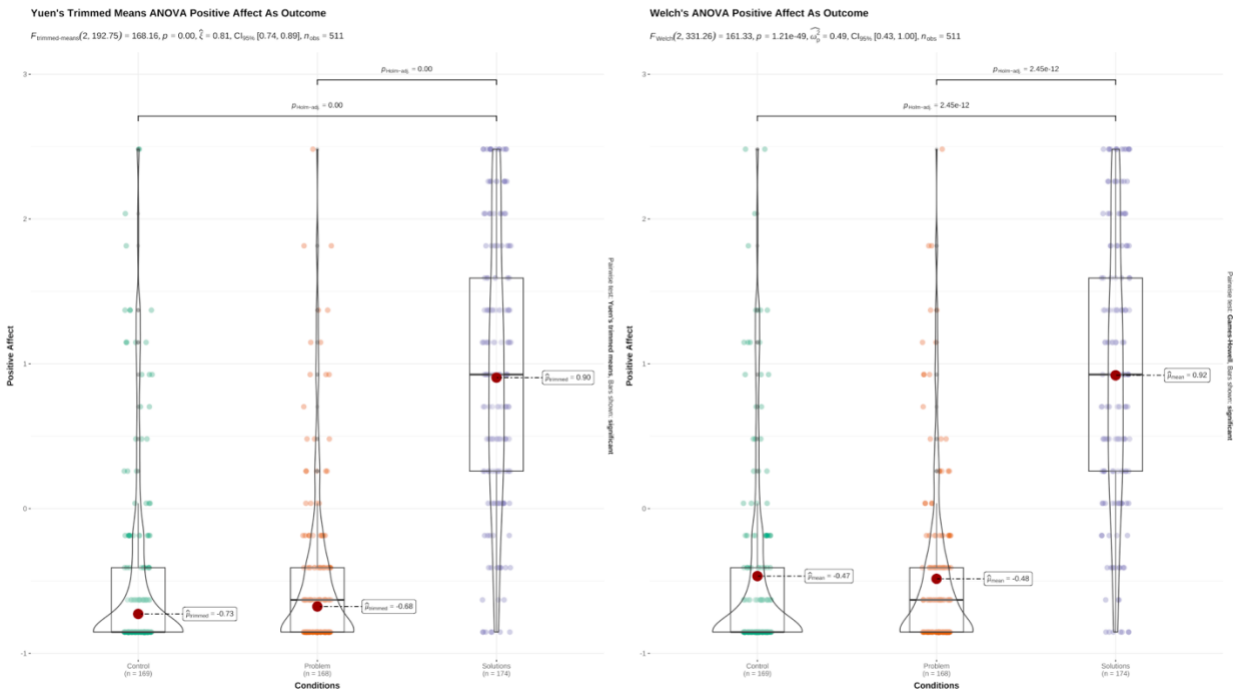
Figure 10. *ANOVA for attitudes in animal waste pollution study 2*



H2: Participants who read solution-oriented news stories will report higher levels of positive affect than participants who read problem-oriented and control news stories.

Homogeneity of variance violated as shown by Levene's test ($F(2, 508) = 26.33$, $p < .001$). The Yuen's trimmed means test revealed significant differences in attitudes toward the story between conditions ($F_{trimmed}(2, 192.75) = 168.16$, $p < .001$, $\xi = 0.82$, 95% CI [0.74, 0.88], n = 511). Post-hoc comparisons with Holms pvalue correction showed that participants in the Solutions condition ($M_{trimmed} = 0.90$) reported significantly more positive attitudes compared to both the Problem ($M_{trimmed} = 0.68$, $p < .001$) and Control conditions ($M_{trimmed} = 0.73$, $p < .001$), while the Control and Problem conditions showed no significant difference (See Figure 11). A sensitivity analysis using the Kruskal-Wallis test corroborated these findings ($\chi^2(2) = 226.20$, $p = 7.59e\text{-}50$, $\varepsilon^2_{ordinal} = 0.44$, 95% CI [0.39, 1.00]), lending additional support to the robustness of the observed effects.

Figure 11. *ANOVA for positive affect in animal waste pollution study 2*

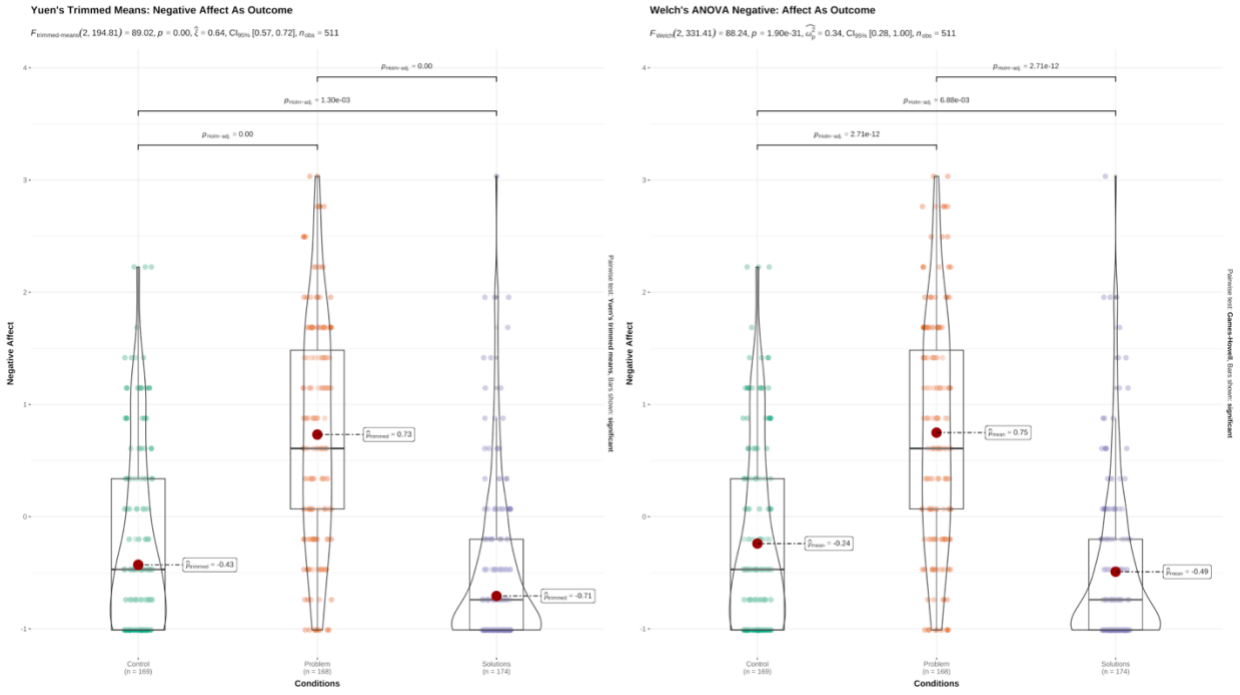


H3: Participants who read solution-oriented news stories will report less negative affect than participants who read problem-oriented news stories

Initial testing revealed significant heterogeneity of variance, as shown by Levene's test ($F(2, 508) = 16.67$, $p < .001$). The Yuen's trimmed means test revealed significant differences in Negative Affect between conditions ($F_{trimmed}(2, 194.81) = 89.02$, $p < .001$, $\xi = 0.64$, 95% CI [0.57, 0.72], n = 511). Post-hoc comparisons indicated that participants in the Problem condition reported significantly higher Negative Affect ($M_{trimmed} = 0.73$) compared to both the Control condition ($M_{trimmed} = -0.43$, $p < .001$) and Solutions condition ($M_{trimmed} = -0.71$, $p < .001$). Additionally, the Control condition showed significantly higher Negative Affect than the Solutions condition ($p < .001$) (See Figure 12). A sensitivity analysis using Welch's ANOVA corroborated these findings ($F(2, 331.41) = 88.24$, $p = 1.90e-31$, $\omega^2 = 0.34$, 95% CI [0.28, 1.00]).

Across H1 and H3, Yuen's test provided a similar *F* statistic to Fisher's ANOVA and both effect sizes were within similar ranges, indicating consistency across both tests despite their differences in handling outliers.

Figure 12. *ANOVA for negative affect in animal waste pollution study 2*



Outcome: Attitude towards the news article

It is imperative to reiterate the moderated and mediational hypotheses with regards to the first outcome (attitude towards the news article) as follows:

H4a: Efficacy beliefs mediate the effects of solution-oriented news stories on attitudes toward a news article to the problem in the story.

H5a: Affect mediate the effects of solution-oriented news stories on attitudes toward a news article to the problem in the story.

H6a: Affect mediates the effects of solution-oriented news stories on efficacy beliefs

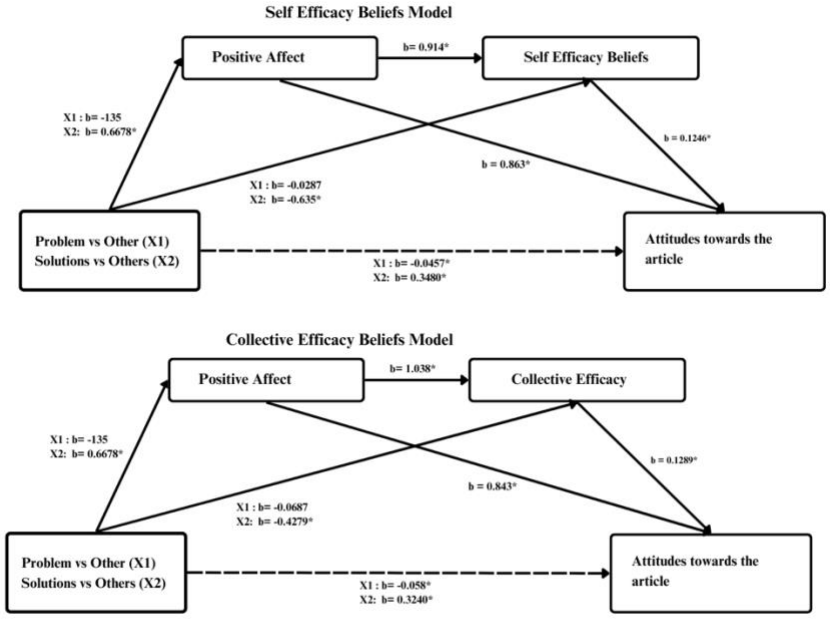
H7: As participants' perception of issue importance increases, those who read solution-oriented news stories will report a higher affect than those who read problem-oriented and control news stories.

Two serial moderated mediation analyses were conducted using Hayes PROCESS (Model 83) to examine the indirect effects of the story conditions on all outcomes through affective response and self and collective efficacy, with issue importance as a moderator of affective response. The first focused on self-efficacy as one of the mediators and the second on collective efficacy as one of the mediators. The story conditions were dummy coded: X1 (1 = problem-oriented story, 0 = other conditions) and X2 (1 = solutions-oriented story, 0 = other conditions). 95% Bias-corrected bootstrap confidence intervals (5000 samples) were used to test the significance of the indirect effects. Political affiliation was included as the only covariate.

The indirect paths predicting the interaction between issue importance and affective response and the serial moderated mediation effects through affective response and self-efficacy all had no significant index of moderation for both solutions and problem-oriented stories. This suggests no evidence for serial moderated mediation. **Therefore, Hypothesis 7 was not support**

and the moderator, issue importance, was dropped from the model. See Figure 13 to 15 for full paths of all outcomes respectively.

Figure 13. *Serial mediation model predicting attitudes towards the story Study 2*



Serial Mediation Effects for Attitudes Towards the News Article

Self Efficacy: A serial mediation model was then computed with attitudes towards story as the outcome on Hayes PROCESS (Model 6) ***(Conditions X ≫ Positive Affect ≫ Self Efficacy ≫ Attitudes)***. For the model with self-efficacy as one of the mediators, the model explained around 47% of the variance in affective response ($R^2 = 0.4651$, $F(3, 507) = 146.9319$, $p < .0001$). It also accounted for 9.74% of the variance in self-efficacy ($R^2 = 0.0974$, $F(4, 506) = 13.6433$, $p < .0001$). Finally, for attitudes, the model explained 49.18% of the variance ($R^2 = 0.4918$, $F(5, 505) = 97.7542$, $p < .0001$).

The indirect effect of the problem-oriented story (X1) on attitudes through positive affect and self-efficacy was significant and negative (standardized beta = -0.0154, SE = 0.0060, 95%

CI [-0.0303, -0.0066]). The total effect of the problem-oriented story on attitudes was negative and significant (standardized beta = -0.1817, SE = 0.0823, 95% CI [-0.3433, -0.0200]). With regards to the solutions-oriented story (X2), the indirect effect on attitudes through affective response and self-efficacy was significant and positive (standardized beta =0.0761 (SE = 0.0207, 95% CI [0.0411, 0.1224]). The total effect of the solutions-oriented story on attitudes was positive and significant (standardized beta = 0.9218, SE = 0.0816, 95% CI [0.7616, 1.0820]).

Collective Efficacy: Similarly, a serial mediation model was explored with collective efficacy as one of the mediators ***(Conditions X ≫ Positive Affect ≫ Self Efficacy ≫ Attitudes)***. The model explained around 47% of the variance in affective response ($R^2 = 0.4651$, $F(3, 507) = 146.9319$, $p < .0001$). It also accounted for around 13% of the variance in collective efficacy ($R^2 = 0.1297$, $F(4, 506) = 18.8547$, $p < .0001$). Finally, for attitudes, the model explained 49.17% of the variance ($R^2 = 0.4917$, $F(5, 505) = 97.7123$, $p < .0001$).

The serial mediation effects of the problem-oriented story (X1) on attitudes through positive affect and collective efficacy were significant and negative (standardized beta = -0.0181, SE = 0.0073, 95% CI [-0.0376, -0.0074]). The pattern was different for the indirect effects of the solutions-oriented story (X2) on attitudes. The serial mediation through affective response and collective efficacy was significant and positive (standardized beta = 0.0894, SE = 0.0243, 95% CI [0.0460, 0.1431]). The total effects of the problem-oriented story (X1) on attitudes were significant and negative (standardized beta = -0.2025, SE = 0.0823, 95% CI [-0.3433, -0.0200]). For the solutions-oriented story (X2), the total effects on attitudes were significant and positive (standardized beta = 0.9218, SE = 0.0816, 95% CI [0.7616, 1.0820]).

Outcome: Cancer Prevention Intentions

H4b: Efficacy beliefs mediate the effects of solution-oriented news stories on intentions to engage in actions covered in the story in the story.

H5b: Affect mediates the effects of solution-oriented news stories on intentions to engage in actions covered in the story in the story.

H6a: Affect mediates the effects of solution-oriented news stories on efficacy beliefs

H6c Affect mediates the effects of solution-oriented news stories on intentions to engage in actions covered in the story in the story

H7: As participants' perception of issue importance increases, those who read solution-oriented news stories will report a higher affect than those who read problem-oriented and control news stories.

Self-Efficacy: The model ***(Conditions X ≫ Positive Affect ≫ Self Efficacy ≫ Cancer Prevention Intentions***) explained around 46% of the variance in affective response ($R^2 = 0.465$, $F(3, 507) = 146.9319$, $p < .0001$). It also accounted for 9.74% of the variance in self-efficacy ($R^2 = 0.0974$, $F(4, 506) = 13.6433$, $p < .0001$). Finally, for cancer prevention intentions, the model explained 34.97% of the variance ($R^2 = 0.3497$, $F(5, 505) = 54.3110$, $p < .0001$).

As expected, the indirect effect of the problem-oriented story (X1) on cancer prevention intentions through positive affect was significant and negative (standardized beta= -0.0521, SE = 0.0226, 95% CI [-0.1063, -0.0166]). The indirect effect of self-efficacy was not significant (standardized beta = -0.0106, SE = 0.0481, 95% CI [-0.1088, 0.0819]). The serial mediation effects through affective response and self-efficacy were significant and negative (standardized beta = -0.0459, SE = 0.0147, 95% CI [-0.0789, -0.0215]). The total effect of the problem-oriented story on pro-environmental behavior was negative (standardized beta = 0.1334, SE=0.1037, 95% CI [-0.0704, 0.3372]).

With regards to the solutions-oriented story (X2), the indirect effect on cancer prevention intentions through positive affect was significant and positive (standardized beta = 0.2568, SE = 0.0723, 95% CI [0.1196, 0.4058]). Through self-efficacy, the indirect effect was significant but negative (standardized beta = -0.2357, SE = 0.0607, 95% CI [-0.3652, -0.1265]). The serial mediation effect through positive affect and self-efficacy was significant and positive (standardized beta = 0.2264, SE = 0.0405, 95% CI [0.1553, 0.3182]). The total effect of the

serial mediation was positive (standardized beta = 0.4696, SE = 0.1028, 95% CI [0.2675, 0.6716]).

Collective Efficacy: Similarly, a serial mediation model was then computed with collective efficacy as one of the mediators ***(Conditions X ≫ Positive Affect ≫ Self Efficacy ≫ Cancer Prevention Intentions***). The indirect effect of the problem-oriented story (X1) on cancer prevention intentions through positive affect was significant and negative (standardized beta = -0.0493, SE = 0.0227, 95% CI [-0.1048, -0.0152]). Through collective efficacy, the indirect effect was not significant (b = 0.0238, SE = 0.0441, 95% CI [-0.0596, 0.1132]). The serial mediation through positive affect and collective efficacy was significant and negative (b = -0.0487, SE = 0.0155, 95% CI [-0.0842, -0.0230]). The total serial mediation effect of the problem-oriented story was positive but not significant (standardized beta = 0.1334, SE = 0.1259, 95% CI [-0.0854, 0.4092]).

The pattern was different for the indirect effects of the solutions-oriented story (X2) on cancer prevention intentions through positive affect was significant and positive (b = 0.2431, SE = 0.0777, 95% CI [0.0968, 0.4049]). Through collective efficacy: The indirect effect was significant and negative (b = -0.1482, SE = 0.0531, 95% CI [-0.2617, -0.0509]). The serial mediation through positive affect and collective efficacy: The indirect effect was significant and positive (b = 0.2401, SE = 0.0386, 95% CI [0.1718, 0.3255]). The total serial mediation effects of the solutions-oriented story were significant and positive (standardized beta = 0.4696, SE = 0.1248, 95% CI [0.3246, 0.8149]).

Outcome: News Engagement

H4c: Efficacy beliefs mediate the effects of solution-oriented news stories on news engagement to the problem in the story

H5c: Affect mediate the effects of solution-oriented news stories on news engagement to the problem in the story

H6a: Affect mediates the effects of solution-oriented news stories on efficacy beliefs

H6d:Affect mediates the effects of solution-oriented news stories on news engagement to the problem in the story

H7: As participants' perception of issue importance increases, those who read solution-oriented news stories will report a higher affect than those who read problem-oriented and control news stories.

Self Efficacy: A serial mediation model was computed on Hayes PROCESS in R (Model 6) with self-efficacy as one of the mediators ***(Conditions X ≫ Positive Affect ≫ Self Efficacy ≫ News Engagement***) The model explained around 47% of the variance in affective response (R^2 = 0.4651, F(3, 507) = 146.9319, p < .0001). It also accounted for 9.74% of the variance in self-efficacy (R^2 = 0.0974, F(4, 506) = 13.6433, p < .0001). Finally, for news engagement, the model explained 18.69% of the variance (R^2 = 0.1869, F(5, 505) = 23.2195, p < .0001).

As expected, the indirect effect of the problem-oriented story (X1) on news engagement through positive affect and self-efficacy was significant and negative (standardized beta = -0.0436, SE =0.0143, 95% CI [-0.0774, -0.0205]). The total effect of the problem-oriented story on news engagement was positive but not significant (standardized beta = 0.1783 (SE = 0.1298, 95% CI [-0.0768, 0.4334]).

With regards to the solutions-oriented story (X2), the indirect effect on news engagement through positive affect and self-efficacy was significant and positive (standardized beta = 0.2150, SE = 0.0405, 95% CI [0.1462, 0.3074]). The total effect of the solutions-oriented story on news engagement was positive and significant (standardized beta = 0.3619, SE = 0.1287, 95% CI [0.1090, 0.6147])

Collective Efficacy: A serial mediation model was also computed with collective efficacy as one of the mediators ***(Conditions X ≫ Positive Affect ≫ Self Efficacy ≫ News Engagement***). The model explained around 47% of the variance in affective response (R^2 =

0.4651, F(3, 507) = 146.9319, p < .0001). It also accounted for around 13% of the variance in collective efficacy (R^2 = 0.1297, F(4, 506) = 18.8547, p < .0001). Finally, for news engagement, the model explained 17.27% of the variance (R^2 = 0.1727, F(5, 505) = 21.0839, p < .0001). The serial mediation effects of the problem-oriented story (X1) on news engagement through positive affect and collective efficacy were significant and negative (standardized beta = -0.0479, SE = 0.0158, 95% CI [-0.0854, -0.0223]). Again, the pattern was inverse for the indirect effects of the solutions-oriented story (X2) on news engagement. The serial mediation through positive affect and collective efficacy was significant and positive (standardized beta = 0.2361, SE = 0.0426, 95% CI [0.1608, 0.3285]). The total effects of the problem-oriented story (X1) on news engagement were positive but not significant (standardized beta = 0.1783 (SE = 0.1298) 95% CI [-0.0768, 0.4334]). For the solutions-oriented story (X2) however, the total effects on news engagement were significant and positive (standardized beta = 0.3619 (SE = 0.1287) 95% CI [[0.1090, 0.6147]]).

Figure 14. *Serial mediation model predicting news engagement Study 2*

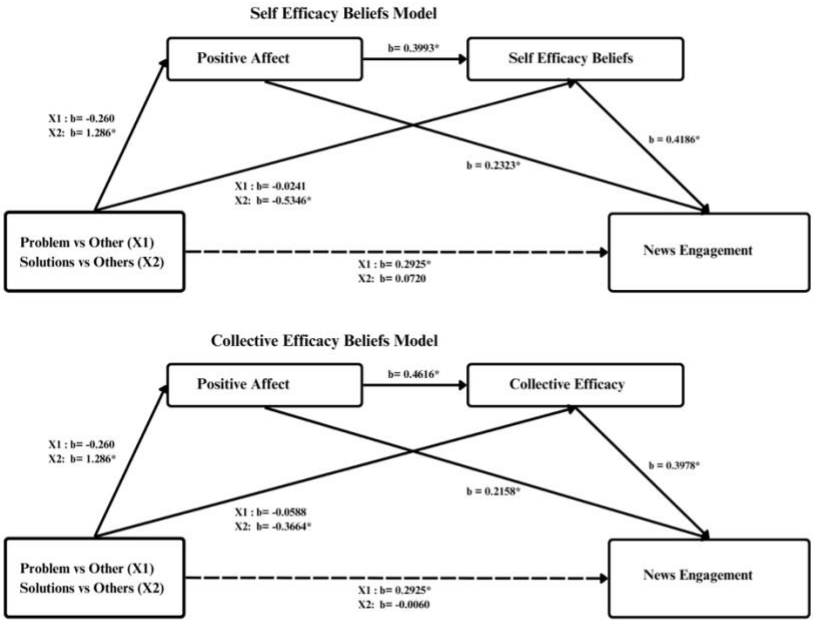
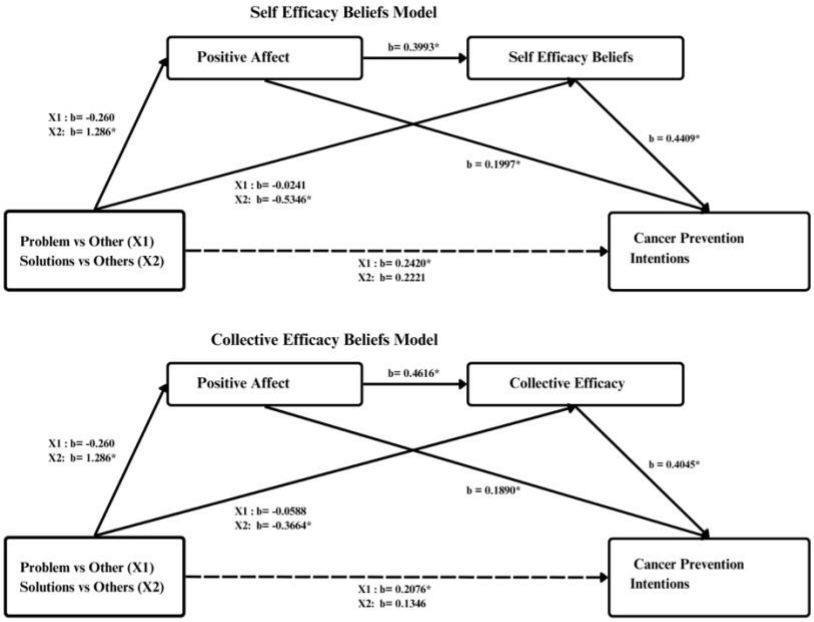


Figure 15. *Serial mediation model predicting cancer prevention Study 2*

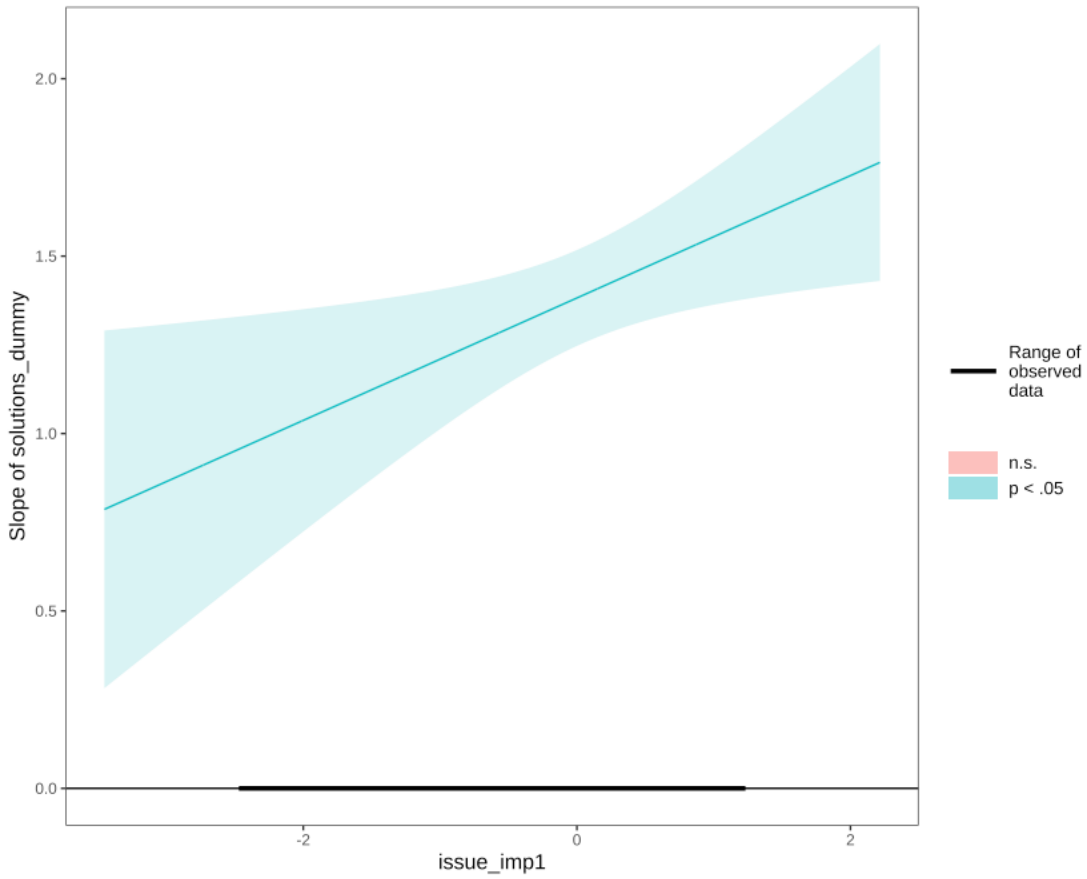


Supplementary Analysis

Given our prediction (H7) that solutions journalism would interact with issue importance to influence positive affect, and noting that this interaction was not significant in the serial moderated mediation analysis using Hayes PROCESS, we conducted a supplementary Analysis of Covariance (ANCOVA), controlling for political orientation. The analysis revealed a significant main effect of the solutions oriented story (dummy coded as solutions 1 vs Others 0), $F(1, 506) = 413.20$, $p < .001$, and a significant main effect of issue importance, $F(1, 506) = 14.12$, $p = .002$. More importantly, these main effects were qualified by a significant interaction between solutions journalism and issue importance, $F(1, 506) = 5.90$, $p = .015$. Johnson-Neyman analysis revealed that the effect of solutions journalism on positive affect was significant ($p < .05$) when issue importance fell outside the interval [-42.02, -4.37]. Given that the observed values of the issue importance (standardized) ranged from -2.45 to 1.22, this indicates that the solutions journalism manipulation had a significant positive effect on affect across nearly the

entire range of observed issue importance values, with the effect becoming stronger as issue importance increased, as illustrated in Figure 16.

Figure 16. *Johnson-neyman plot for the slope of solutions-oriented story on affect by issue importance for study 2*



This follow-up analysis was conducted because the complexity of the serial moderated mediation model, which includes multiple indirect paths and conditional effects, might have reduced statistical power to detect interaction effects. While the ANCOVA revealed this significant interaction between the solutions journalism story and issue importance, these results should be interpreted cautiously. The discrepancy between the Hayes PROCESS results and the ANCOVA suggests that when accounting for the full complexity of the theoretical model, including all indirect paths and their shared variance, the interaction may not be as robust as the more simpler analysis indicates.

Discussion (STUDY 2)

The findings suggest that story framing influences affective responses with solutions stories increasing positive affect whereas, problems-oriented stories increased negative affect. The study also explored moderating effect of issue importance and the mediating effect of solution journalism via positive affect and efficacy beliefs. There was no evidence of a serial moderated mediation because issue importance did not significantly moderate any indirect paths and was dropped from the analysis. However, a follow-up ANCOVA revealed that issue importance did moderate the direct effect of solutions journalism, showing significant main effects of both conditions and issue importance, as well as their interaction, while controlling for political orientation. This suggests that while issue importance may not influence the indirect pathways through which solutions journalism operates, it does play a role in moderating the direct relationship between solutions journalism and positive affect. Again, this finding should be interpreted with caution given its absence in the more comprehensive moderated mediation model.

A serial mediation analysis without issue importance as moderator was conducted and findings reveal that problem-oriented stories showed negative indirect effects through affective response, while solutions-oriented stories demonstrated positive indirect effects. However, both story types showed mixed evidence with regards to the indirect effects through self-efficacy and collective efficacy beliefs. The solutions-oriented story appears more effective overall, with significant positive total effects on all outcomes. Consistently, the solutions-oriented story demonstrated significant positive indirect effects on the outcomes (cancer prevention intentions, attitudes, and news engagement) through the serial mediation of positive affect and both self-efficacy or collective efficacy. In contrast, the problem-oriented story generally showed

significant negative indirect effects through these pathways. Additionally, the strength of the indirect effects varied across outcomes, with the strongest effects observed for attitudes and the weakest for news engagement. With regards to political affiliation, those who identified as conservatives showed positive and significant effects on cancer prevention intentions and attitudes towards the story. However, while they also showed positive effects on news engagement and positive emotions, it was not significant.

This is the first study to explore the effects of solutions journalism in the context of cancer prevention behaviors. As such, it extends our understanding of how solutions-focused health coverage might differ from traditional problem-focused reporting in ways that specifically influence cancer prevention intentions. This implies that while previous studies may have found mixed or null effects of solutions journalism on behavioral intentions (see Lough & McIntyre, 2021 and Thier, 2021 for details), this specific context of preventive health behaviors might be particularly responsive to solution-focused narratives. In all, the solutions-oriented message showed stronger indirect effects across all pathways compared to the problem-oriented message, lending partial support for the Response Integrative Model within the context of health communication.

CHAPTER 6

GENERAL DISCUSSIONS

The news industry has undergone a fundamental transformation in the digital age of information abundance, shifting its focus toward emphasizing audience needs – a change scholars call the "audience turn" (Hendrickx, 2024; Meijer, 2019; Swart et al., 2022). This evolution has prompted news organizations to reconsider several traditional practices and values, one being the negativity bias associated with news coverage. While journalism's essential role includes providing accurate reporting and exposing social ills like corruption and public hazards, research indicates that consistently negative news has negative impacts on audiences, from triggering adverse negative emotional responses to causing news avoidance (Dubèl et al., 2024; Ngange et al., 2024; Soroka & McAdams, 2015).

In light of these concerns, researchers have advocated for solutions journalism, which takes a more constructive approach to news coverage. This approach not only identifies social problems but also covers potential solutions, associated supporting evidence, and their limitations while adhering to the rigor and core journalistic principles of truth-finding, fairness and public service (Lough & McIntyre, 2018; Thier, 2021). However, solutions journalism remains an emerging field of study with a dearth of understanding into the mechanisms or comprehensive theoretical framework explaining how solutions-focused reporting influences public perception and behavioral factors (Lough & McIntyre, 2021). Hence, there is a need to fully understand the psychological mechanisms behind its impact on audiences; with pressing questions on exploring the conditions under which solutions journalism approach becomes more or less engaging for audiences. This understanding becomes particularly pertinent as newsrooms face increasing pressure to maintain audience engagement and attention in an era of increased

news avoidance, what Matt Carlson called *news discouragement* in his 2025 Nieman Lab prediction (Neiman Lab, 2025), and an incomprehensible multitude of informational sources, many fraught with widespread misinformation.

This dissertation proposes the Response Integrative Framework (RIF), which offers a starting point for a theoretical model describing how solutions journalism affects audience outcomes through various moderating and mediating factors. The RIF conceptualizes news more than just an information source – but a resource for mental and civic well-being that can foster positive emotions and create a sense of empowerment via the coverage of social threats and opportunities for action.

The RIF is predicated on the idea that exposure to solution-oriented news stories, in comparison to problem-oriented ones, will elicit more favorable cognitive and behavioral outcomes. These relationships were theorized to operate through two primary mediating mechanisms: efficacy beliefs and positive affect, which are hypothesized to influence various outcomes including attitudes, engagement intentions, and behavioral responses to the story. Furthermore, the framework posits that the magnitude of these effects will be moderated by participants' perception of issue importance, with stronger effects when the issue is perceived as more importance. The RIF was also tested across two different story contexts (animal waste pollution and cancer prevention). The RIF is premised on four key postulations: 1) The framework proposes that solutions-oriented media influences both cognitive and affective outcomes. 2) The RIF posits that efficacy beliefs mediate the relationship between solutions-oriented stories and cognitive/behavioral outcomes. 3) The framework also suggests that affect serves as a mediator between solutions journalism exposure and both efficacy beliefs and

cognitive/behavioral outcomes. 4) Finally, the framework proposes that issue importance moderates the relationship between solutions journalism and affect.

Direct Effects of Solutions Journalism Stories (Postulation 1)

Both studies (STUDY 1: animal waste pollution and STUDY 2: cancer prevention) yielded compelling evidence supporting the effects of solutions journalism on cognitive outcomes. Participants exposed to solution-oriented news stories across both topics demonstrated markedly more favorable attitudes toward the news article compared to those who read problem-oriented coverage. This finding aligns with the Response Integrative Framework's core proposition that solutions-focused narratives can enhance audience perception and attitudes about journalism.

Furthermore, the affective response to solutions journalism differed notably from traditional problem-focused coverage and the neutral control condition. Participants who saw the solutions-oriented stories reported experiencing higher levels of positive affect, suggesting that solutions narratives about climate change and cancer prevention can foster more positive emotional states without diminishing the significance of the environmental and public health challenge. This emotional engagement is particularly noteworthy given the tendency of traditional journalism to inadvertently engender feelings of hopelessness or disengagement.

Conversely, the third hypothesis also predicted that participants exposed to problem-oriented news stories would report higher levels of negative affect compared to those exposed to solutions-oriented stories. This hypothesis was strongly supported across both studies, with compelling effect sizes observed in the animal waste pollution and cancer prevention contexts. Participants who read problem-oriented stories consistently reported significantly higher negative affect than those who read solution-oriented or control stories. These findings is

consistent with the hallmark of traditional problem-focused journalism, which tends to activate negative affective responses like fear, anger, and anxiety (Rozado et al., 2022; Kleemans et al., 2017). While such negative emotions can potentially motivate civic action, the persistent activation of negative affect without corresponding efficacy information can contribute to what Kinnick et al. (1996) termed "compassion fatigue," where audiences become desensitized and disengaged from important social issues due to overwhelming negative coverage. The results empirically support the theoretical premise that problem-oriented stories produce higher levels of negative affect, which may explain patterns of news avoidance observed in contemporary media consumption (Reuters Institute, 2022).

These findings, therefore, add to a growing body of research demonstrating the positive effects of solutions journalism on audience attitudes and news engagement. In a comprehensive meta-analysis, Lough and McIntyre (2021) examined 22 studies, with 17 specifically investigating the emotional impacts of solutions stories. Their analysis consistently demonstrated that solutions-oriented coverage generates positive emotional responses and heightened engagement. Similarly, Thier and Lin (2022) found that solutions journalism significantly improved audience attitudes toward both the content and the issues being covered. This pattern was further supported by Meier's (2018) research, which revealed that audiences exposed to solutions-framed stories expressed notably more favorable attitudes toward the coverage compared to traditional problem-focused reporting. The findings further lend credence to the broaden-and-build theory of positive emotions, which Fredrickson's (2001) seminal research demonstrates can expand individuals' thought-action repertoires and build enduring personal resources. This theoretical framework helps explain why solutions journalism's positive framing may lead to increased civic engagement and problem-solving capacity (Hermans & Gyldensted,

2019; McIntyre & Gyldensted, 2018a, 2018b). These studies show that when news consumers experience positive emotions through solutions-oriented coverage, they demonstrate enhanced ability to process information, greater willingness to engage with complex social issues, and increased motivation to participate in community problem-solving initiatives.

Mediation and Moderation Effects of Solutions Journalism (Postulations 2 – 4)

The RIF, modeled via mediational paths, revealed that solutions journalism impacts outcomes (news engagement, attitudes and behavioral engagement) through multiple pathways. First, it triggers positive affect, which is associated with both self- and collective-efficacy beliefs, ultimately leading to positive effects on behavioral intentions, news engagement and attitudes. This sequential process is consistent with current research (Maduneme & Cohen, 2024) that demonstrates how solutions narratives about environmental challenges can create a cascade of positive psychological responses that ultimately influence audience engagement and attitudes. However, it adds to the body of work by demonstrating how these effects hold across different story topics and outcomes. The sequential mediational patterns across differing story topics suggest that solutions journalism's effectiveness stems from its ability to navigate this delicate balance, creating what might be termed an "adaptive response pathway" where awareness of problems paired with actionable solutions can boost positive emotional response and efficacy perceptions. The dissertation finding also supports the threat-efficacy combination proposed in the Extended Parallel Process Model (Witte, 1992), demonstrating how solutions journalism works by strategically combining problem awareness with solution pathways in its coverage of topical issues. This balance is indeed pertinent; while the problem-focused elements raise awareness and concern, the solutions components activate positive affect and efficacy beliefs, invariably resulting in constructive engagement.

The findings further align with theoretical perspectives on affect's multifaceted roles in information processing and decision-making (Peters et al., 2006). The positive affect triggered by solutions journalism appears to function in two key ways: First, as information – where the positive feelings associated with solution-focused coverage provide direct informational cues that enhance efficacy beliefs. Second, as motivation – where positive affect serves as an approach-oriented catalyst that encourages deeper engagement with the solutions news content and promotes behavioral intentions.

The serial mediational effects observed could also be interpreted through the lens of the Differential Susceptibility to Media Effects Model (DSMM), which suggests that media exposure alone may be insufficient to drive behavioral change (Valkenburg & Peter, 2013). The DSMM posits that individual differences, including prior attitudes, beliefs, and contextual factors, could play vital roles in determining how media messages influence behavioral outcomes. Thus, it explains why message characteristics (i.e. solutions-oriented news) may not solely translate into immediate behavioral intentions, particularly in the context of complex public health and environmental challenges like agricultural waste pollution and cancer prevention. Instead, the effects of message characteristics (solutions versus problems oriented) can be better understood by accounting for intermediate factors (efficacy beliefs, affect and issue importance) which tend to augment or diminish these effects.

Scholars have also suggested that studies go beyond the traditional $x \rightarrow y$ relationships that focus narrowly on direct message effects while neglecting the complex web of moderating and mediating variables. As Gandhi et al. (2024) note, any psychological outcome emerges from numerous interacting factors, making singular relationships appear deceptively strong when viewed in isolation. They argued that the idea of *"focusing illusion"* often leads researchers to

overestimate the magnitude of specific effects by temporarily neglecting the multitude of other contributing variables. In this context, it stands to reason that research on understanding the effects of a news/message content like should embrace a more nuanced approach that proactively explores boundary conditions and intervening factors and constructs to capture how message characteristics operate within broader socio-psychological and culturally-contextual systems. This was the guiding premise that informed my decision to postulate the Response Integrative Framework which accounted for three contextual factors that might broadly explain the effects of solutions journalism: efficacy beliefs, affect, and issue importance.

The Moderating Effects of Issue Importance: The study also partially supported the hypothesis that predicted a conditional effect of issue importance. The findings revealed that as issue importance increased, solutions-oriented stories yielded stronger effects on positive affective responses than problem-oriented coverage. However, this was particularly pronounced when readers considered only the issue of animal waste pollution to be important. The results differed slightly with cancer prevention. This differential effect of issue importance across both topics might be explained by several factors. For one, cancer prevention may be universally perceived as important regardless of individual differences, creating a ceiling effect that minimizes the moderating role of issue importance. In contrast, animal waste pollution might be viewed with more varying levels of importance across individuals, allowing issue importance to play a more distinctive moderating role. Additionally, cancer prevention might trigger more personal and immediate concerns that override the moderating effect of issue importance, while animal pollution might be perceived as more distant and thus more susceptible to individual variations in perceived issue importance. In other words, the topic of cancer could be too proximal to many of

the participants that issue importance became an irrelevant factor in their processing of the different stories.

Nonetheless, with regards to the environmental issue (Study 1), the findings on the moderating effects of issue importance lend support to existing literature on information processing and emotional responses. Consistent with cognitive appraisal theory (Lazarus & Folkman, 1984), individuals who perceived agricultural waste pollution as personally important demonstrated stronger positive emotional responses to solutions journalism coverage. This aligns with previous research showing that personal relevance leads to deeper engagement with content and more intense emotional reactions (Balzarotti & Cicero, 2014; De Hoog, 2013). While Thier and Lin (2022) found that both solutions and problem-oriented stories could evoke high-arousal negative emotions, our findings suggest that the relationship between solutions journalism and affect is more nuanced and contingent on issue importance. This builds on Nadeau et al.'s (1995) work demonstrating how issue importance influences emotional responses, particularly hope and anxiety. The moderating role of issue importance in this dissertation helps explain why solutions journalism's effectiveness varies across audiences, suggesting that its impact is strongest when addressing issues that readers consider personally significant (Lecheler et al., 2009).

An unexpected finding revealed how problem-oriented stories (compared to solutions-oriented stories) showed positive direct effects through efficacy beliefs. This finding contrasts with previous findings (Maduneme & Cohen 2024) that found a positive relationship between solutions journalism stories and efficacy beliefs. However, it aligns with the body of work which suggest that negative messages could trigger what scholars have referred to as the *motivated control* hypothesis (Rothbaum et al., 1982). This explains how individuals who encounter threatening information (like problem-focused stories) might perceive themselves as more

capable of addressing the issue. This defensive reaction could temporarily boost their sense of efficacy as a psychological coping mechanism. The heightened awareness of problems may trigger a compensatory response where individuals bolster their perceived ability to handle challenges, even if the story itself does not provide explicit solutions. Hornsey et al. (2015) found that perceptions of control (operationalized as efficacy) are partly motivated cognitions designed to manage feelings of threat about climate change. Thus, it could be the case that participants who saw the problems-oriented stories felt more efficacious as a way to cope with the negative feelings that resulted from reading the stories. However, when positive emotional responses were accounted for through the serial mediational effects, those who saw a solutions-oriented story felt more positive, and in turn, more efficacious. In other words, the association between solutions stories and efficacy beliefs might be dependent on the valence of emotional responses participants experienced.

Relatedly, a research question sought also explored the variation in self-efficacy versus collective efficacy beliefs across different story types and topics. Self-efficacy refers to individuals' beliefs in their capability to execute behaviors necessary to produce specific performance attainments (Bandura, 1977), while collective efficacy represents a group's shared belief in its combined capabilities to organize and execute courses of action required to produce given levels of attainment (Bandura, 1997). While the patterns between self and collective efficacy beliefs were generally consistent, notable differences emerged across the story topics examined in Study 1 (climate change, focusing on animal waste pollution) and Study 2 (cancer prevention). In Study 1, collective efficacy beliefs were marginally more prominent than self-efficacy beliefs. This finding resonates with studies like Chen (2015) that demonstrate how addressing environmental challenges often requires coordinated community action rather than

individual efforts alone. The stronger collective efficacy beliefs in climate change narratives reflect the understanding that environmental issues necessitate collective action and systemic changes. Conversely, Study 2, which focused on cancer prevention, revealed slightly stronger self-efficacy beliefs compared to collective efficacy. This finding aligns with health behavior research by Schwarzer & Warner (2013) and Rogers' (1983) Protection Motivation Theory, which emphasizes the role of individual agency in health-related behaviors. Cancer prevention often involves personal lifestyle choices and individual health behaviors, making self-efficacy more salient in this context. Other studies also allude to the role of self-efficacy beliefs particularly within health behaviors (Butel & Braun, 2019; Roos et al., 2013; Schwarzer & Warner, 2013; Smith et al., 2007). These findings are logically consistent with the nature of the story topics and their associated attributions of responsibility. Environmental issues like climate change and pollution typically require coordinated efforts at community, national, and global levels, explaining the higher collective efficacy beliefs. In contrast, cancer prevention often centers on individual choices regarding diet, exercise, and regular medical check-ups, leading to stronger self-efficacy beliefs.

It is important to clarify that the differences between both constructs were minimal and it might just simply be the case that self and collective efficacy beliefs are both relevant in both story contexts. Moreover, some studies have found a cyclical interdependence between both dimensions of efficacy beliefs such that individuals with higher collective efficacy tend to report stronger self-efficacy beliefs, which in turn can enhance collective efficacy through increased participation in group efforts (Jugert et al., 2016). This reciprocal relationship suggests that both forms of efficacy can mutually reinforce each other, contributing to more comprehensive and effective behavioral outcomes in both environmental and health contexts.

This has important implications for the Response Integrative Framework; the distinction between dimensions of efficacy beliefs (self/collective) might not be as paramount as initially theorized. Instead, a critical area of consideration should be the particular operationalizations of these constructs. The studies relied on domain-specific operationalizations of self- and collective efficacy, which can function differently from general efficacy beliefs. Domain-specific efficacy refers to beliefs about one's capabilities to perform specific tasks within a particular context or domain (Bandura, 2001), such as confidence in one's ability to engage in specific environmental behaviors. In contrast, general efficacy beliefs reflect broader, context-independent assessments of one's capability to handle challenges across various situations (Bandura, 1977). Therefore, future applications and tests of the RIF should carefully consider whether domain-specific or general efficacy measures are more appropriate for their research contexts. This distinction is particularly relevant for solutions journalism research, as news stories typically focus on specific issues and actions rather than general capabilities. The framework's utility might be enhanced by explicitly accounting for how different operationalizations of efficacy beliefs might yield different patterns of effects, particularly in how they interact with affect and issue importance to influence outcomes. This nuanced understanding could help explain potential variations in findings across different studies and contexts.

An unexpected yet theoretically supported pattern emerged regarding the relationship between political ideology and the different outcomes in the context of the climate change story topic. While conservative political orientation generally showed negative associations with most outcomes as expected, it demonstrated positive relationships with both positive affect towards the stories across both topics. I then conducted supplementary interaction analysis between the solutions journalism condition and political affiliation top parse out the nuanced relationship

between them. There were main effects for both variables. Although the interaction was not statistically significant, the result shows the complex relationships between solutions stories, political affiliation, and positive affect. At baseline (non-solutions stories), conservative readers exhibited higher positive affect compared to their liberal counterparts, with *Very Liberal* readers showing the lowest initial positive affect scores and *Centrist* readers positioning intermediately. *Conservative* readers maintained higher positive affect throughout both conditions, while the relative gap between ideological groups remained consistent. Solutions journalism appeared to enhance positive affect regardless of political ideology, suggesting that while political orientation influences baseline emotional responses to news, solutions-focused journalism might generate some sort of a universal positive affective responses across the political spectrum.

This counter-intuitive finding might be explained through several theoretical mechanisms. First, it is possible that solutions journalism's emphasis on concrete, market-compatible actions, and individual agency in addressing animal waste pollution may align with conservative values of personal responsibility and market-based solutions. Second, the focus on practical responses rather than regulatory demands might reduce what Catherine Hayhoe (2021) termed *solution aversion* in her book "*Saving Us: A Climate Scientist's Case for Hope and Healing in a Divided World*." This concept refers to a motivated defensive reaction typically observed when conservatives encounter environmental messages that tacitly associate solutions with increased regulations (Campbell & Kay, 2014). In this way, the particularity of the solutions (e.g., a local company converting animal waste to energy) demonstrates market-driven environmental stewardship and might not have elicited skepticism among conservatives. Relatedly, by highlighting successful interventions by farmers and agricultural businesses, solutions journalism might frame environmental action in terms of innovation and economic

opportunity rather than sacrifice and restriction, values that resonate across the political spectrum.

Overall, both the two studies in this dissertation contribute to a more nuanced understanding of how solutions journalism, or stories that adopt a threat-efficacy cue approach, might effectively engage audiences with complex societal challenges. It is the first to postulate a domain specific theoretical framework which explains the mechanisms that enhances or diminishes the effect of solutions oriented journalism or messaging approach. The findings also contribute to the literature by distinguishing solutions journalism from merely optimistic or hopeful news coverage across both environmental and public health contexts. Solutions journalism represents a distinct approach that should not be conflated with general positive news coverage. Optimistic approaches typically emphasize progress while downplaying the severity of issues, and in some cases, implicitly suggesting general improvement (Hornsey et al., 2015; Myers et al., 2023). Although some studies have found hopeful and optimistic messages can increase behavioral outcomes (Feldman & Hart, 2016; Tannenbaum et al., 2015), recent meta-analyses in both domains revealed only modest effects. This suggests that hope alone may not consistently drive engagement with either environmental (Geiger et al., 2023) or public health issues (Tannenbaum et al., 2015). Moreover, in the public health context, meta-analytic evidence indicates that messages combining threat and efficacy information produce stronger effects than those relying solely on positive or negative frames (Witte & Allen, 2000; Popova, 2012). Solutions journalism, in contrast, maintains a rigorous focus on evidence-based responses to both environmental and public health challenges, acknowledging both the complexity of the problems and the concrete steps being taken to address them, without oversimplifying or defaulting to unwarranted optimism.

It is also important to acknowledge some potential concerns of covering socially complex issues using the solutions journalism approach. One prominent concern with a solutions-approach is what Hornsey and Fielding (2020) term the "complacency model" which posits that when people learn about solutions being implemented, they might become less concerned about the underlying problem, potentially reducing their motivation to take personal action or support broader policy initiatives. This concern is particularly prominent within the context of climate change and scholars refer to this as "moral hazard" (Markusson et al., 2018). Moral hazard in this context refers to the possibility that awareness of solutions might lead to reduced risk perception and decreased support for other necessary actions. For instance, learning about carbon capture technologies might reduce public support for broader emissions reduction policies, as people might overestimate the capability of technological solutions to address complex environmental challenges. Although this concern is tentative and a matter of empirical investigation, it logically implies that solutions journalism stories might inadvertently reduce perceptions of risk and urgency by presenting successful interventions.

A peripheral view of solutions journalism might also reveal some tensions with some of journalism's core democratic functions like maintaining public vigilance and engagement with social issues. This tension becomes particularly serious in the coverage of ongoing challenges like climate change or public health threats, where maintaining sustained public attention and motivation for action is crucial. Traditional journalistic values, as articulated by Kovach and Rosenstiel (2021), emphasize the profession's watchdog role – monitoring power, exposing wrongdoing, and maintaining public awareness of societal problems. This "fourth estate" function historically manifests through problem-focused coverage that aims to create public pressure for institutional responses to social challenges. However, solutions journalism's

emphasis on response-oriented coverage raises important concerns about balancing this traditional accountability roles with the need to showcase effective interventions.

However, such concerns dissipate once we realize that the identification of opportunities does not contradict the public service functions of journalism. Moreover, Peters and Broersma (2017) argues for a shift to more functional roles by focusing on the practical roles of journalism in people's everyday lives. Journalists intending to reach audiences in a much-reconfigured media environment must navigate between its normative roles of alerting the public to problems and a more functional roles of enabling constructive civic engagement through the coverage of opportunities to address an issue. In this way, solutions journalism exemplifies the features of the contextualist function by framing stories not solely in terms of social problems, but by examining potential responses through a critical lens. As McIntyre et al. (2018) noted, solutions journalists combine interpretive and populist mobilizer roles, reporting on both problems and solutions while providing deeper meaning with the goal of advancing societal wellbeing. This also aligns with what Schudson (2008) terms the "mobilizing information" function of journalism, where news coverage not only informs citizens about problems but equips them with knowledge needed for effective civic action. Studies have shown practical benefits of this approach, with Overgaard (2021) finding that constructive news coverage led to reduced anxiety and anger among audiences, while maintaining journalism's core commitments to truth, accuracy, and fairness. This evolution in journalistic practice which emphasizes active audience engagement (Bro, 2008) and meaningful contextual reporting represents a crucial shift toward inspiring positive change while upholding the fundamental roles of journalism in democratic society. Simply put, good journalism should reflect both the issues audiences face and the level

of importance placed on those issues, whether community or personal. It should also provide knowledge about opportunities for public participation in addressing these challenges

Moreover, as the I partially found, the impact of solutions coverage likely depends on how important or relevant the issue is to the individual. This understanding draws on what Frijda (2007) terms the "law of concern," which posits that emotions and responses are elicited by events that are relevant to an individual's goals and concerns. In this sense, solutions journalism might actually help facilitate more sustainable engagement with complex issues by providing pathways for adaptive responses while maintaining awareness of ongoing challenges.

Boundary Conditions of the Response Integrative Framework

While the Response Integrative Framework (RIF) provides a theoretical model for understanding how solutions journalism influences attitudes and behaviors through affect and efficacy pathways, it is noteworthy to specify some potential boundary conditions that may limit its applicability. The first involves the limitation of issue importance construct. For issues with unusually high importance, perceived issue importance may function as a boundary condition by affecting engagement with solutions content. As seen in Study 2, issue importance did not moderate the mediation pathway for cancer prevention, this likely reflects a ceiling effect given the universally high personal importance of health. Perhaps this presents an opportunity to explore other issue salience-related constructs that might be relevant in this context. For instance, precise psychological distance constructs like temporal and social distance may be more relevant moderating factors when it comes to cancer prevention messaging (Lai et al., 2024). While people generally rate health issues like cancer as important, their perceived immediacy of cancer risk and their psychological connection to the issue can vary significantly based on factors like family history, age, and previous exposure to cancer-related experiences. Also, the story topic

may be an apparent confound that determines the varied effects of issue importance, Thus, future studies could explore the RIF within other types of socially important topics to see if the patterns converge or diverge based on story topics.

The RIF's effectiveness may also be constrained when solutions require specialized expertise or when structural barriers prevent individual action. In such cases, the framework's assumption of actionable solutions may not hold. Ajzen's theory of planned behavior distinguishes between internal factors (skills, abilities, knowledge) and external factors (opportunities, resources) that influence behavioral control (Ajzen, 1985). Solutions journalism's impact may diminish when readers lack necessary capabilities or face significant external barriers, regardless of their motivation.

The cultural context represents another important boundary condition that needs consideration. Cross-cultural communication research suggests that cultural values and norms significantly influence how news messages are interpreted and acted upon (Xie et al., 2009). Solutions that prove effective in individualistic societies may not resonate in collectivist cultures where social change is viewed through a communal lens. Moreover, journalistic practices and norms vary significantly across cultural contexts (Hanitzsch, 2007), potentially affecting how solutions are framed and received. This cultural variability could impact both the affect and efficacy beliefs pathways proposed in the RIF, as emotional responses (Matsumoto & Hwang, 2012), efficacy beliefs and perceptions of the solution's viability are culturally mediated. Future research should systematically examine a cross cultural comparative dynamic with the aim of exploring this boundary condition to refine our understanding of the contexts within which solutions journalism enhances or diminishes engagement and action.

Despite these boundary conditions and limitations, the RIF serves as a crucial starting point for exploring the psychological mechanisms underlying the effects of solutions journalism. As Lough and McIntyre (2021) highlighted, the field has lacked strong theoretical explanations for solutions journalism's impact. The RIF addresses this gap by integrating established psychological theories with journalism practice, providing testable propositions about how solutions-oriented news coverage influences audiences. Future work can build upon this framework by systematically examining these boundary conditions, potentially leading to refined models that account for contextual factors, cultural variations, and individual differences in news processing and response.

Limitations

As with many research studies of this nature, several limitations should be acknowledged when interpreting the findings. First, the study's reliance on self-report measures introduces potential measurement errors, particularly social desirability bias – the tendency for participants to answer questions in a manner that will be viewed favorably by others (Wrench et al., 2008). In the context of both climate change and public health issues, participants may have overreported their positive responses to solutions coverage or their intentions to engage in pro-environmental and health-protective behaviors to appear more socially conscious and responsible (Paulhus & Vazire, 2007; Milfont, 2009). Future studies can employ mixed-methods approaches that combine self-report measures with observational data and physiological measures of emotional responses to different types of solutions journalism

Second, while quota sampling helped ensure near-demographic representation, this non-probability sampling approach limits the generalizability of findings to the broader population (Baker et al., 2013). Additionally, the online survey setting, though efficient for data collection,

may not fully capture how individuals naturally encounter and process news content about climate change and public health issues in their daily lives compared to field experiments (Su et al., 2017). Relatedly, the studies' ecological validity is also constrained by their focus on single stories about climate change and public health presented at one point in time. News consumption typically occurs within a broader media environment where audiences encounter multiple, sometimes competing narratives about these issues over extended periods (Schäfer et al., 2017). The stories' reception may also be influenced by concurrent news events or public discourse about climate change and public health that were not captured in this study design. Perhaps, future studies can implement longitudinal designs with multi-story conditions to examine how repeated exposure to multiple solutions stories over time influences emotional responses and behavioral outcomes across both climate and public health domains. This approach would better reflect real-world news consumption patterns and help establish the durability of solutions journalism effects on audience engagement and behavior change.

Furthermore, the dimensional model of emotion employed in this study, while validated, primarily captures valence (positive-negative evaluations) rather than arousal or the discrete model of emotions. This decision could uniquely shape how individuals process information about climate change and public health threats (Barrett & Russell, 2015; Harmon-Jones et al., 2017). For instance, fear of climate impacts might operate differently from a discrete emotion, anxiety about health outcomes in shaping behavioral intentions. Their and Lin (2021) attempted to explore the valence and arousal dimensions of Affect in their study of solutions journalism within the context of climate change adaptation responses. Hence, further exploration of solutions journalism might also benefit from both the dimensional and discrete models of emotions.

A notable limitation is the study's reliance on behavioral intentions rather than actual behaviors as outcome variables. Although using intentions as a proxy for behavioral outcomes aligns with previous research in both climate and health communication (Baden et al., 2019; Kelly & Barker, 2016), intentions do not always translate into actions due to various contextual and personal barriers (Sheeran & Webb, 2016). This intention-behavior gap may be particularly relevant for complex issues like climate change and public health, where individual actions often require sustained effort and resource investment.

Implications and Conclusion

The findings of the dissertation, nonetheless, have important implications for both theory and practice. In terms of theory building in solutions journalism, Lough and McIntyre (2021) emphasized the need for theoretical frameworks that explain the effects of solutions journalism. In their systematic analysis, they revealed that while existing research showed strong literature review capabilities, it fell short in incorporating and testing theory. They found the theoretical landscape "scattered," with no clear frontrunner among various approaches (Lough and McIntyre, 2021). This theoretical fragmentation poses a risk, as Bro (2019) argues that without a compelling conceptual framework, solutions journalism could fade from prominence like previous movements such as civic journalism of the 1990s. The authors noted that as approaches stemming from professional practice, both constructive and solutions journalism lack strong theoretical explanations for their effects.

This dissertation responds to this theoretical gap by proposing the Response Integrative Framework (RIF). The RIF is a descriptive theory which explains the psychological mechanisms that shape how solutions-oriented news coverage impacts news consumption and proactive behavioral engagement. While building on established theories like positive psychology,

broaden-and-build theory, and framing, it innovatively incorporates an adaptation of the Extended Parallel Process Model (EPPM). This adaptation reconceptualizes solutions journalism as the combination of threat and efficacy cues in journalistic reporting. The RIF is predicated on the principle that news should function as a resource for social and mental well-being by not only surveilling social threats but also highlighting opportunities for action. This approach aligns with Bro's (2019) Journalistic Compass framework, particularly its positioning of solutions journalism in the "active" dimension of journalism practice.

Another implication is the context of understanding negativity bias and the resultant effects of negative emotions associated with problem-oriented news. Journalism has long been implicitly assumed to be a cognitively disembodied and rational activity divorced from emotive/affective dimensions. This perspective stems from the traditional Western epistemological separation between reason and emotion, which has historically privileged rationality in journalistic practice (Peters, 2011). Recently, there has been an "emotional turn" in journalism studies, where scholars increasingly recognize that emotions are intrinsically linked to journalistic practice and news consumption (Wahl-Jorgensen, 2019). Current studies are now suggesting more nuanced roles that emotions play in the production of journalistic texts, journalist labor, as well as the ways audiences experience news (Beckett & Deuze, 2016). The dissertation shows how solutions journalism stories can effectively counter the negative responses that are often associated with news consumption by fostering hope and efficacy. Research indicates that positive emotions, particularly hope and interest, can broaden attention spans and build psychological resources that support sustained engagement with complex issues (Fredrickson, 2001; McIntyre, 2015).

With regards to news organizations, one important implication could be the financial benefit of solutions journalism. The dissertation found that solutions journalism increases news engagement, measured by willingness to read the article and the issues. This means that investing in solutions-focused coverage could help news organizations address the critical challenge of declining audience engagement and retention. When readers find stories that not only inform them about problems but also highlight potential responses, they are more likely to spend time with the content, share it with others, and return for similar coverage. This increased engagement can translate into tangible business benefits; from higher subscription rates to improved advertising revenue. Moreover, by building a reputation for constructive coverage that resonates with audiences seeking actionable information, news organizations can differentiate themselves in an increasingly competitive media landscape.

While studies in the dissertation found that solutions journalism can increase certain measures of news engagement, real-world implementation reveals mixed results. For instance, Lough and McIntyre (2021) found that at a newspaper in Alabama, *Montgomery Advertiser*, while website metrics showed increased page views for solutions stories, survey data indicated declining site visits and overall engagement over time. This suggests that investing in solutions-focused coverage alone may not automatically address the critical challenge of declining audience engagement and retention. While readers might be drawn to stories that showcase potential responses to problems, sustaining this interest requires careful implementation, consistent resource allocation, and strategic planning. The potential business benefits – from subscription rates to advertising revenue – appear to depend heavily on execution factors including staff training, consistent production of solutions content, and effective integration with traditional coverage. This thus brings into relevance the sociological perspective of news in

understanding the newsroom dynamics of solutions journalism. For instance, Jackson et al (2024) found that while many journalists embrace solutions journalism's potential to revitalize civic engagement and restore public trust, systemic constraints often impede its adoption. News organizations face intense pressure to produce high-volume, quick-turnaround content that generates immediate engagement metrics, leaving little room for the sustained, resource-intensive reporting that solutions journalism requires. These structural barriers are more pronounced in local and small newsrooms, where declining revenues and staff reductions create a paradoxical situation: the very conditions that make solutions journalism most necessary – the erosion of local news capacity – also make it most difficult to implement.

Moreover, while building a reputation for constructive coverage could help news organizations differentiate themselves, the *Montgomery Advertiser* case suggests this is a long-term proposition rather than an immediate win. It therefore indicates that solutions journalism should be viewed not simply as a business strategy, but as a complex editorial initiative that requires sustained commitment and careful implementation to realize its potential benefits for both journalism and financial sustainability.

For journalists covering environmental and public health issues, the dissertation underlines the limitations of simply documenting challenges or defaulting to crisis-driven narratives. Journalists should systematically incorporate evidence of what is working, including policy interventions, community initiatives, and scientific innovations. This means going beyond merely acknowledging that solutions exist to actually investigating and explaining how specific responses are being implemented, evaluated, and scaled. When covering climate change, for instance, journalists might pair reports of rising emissions with detailed analyses of successful carbon reduction strategies in specific communities. Similarly, public health coverage should

complement disease surveillance data with thorough examination of effective prevention programs or healthcare delivery innovations. This does not, by any means, downplay problems or offer false comfort. Instead, it requires journalists to maintain rigorous standards while expanding their investigative lens to include responses and results. This might involve developing new sourcing strategies to identify evidence-based solutions, and crafting narratives that help audiences understand both the scale of challenges and the concrete pathways for addressing them. Essentially, I argue that solutions journalism can be one of many tools in the toolbox of journalists who seek to contribute positive value to their communities through rigorous and comprehensive reporting. This way, journalists can fulfill their watchdog role more efficiently by also equipping audiences with knowledge of practical, proven responses to complex societal challenges.

Table 1. Demographic description Animal Waste Pollution Study 1

Characteristic	**N = 510**[1]
age	44 (31, 59)
ethnicity	
Native American/American Indian	1 (0.2%)
Black/African American	66 (13%)
Hispanic/Latin(o/a/x)	53 (10%)
White	352 (69%)
Asian/Pacific Islander	18 (3.5%)
Multi-Ethnic/Mutli-Racial	20 (3.9%)
Other	0 (0%)
gender	
Man	252 (49%)
Woman	255 (50%)
Non-Binary / Third Gender	2 (0.4%)
Prefer not to say	1 (0.2%)
education	
No High School	1 (0.2%)
Some High School	2 (0.4%)
Graduated High School/ GED	49 (9.6%)
Some College	83 (16%)
Associate's Degree	50 (9.8%)
Bachelor's Degree	257 (50%)
Graduate or Professional Degree	68 (13%)
politics	
Very Liberal	78 (15%)
Somewhat Liberal	154 (30%)
Centrist	94 (18%)

Somewhat Conservative	124 (24%)
Very Conservative	60 (12%)

[1]Median (IQR); n (%)

Table 2. *Means, standard deviation, and correlations with confidence intervals for animal waste pollution (study 1)*

Variable	M	SD	1	2	3	4	5	6
1. Collective Efficacy	4.74	1.45						
2. Self-Efficacy	4.97	1.31	.50** [.43, .56]					
3. News Engagement	3.11	1.14	.36** [.28, .43]	.51** [.44, .57]				
4. Positive Affect	2.89	0.46	.42** [.34, .49]	.27** [.19, .35]	.27** [.19, .35]			
5. Attitude Towards the Issue	3.55	0.77	.47** [.40, .53]	.43** [.36, .50]	.48** [.41, .54]	.66** [.61, .71]		
6. Issue Importance	3.58	1.05	.25** [.17, .33]	.60** [.54, .65]	.54** [.48, .60]	.23** [.15, .31]	.35** [.27, .43]	
7. Cancer Prevention Behavioral Intentions	4.52	1.37	.36** [.29, .44]	.66** [.61, .71]	.77** [.73, .80]	.28** [.20, .36]	.44** [.37, .51]	.69** [.64, .73]

Note. M and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). * indicates $p < .05$. ** indicates $p < .01$.

Table 3: Demographic description for cancer prevention study

Characteristic	**N = 511**[1]
age	
18-29	103 (20%)
30-39	114 (22%)
40-49	92 (18%)
50-60+	202 (40%)
Ethnicity	
Native American/American Indian	5 (1.0%)
Black/African American	0 (0%)
Hispanic/Latin(o/a/x)	131 (26%)
White	354 (69%)
Asian/Pacific Islander	13 (2.5%)
Multi-Ethnic/Mutli-Racial	4 (0.8%)
Other	4 (0.8%)
What gender best describes you? - Selected Choice	
Man	252 (49%)
Non-Binary / Third Gender	2 (0.4%)
Prefer not to say	1 (0.2%)
Woman	256 (50%)
What is the highest level of education that you have completed?	
Associate's Degree	69 (14%)
Bachelor's Degree	208 (41%)
Graduate or Professional Degree	92 (18%)

Graduated High School/ GED	46 (9.0%)
No High School	4 (0.8%)
Some College	90 (18%)
Some High School	2 (0.4%)
When it comes to politics, do you think of yourself as:	
Centrist	100 (20%)
Somewhat Conservative	110 (22%)
Somewhat Liberal	158 (31%)
Very Conservative	48 (9.4%)
Very Liberal	95 (19%)

[1]n (%)

Table 4 Means, standard deviation and correlations with confidence intervals for cancer prevention study 2

Variable	Mean	SD	1	2	3	4	5	6	7
1 Collective efficacy	5.09	1.17	—						
2 Issue importance	3.68	1.09	.24** [.16, .32]	—					
3 News engagement	2.95	1.2	.38** [.31, .46]	.33** [.25, .40]	—				
4 Positive Affect	2.68	0.52	.33** [.25, .41]	.11* [.03, .20]	.24** [.16, .32]	—			
5 Attitude Towards the Issue	3.32	0.9	.35** [.28, .43]	.16** [.07, .24]	.40** [.33, .47]	.67** [.62, .71]	—		
6 Self-Efficacy	4.98	1.19	.70** [.66, .74]	.30** [.22, .38]	.39** [.31, .46]	.23** [.14, .31]	.29** [.21, .37]	—	
7 Cancer Prevention Behavioral Intentions	4.86	1.21	.47** [.40, .53]	.43** [.36, .50]	.69** [.64, .73]	.31** [.23, .39]	.42** [.35, .49]	.50** [.43, .56]	—

Note. *M* and *SD* are used to represent mean and standard deviation, respectively. Values in square brackets indicate the 95% confidence interval for each correlation. The confidence interval is a plausible range of population correlations that could have caused the sample correlation (Cumming, 2014). * indicates $p < .05$. ** indicates $p < .01$.

Table 5*: Serial Mediation Paths for Towards the Article - Animal Waste Pollution Study 1*

	Self Efficacy		Collective Efficacy	
Regression Model	**b(SE)**	**[LLCI, ULCI]**	**b(SE)**	**95% BC [LLCI, ULCI]**
Mediator 1: Positive Affect, *F*(6, 503) = 34.74, p<.0000, R^2 = .29, Interaction effect ΔR^2 = 0.0115, *F*(2, 503) = 4.11, p > 0.017			**F(6, 503) = 34.74, p < .001 , R2 = 0.29, Interaction effect ΔR^2 = .0115, F(2, 503) = 4.11, p = .017**	
Problem vs Others (X1)	0.0178(0.0913)	[-0.1623, 0.1983]	0.0178(0.0913)	[-0.1623, 0.1983]
Solutions vs Others (X2)	**0.9172(0.0953)**	**[0.7309, 1.1085]**	**0.9172(0.0953)**	**[0.7309, 1.1085]**
issue_imp1	0.1047(0.0697)	[-0.0253, 0.2462]	0.1047(0.0697)	[-0.0253, 0.2462]
Int_1 (X1 x Issue importance)	**0.1799(0.0845)**	**[0.0166, 0.3486]**	**0.1799(0.0845)**	**[0.0166, 0.3486]**
Int_2 (X2 x Issue importance)	**0.2736(0.1007)**	**[0.0709, 0.4692]**	**0.2736(0.1007)**	**[0.0709, 0.4692]**
politics	**0.1569(0.0332)**	**[0.0897, 0.2201]**	**0.1569(0.0332)**	**[0.0897, 0.2201]**
Mediator 2: Self Efficacy, F(4, 505) = 29.34, p<.0000, R^2 = .1886			**Mediator 2: Collective Efficacy F(4, 505) = 34.89, p < .001, R2 = 0.2165,**	
Problem vs Others (X1)	0.0671(0.1035)	[-0.1432, 0.2641]	**0.4230 (0.0977)**	**[0.2234, 0.6033]**
Solutions vs Others (X2)	-0.0825(0.0952)	[-0.2653, 0.1066]	-0.0354 (0.0998)	[-0.2301 0.1576]
Positive Affect	**0.3317(0.0431)**	**[0.2503, 0.4165]**	**0.4713 (0.0449)**	**[0.3832 0.5601]**
Politics	**-0.2652(0.0340)**	**[-0.3342, -0.2020]**	0.0139 (0.0320)	[-0.0483 0.0773]
Outcome: Attitudes, *F*(5, 504) = 107.6, p<.0000, R^2 = 0.51			***F*(5, 504) = 98.57, p < .001, R = 0.50**	
Problem vs Others (X1)	**0.1602(0.0818)**	**[0.0060, 0.3239]**	0.0781(0.0857)	[-0.0876 0.2512]
Solutions vs Others (X2)	**0.2584(0.0808)**	**[0.0999 0.4211]**	**0.2432(0.0809)**	**[0.0846 0.4022]**

	Self Efficacy		Collective Efficacy	
Regression Model	**b(SE)**	**[LLCI, ULCI]**	**b(SE)**	**95% BC [LLCI, ULCI]**
Positive Affect	**0.5389(0.0361)**	**[0.4691 0.6074]**	**0.5213(0.0374)**	**[0.4497 0.5945]**
Efficacy Beliefs	**0.2877(0.0410)**	**[0.2098 0.3693]**	**0.2398 (0.0444)**	**[0.1537 0.3253]**
Politics	**0.0377(0.0285)**	**[-0.0195 0.0950]**	**-0.0419 (0.0282)**	**[-0.0965 0.0137]**

Moderated Mediation Model

Paths	**Self Efficacy**		**Collective Efficacy**	
	Effect(SE)	**95% CI [LL, UL]**	**Effect(SE)**	**95% CI [LL, UL]**
Problem vs Others (X1) >> Positive Affect >> Attitudes				
Index of Moderation	*0.0969 (0.0464)*	*[0.0087 0.1910]*	*0.0938 (0.0453)*	*[0.0082 0.1862]*
Issue Importance at low	-0.0658(0.0489)	[-0.1646 0.0278]	-0.0636(0.0475)	[-0.1608 0.0268]
Issue Importance at medium	0.0482 (0.0587)	[-0.0647 0.1636]	0.0466 (0.0570)	[-0.0620 0.1602]
Issue Importance at high	0.1401(0.0929)	[-0.0337 0.3260]	0.135(0.0905)	[-0.0318 0.3191]
Solutions vs Others (X2) >> Positive Affect >> Attitudes				
Index of Moderation	*0.1474 (0.0554)*	*[0.0385 0.2568]*	*0.1426 (0.0538)*	*[0.0382 0.2503]*
Issue Importance at low	0.3796 (0.0650)	[0.2628 0.5141]	0.3672 (0.0640)	[0.2510 0.5004]
Issue Importance at medium	0.5529 (0.0683)	[0.4267 0.6937]	0.5349 (0.0684)	[0.4065 0.6759]
Issue Importance at high	0.6927 (0.1058)	[0.4935 0.9080]	0.6702 (0.1047)	[0.4712 0.8810]
X1 >> Efficacy >> Attitudes				

Paths	**Self Efficacy**		**Collective Efficacy**	
Problem vs Others (X1)	0.0193(0.0298)	[-0.0404, 0.0780]	0.1014 (0.0292)	[0.0544 0.1718]
Solutions vs Others (X2)	-0.0237 (0.0278)	[-0.0808 0.0287]	-0.0085(0.0244)	[-0.0600 0.0375]
Problem vs Others (X1) >> Positive Affect >> Efficacy >> Attitudes				
Index of Moderation	*0.0172 (0.0088)*	*[0.0029 0.0382]*	*0.0203 (0.0102)*	*[0.0040 0.0447]*
Issue Importance at low	-0.0117 (0.0090)	[-0.0326 0.0039]	-0.0138 (0.0107)	[-0.0382 0.0045]
Issue Importance at medium	0.0085 (0.0106)	[-0.0109 0.0312]	0.0101 (0.0124)	[-0.0131 0.0360]
Issue Importance at high	0.0248 (0.0171)	[-0.0051 0.0631]	0.0294 (0.0199)	[-0.0050 0.0737]
Solutions vs Others (X2) >> Positive Affect >> Efficacy >> Attitudes				
Index of Moderation	*0.0261 (0.0112)*	*[0.0077 0.0520]*	*0.0309 (0.0133)*	*[0.0094 0.0622]*
Issue Importance at low	0.0672 (0.0175)	[0.0392 0.1084]	0.0796 (0.0209)	[0.0453 0.1291]
Issue Importance at medium	0.0979 (0.0229)	[0.0610 0.1524]	0.1159 (0.0272)	[0.0703 0.1783]
Issue Importance at high	0.1227 (0.0308)	[0.0743 0.1990]	0.1452 (0.0367)	[0.0838 0.2286]

Table 6: *Serial Mediation Paths for News Engagement - Animal Waste Pollution Study 1*

	Self Efficacy		Collective Efficacy	
Regression Model	**b(SE)**	**[LLCI, ULCI]**	**b(SE)**	**95% BC [LLCI, ULCI]**
Mediator 1: Positive Affect, *F*(6, 503) = 34.74, p<.0000, R^2 = .29, Interaction effect ΔR^2 = 0.0115, *F*(2, 503) = 4.11, p > 0.017			**F(6, 503) = 34.74, p < .001 , R2 = 0.29, Interaction effect ΔR^2 = .0115, F(2, 503) = 4.11, p = .017**	
Problem vs Others (X1)	0.0178(0.0926)	[-0.1642, 0.1998]	0.0178(0.0912)	[-0.1608, 0.1985]
Solutions vs Others (X2)	**0.9172(0.0927)**	**[0.7351, 1.0994]**	**0.9172(0.0954)**	**[0.7332, 1.1109]**
Issue importance	0.1047(0.0707)	[-0.0342, 0.2437]	0.1047(0.0696)	[-0.0266, 0.2440]
Int_1 (X1 x Issue importance)	**0.1799(0.0910)**	**[0.0011, 0.3586]**	**0.1799(0.0844)**	**[0.0197, 0.3487]**
Int_2 (X2 x Issue importance)	**0.2736(0.0975)**	**[0.0821, 0.4651]**	**0.2736(0.1008)**	**[0.0740, 0.4702]**
politics	**0.1569(0.0322)**	**[0.0936, 0.2203]**	**0.1569(0.0332)**	**[0.0915, 0.2214]**
Mediator 2: Self Efficacy, F(4, 505) = 29.34, p<.0000, R^2 = .1886			**Mediator 2: Collective Efficacy F(4, 505) = 34.89, p < .001, R2 = 0.2165,**	
Problem vs Others (X1)	0.0671(0.0987)	[-0.1268, 0.2609]	0.4230 (0.0970)	[0.2325, 0.6135]
Solutions vs Others (X2)	-0.0825(0.1079)	[-0.2945, 0.1294]	-0.0354 (0.1060)	[-0.2436, 0.1729]
Positive Affect	**0.3317(0.0455)**	**[0.2423, 0.4212]**	0.4713 (0.0447)	[0.38, 0.55]
Politics	**-0.2652(0.0318)**	**[-0.3276, -0.2028]**	0.0139 (0.0312)	[-0.05, 0.07]
Outcome: News Engagement, *F*(5, 504) = 42.44, p<.0000, R^2 = 0.2963			***F*(5, 504) = 45.09, p < .001, R^2 = .201**	
Problem vs Others (X1)	**0.2947(0.0920)**	**[0.11, 0.47]**	**0.2030 (0.09)**	**[0.10, 0.40]**
Solutions vs Others	0.1592 (0.1006)	[-0.03, 0.35]	0.1328 (0.10)	[-0.10, 0.34]

	Self Efficacy		Collective Efficacy	
Regression Model	**b(SE)**	**[LLCI, ULCI]**	**b(SE)**	**95% BC [LLCI, ULCI]**
(X2)				
Positive Affect	**0.1530 (0.04)**	**[0.07, 0.24]**	**0.1648 (0.05)**	**[0.06, 0.26]**
Efficacy Beliefs	**0.4433 (0.04)**	**[0.36, 0.52]**	**0.2871 (0.05)**	**[0.19, 0.37]**
Politics	**-0.0521(0.03)**	**[-0.11, 0.01]**	**-0.1737(0.03)**	**[-0.23, -0.11]**

Moderated Mediation Model

Paths	**Self Efficacy**		**Collective Efficacy**	
	Effect(SE)	**95% CI [LL, UL]**	**Effect(SE)**	**95% CI [LL, UL]**
Problem vs Others (X1) >> Positive Affect >> News Engagement				
Index of Moderation	*0.0275(0.0156)*	*[0.0049, 0.0693]*	*0.0296 (0.0175)*	*[0.0046, 0.0767]*
Issue Importance at low	0.0187 (0.0155)	[-0.0575, 0.0050]	-0.0201 (0.0172)	[-0.0637, 0.0053]
Issue Importance at medium	0.0137 (0.0176)	[-0.0161, 0.0551]	0.0147 (0.0193)	[-0.0164, 0.0631]
Issue Importance at high	0.0398 (0.0293)	[-0.0035, 0.1155]	0.0428 (0.0324)	[-0.0039, 0.1275]
Solutions vs Others (X2) >> Positive Affect >> News Engagement				
Index of Moderation	*0.0419 (0.0200)*	*[0.0107, 0.0899]*	*0.0451 (0.0228)*	*[0.0104, 0.1016]*
Issue Importance at low	0.1078 (0.0369)	[0.0451, 0.1904]	0.1161 (0.0419)	[0.0428, 0.2103]
Issue Importance at medium	0.1570 (0.0496)	[0.0640, 0.2601]	0.1691 (0.0579)	[0.0598, 0.2905]
Issue Importance at high	0.1967 (0.0644)	[0.0777, 0.3333]	0.2118 (0.0754)	[0.0758, 0.3761]
X1 >> Efficacy Beliefs >> News Engagement				
Problem vs Others (X1)	0.0297 (0.0460)	[-0.0640,	0.1214 (0.0344)	[0.0634, 0.1987]

Paths	**Self Efficacy**		**Collective Efficacy**	
		0.1174]		
X2 >> Efficacy Beliefs >> News Engagement				
Solutions vs Others (X2)	-0.0366 (0.0431)	[-0.1227, 0.0457]	-0.0102 (0.0292)	[-0.0708, 0.0452]
Problem vs Others (X1) >> Positive Affect >> Efficacy Beliefs >> News Engagement				
Index of Moderation	*0.0265(0.0133)*	*[0.0045, 0.0570]*	*0.0243 (0.0122)*	*[0.0045, 0.0525]*
Issue Importance at low	-0.0180 (0.0138)	[-0.0485, 0.0068]	-0.0165 (0.0127)	[-0.0456, 0.0056]
Issue Importance at medium	0.0131 (0.0163)	[-0.0167, 0.0474]	0.0121 (0.0150)	[-0.0156, 0.0433]
Issue Importance at high	0.0382 (0.0261)	[-0.0079, 0.0972]	0.0352 (0.0239)	[-0.0062, 0.0881]
Solutions vs Others (X2) >> Positive Affect >> Self Efficacy >> News Engagement				
Index of Moderation	*0.0265 (0.0133)*	*[0.0045, 0.0570]*	*0.0370 (0.0153)*	*[0.0117, 0.0728]*
Issue Importance at low	0.1036 (0.0239)	[0.0643, 0.1600]	0.0953 (0.0243)	[0.0557, 0.1536]
Issue Importance at medium	0.1509(0.0303)	[0.0997, 0.2205]	0.1388 (0.0301)	[0.0884, 0.2097]
Issue Importance at high	0.1890 (0.0419)	[0.1187, 0.2848]	0.1739 (0.0404)	[0.1086, 0.2677]

Table 7: Serial Mediation Paths for Pro-environmental Behavioral Intentions – Animal Waste Pollution Study 1

	Self Efficacy		Collective Efficacy	
Regression Model	**b(SE)**	**[LLCI, ULCI]**	**b(SE)**	**95% BC [LLCI, ULCI]**
Mediator 1: Positive Affect, $F(6, 503) = 34.74$, p<.0000, $R^2 = .29$, Interaction effect $\Delta R^2 = 0.0115$, $F(2, 503) = 4.11$, p > 0.017			**F(6, 503) = 34.74, p < .001 , R2 = 0.29, Interaction effect $\Delta R^2 = .0115$, F(2, 503) = 4.11, p = .017**	
Problem vs Others (X1)	0.0178(0.091)	[-0.16, 0.19]	0.0178(0.09)	[-0.16, 0.19]
Solutions vs Others (X2)	**0.9172(0.09)**	**[0.73, 1.09]**	**0.9172(0.09)**	**[0.73, 1.10]**
Issue importance	0.1047(0.07)	[-0.03, 0.24]	0.1047(0.06)	[-0.02, 0.24]
Int_1 (X1 x Issue importance)	**0.1799(0.08)**	**[0.01, 0.35]**	**0.1799(0.08)**	**[0.01, 0.34]**
Int_2 (X2 x Issue importance)	**0.2736(0.10)**	**[0.08, 0.46]**	**0.2736(0.10)**	**[0.07, 0.46]**
Politics	**0.1569 (0.03)**	**[0.09, 0.22]**	**0.1569(0.03)**	**[0.09, 0.22]**
Mediator 2: Self Efficacy, F(4, 505) = 29.34, p<.0000, R^2 = .1886			**Mediator 2: Collective Efficacy F(4, 505) = 34.88, p < .001, R2 = 0.21,**	
Problem vs Others (X1)	**0.0671(0.10)**	**[-0.12, 0.26]**	**0.4230(0.09)**	**[0.22, 0.60]**
Solutions vs Others (X2)	-0.0825(0.10)	[-0.29, 0.12]	-0.0354(0.09)	[-0.22, 0.15]
Positive Affect	**0.3317(0.05)**	**[0.24, 0.42]**	**0.4713(0.04)**	**[0.38, 0.55]**
Politics	-0.2652(0.03)	[-0.32, -0.20]	0.0139 (0.03)	[-0.04, 0.07]
Outcome: Pro-environmental Behavioral Intentions, $F(5, 504) = 96.04$, p<.0000, $R^2 = .4879$			***F*(5, 504) = 45.08, p < .001, R^2 = 0.30**	
Problem vs Others (X1)	0.1303(0.07)	[-0.023, 0.28]	0.0371(0.09)	[-0.13, 0.23]
Solutions vs Others (X2)	0.0461(0.08)	[-0.12, 0.21]	0.0109(0.10)	[-0.19, 0.21]
Positive Affect	**0.1535(0.03)**	**[0.07, 0.22]**	**0.1934(0.05)**	**[0.09, 0.29]**
Efficacy Beliefs	**0.5592(0.03)**	**[0.48, 0.62]**	**0.3091(0.04)**	**[0.22, 0.39]**

	Self Efficacy		Collective Efficacy	
Regression Model	**b(SE)**	**[LLCI, ULCI]**	**b(SE)**	**95% BC [LLCI, ULCI]**
Politics	**-0.1575(0.02)**	**[-0.21, -0.10]**	**-0.3101(0.03)**	**[-0.36, -0.24]**

Mediation Moderation Effects

	Self Efficacy		**Collective Efficacy**	
Paths	**Effect(SE)**	**95% CI [LL, UL]**	**Effect(SE)**	**95% CI [LL, UL]**
Problem vs Others (X1) >> Positive Affect >> Pro-Behavior Intentions Index of Moderation	0.0276 (0.0150)	[0.0053, 0.0669]	0.0348(0.0191)	[0.0058, 0.0830]
Issue Importance at low	-0.0187(0.0149)	[-0.0540, 0.0057]	-0.0236 (0.0189)	[-0.0697, 0.0070]
Issue Importance at medium	0.0137(0.0176)	[-0.0160, 0.0565]	0.0173 (0.0221)	[-0.0215, 0.0693]
Issue Importance at high	0.0399(0.0289)	[-0.0039, 0.1130]	0.0503 (0.0365)	[-0.0070, 0.1401]
Solutions vs Others (X2) >> Positive Affect >> Pro-Behavior Intentions Index of Moderation	0.0420 (0.0203)	[0.0102, 0.0921]	0.0529 (0.0254)	[0.0130 0.1153]
Issue Importance at low	**0.1082(0.0324)**	**[0.0547, 0.1832]**	**0.1362 (0.0403)**	**[0.0696, 0.2302]**
Issue Importance at medium	**0.1575(0.0453)**	**[0.0758, 0.2558]**	**0.1984 (0.0564)**	**[0.1008, 0.3189]**
Issue Importance at high	**0.1974(0.0608)**	**[0.0896, 0.3328]**	**0.2486 (0.0757)**	**[0.1196, 0.4174]**
Problem vs Others (X1) >> Self Efficacy >> Pro-Behavior Intentions	0.0375 (0.0581)	[-0.0795, 0.1485]	0.1308 (0.0361)	[0.0707, 0.2166]
Solutions vs Others (X1) >> Self Efficacy >> Pro-Behavior Intentions	-0.1510(0.0583)	[-0.1510, 0.0583]	-0.0109 (0.0314)	[-0.0744 0.0496]
Problem vs Others (X1) >> Positive Affect >> Self Efficacy >> Pro-Behavior Intentions	0.0334 (0.0165)	[0.0051, 0.0699]	0.026 (0.013)	[0.005, 0.056]

	Self Efficacy		Collective Efficacy	
Paths	**Effect(SE)**	**95% CI [LL, UL]**	**Effect(SE)**	**95% CI [LL, UL]**
Index of Moderation				
Issue Importance at low	-0.0226(0.0173)	[-0.0599, 0.0087]	-0.018 (0.014)	[-0.048, 0.006]
Issue Importance at medium	0.0166(0.0204)	[-0.0218, 0.0577]	0.013 (0.016)	[-0.017, 0.048]
Issue Importance at high	0.0482(0.0325)	[-0.0104, 0.1174]	0.038 (0.026)	[-0.007, 0.095]
Solutions vs Others (X2) >> Positive Affect >> Self Efficacy >> Pro-Behavior Intentions Index of Moderation	0.0508 (0.0205)	[0.0146, 0.0953]	0.040 (0.017)	[0.012, 0.078]
Issue Importance at low	**0.1307(0.0284)**	**[0.0837, 0.1959]**	**0.103 (0.025)**	**[0.061, 0.162]**
Issue Importance at medium	**0.1903(0.0350)**	**[0.1305, 0.2688]**	**0.150 (0.032)**	**[0.098, 0.227]**
Issue Importance at high	**0.2385(0.0491)**	**[0.1560, 0.3500]**	**0.187 (0.043),**	**[0.116, 0.292]**

Table 8*: Serial Mediation Paths for Attitudes Towards the Article– Cancer Prevention Study 2*

	Self Efficacy		Collective Efficacy	
Regression Model	**b(SE)**	**[LLCI, ULCI]**	**b(SE)**	**95% BC [LLCI, ULCI]**
Mediator 1: Positive Affect, *F*(3,507)=146.93, p<.001, R2 = .465			**F(6, 503) = 146.93, p < .001 , R2 = 0.465**	
Problem vs Others (X1)	-0.1354 (0.0362)	[-0.2062, -0.0632]	-0.1354 (0.0362)	[-0.2062, -0.0632]
Solutions vs Others (X2)	0.6678 (0.0435)	[0.5839, 0.7535]	0.6678 (0.0435)	[0.5839, 0.7535]
politics	0.0216 (0.0135)	[-0.0050, 0.0474]	0.0216 (0.0135)	[-0.0050, 0.0474]
Mediator 2: Self Efficacy, F(4, 506) = 13.64, p<.0000, R² = .0974			**Mediator 2: Collective Efficacy F(4, 506) = 18.85, p < .001, R2=0.129**	
Problem vs Others (X1)	-0.0287 (0.1285)	[-0.2869, 0.2232]	0.0687 (0.1256)	[-0.1766, 0.3192]
Solutions vs Others (X2)	-0.6358 (0.1550)	[-0.9424, -0.3358]	-0.4279 (0.1514)	[-0.7417, -0.1388]
Positive Affect	0.9145 (0.1336)	[0.6603, 1.1809]	1.0382 (0.1221)	[0.7999, 1.2853]
Politics	-0.1101 (0.0421)	[-0.1924, -0.0273]	-0.0346 (0.0399)	[-0.1131, 0.0435]
Outcome: Attitudes, *F*(5, 505) = 97.75, p<.0000, R² = 0.49			***F*(5, 505) = 97.71, p < .001, R = .4917**	
Problem vs Others (X1)	-0.0457 (0.0761)	[-0.1997, 0.1003]	-0.0582 (0.0763)	[-0.2121, 0.0880]
Solutions vs Others (X2)	0.3480 (0.0845)	[0.1892, 0.5169]	0.3240 (0.0817)	[0.1686, 0.4865]
Positive Affect	0.8638 (0.0709)	[0.7233, 0.9989]	0.8439 (0.0723)	[0.6964, 0.9829]
Efficacy Beliefs	0.1246 (0.0276)	[0.0680, 0.1770]	0.1289 (0.0316)	[0.0666, 0.1908]
Politics	-0.0448 (0.0253)	[-0.0962, 0.0033]	**-0.0541 (0.0257)**	**[-0.1054, -0.0042]**

Indirect Effects - Attitudes towards Story

	Self Efficacy		Collective Efficacy	
Paths	**Effect(SE)**	**95% CI [LL, UL]**	**Effect(SE)**	**95% CI [LL, UL]**
Conditions (X) >> Positive Affect >> Attitudes towards Story				
Problem vs Others (X1)	-0.1169 (0.0345)	[-0.1878, -0.0528]	-0.1143 (0.0336)	[-0.1847, -0.0523]
Solutions vs Others (X2)	0.5769 (0.0550)	[0.4794, 0.6956]	0.5636 (0.0560)	[0.4630, 0.6828]
Conditions (X) >> Self Efficacy >> Attitudes towards Story				
Problem vs Others (X1)	-0.0036 (0.0166)	[-0.0393, 0.0274]	0.0089 (0.0169)	[-0.0214, 0.0452]
Solutions vs Others (X2)	-0.0792 (0.0263)	[-0.1409, -0.0367]	-0.0552 (0.0232)	[-0.1130, -0.0187]
Conditions (X) >> Positive Affect >> Self Efficacy >> Attitudes towards Story				
Problem vs Others (X1)	-0.0154 (0.0060)	[-0.0303, -0.0066]	-0.0181 (0.0073)	[-0.0376, -0.0074]
Solutions vs Others (X2)	0.0761 (0.0207)	[0.0411, 0.1224]	0.0894 (0.0243)	[0.0460, 0.1431]
Total Effects				
Problem vs Others (X1)	-0.1817 (0.0823)	[-0.3433, -0.0200]	-0.1817 (0.0823)	[-0.3433, -0.0200]
Solutions vs Others (X2)	0.9218 (0.0816)	[0.7616, 1.0820]	0.9218 (0.0816)	[0.7616, 1.0820]

Table 9*: Serial Mediation Paths for News Engagement - Cancer Prevention Study 2*

	Self Efficacy		Collective Efficacy	
Regression Model	**b(SE)**	**[LLCI, ULCI]**	**b(SE)**	**95% BC [LLCI, ULCI]**
Mediator 1: Positive Affect, *F(3, 507) = 146.93, p < .001, R2= 0.465*			***F(3, 507) = 146.93, p < .001, R² = .465***	
Problem vs Others (X1)	-0.2607 (0.0698)	[-0.3971, -0.1216]	-0.2607 (0.0698)	[-0.3971, -0.1216]
Solutions vs Others (X2)	1.2860 (0.0838)	[1.1252, 1.4510]	1.2860 (0.0838)	[1.1252, 1.4510]
politics	0.0416 (0.0260)	[-0.0096, 0.0913]	0.0416 (0.0260)	[-0.0096, 0.0913]
Mediator 2: Self Efficacy, F(4, 506) = 13.64, p < .001, R2= 0.097			**Mediator 2: Collective Efficacy: F(4, 506) = 18.85, p < .001, R² = .130**	
Problem vs Others (X1)	-0.0241 (0.1080)	[-0.2412, 0.1877]	0.0588 (0.1075)	[-0.1512, 0.2733]
Solutions vs Others (X2)	-0.5346 (0.1304)	[-0.7925, -0.2823]	-0.3664 (0.1296)	[-0.6350, -0.1188]
Positive Affect	0.3993 (0.0583)	[0.2883, 0.5157]	0.4616 (0.0543)	[0.3556, 0.5715]
Politics	-0.0926 (0.0354)	[-0.1618, -0.0229]	-0.0296 (0.0342)	[-0.0966, 0.0373]
Outcome: News Engagement, *F(5, 505) = 23.22, p < .001*, R² = 0.187			**F(5, 505) = 21.08, p < .001, R² = .173**	
Problem vs Others (X1)	0.2925 (0.1247)	[0.0382, 0.5344]	0.2590 (0.1251)	[0.0027, 0.4963]
Solutions vs Others (X2)	0.0720 (0.1426)	[-0.2023, 0.3632]	-0.0060 (0.1442)	[-0.2816, 0.2813]
Positive Affect	0.2323 (0.0692)	[0.0918, 0.3634]	0.2158 (0.0747)	[0.0661, 0.3570]
Efficacy Beliefs	0.4186 (0.0509)	[0.3139, 0.5138]	0.3978 (0.0553)	[0.2869, 0.5027]
Politics	-0.0208	[-0.1011,	-0.0478 (0.0414)	[-0.1307, 0.0321]

	Self Efficacy		Collective Efficacy	
Regression Model	**b(SE)**	**[LLCI, ULCI]**	**b(SE)**	**95% BC [LLCI, ULCI]**
	(0.0406)	0.0582]		

Indirect Effects

	Self Efficacy		**Collective Efficacy**	
Paths	**Effect(SE)**	**95% CI [LL, UL]**	**Effect(SE)**	**95% CI [LL, UL]**
Conditions (X) >> Positive Affect >> News Engagement				
Problem vs Others (X1)	-0.0606 (0.0273)	[-0.1261, -0.0180]	-0.0563 (0.0274)	[-0.1222, -0.0150]
Solutions vs Others (X2)	0.2987 (0.0885)	[0.1196, 0.4674]	0.2775 (0.0957)	[0.0865, 0.4657]
Conditions (X) >> Self Efficacy >> News Engagement				
Problem vs Others (X1)	-0.0101 (0.0459)	[-0.1071, 0.0768]	0.0234 (0.0433)	[-0.0596, 0.1106]
Solutions vs Others (X2)	-0.2238 (0.0611)	[-0.3561, -0.1161]	-0.1457 (0.0547)	[-0.2680, -0.0495]
Conditions (X) >> Positive Affect >> Self Efficacy >> News Engagement				
Problem vs Others (X1)	-0.0436 (0.0143)	[-0.0774, -0.0205]	-0.0479 (0.0158)	[-0.0854, -0.0223]
Solutions vs Others (X2)	0.2150 (0.0405)	[0.1462, 0.3074]	0.2361 (0.0426)	[0.1608, 0.3285]
Total Effects				
Problem vs Others (X1)	0.1783 (0.1298)	[-0.0768, 0.4334]	0.1783 (0.1298)	[-0.0768, 0.4334]
Solutions vs Others (X2)	0.3619 (0.1287)	[0.1090, 0.6147]	0.3619 (0.1287)	[0.1090, 0.6147]

Table 10: *Serial Mediation Paths for Cancer Prevention Intentions - Cancer Prevention Study 2*

	Self Efficacy		Collective Efficacy	
Regression Model	**b(SE)**	**[LLCI, ULCI]**	**b(SE)**	**95% BC [LLCI, ULCI]**
Mediator 1: Positive Affect, *F*(3,507)=146.93,p<.001, R2 = .465			**F(3, 507) =146.93, p < .001 , R2 = 0.465,**	
Problem vs Others (X1)	**-0.2607 (0.0698)**	**[-0.3971, -0.1216]**	**-0.2607 (0.0698)**	**[-0.3971, -0.1216]**
Solutions vs Others (X2)	**1.2860 (0.0838)**	**[1.1252, 1.4510]**	**1.2860 (0.0838)**	**[1.1252, 1.4510]**
politics	0.0416 (0.0260)	[-0.0096, 0.0913]	0.0416 (0.0260)	[-0.0096, 0.0913]
Mediator 2: Self Efficacy, F(4, 506) = 13.64, p<.0000, R² = .0974			**Mediator 2: Collective Efficacy, F(4, 506) = 18.85, p < .001, R2= 0.129**	
Problem vs Others (X1)	-0.0241 (0.1080)	[-0.2412, 0.1877]	0.0588 (0.1075)	[-0.1512, 0.2733]
Solutions vs Others (X2)	**-0.5346 (0.1304)**	**[-0.7925, -0.2823]**	**-0.3664 (0.1296)**	**[-0.6350, -0.1188]**
Positive Affect	**0.3993 (0.0583)**	**[0.2883, 0.5157]**	**0.4616 (0.0543)**	**[0.3556, 0.5715]**
Politics	-0.0926 (0.0354)	[-0.1618, -0.0229]	-0.0296 (0.0342)	[-0.0966, 0.0373]
Outcome: Cancer Prevention Intentions, *F*(5, 505) = 54.31, p<.0000, R² = 0.3497			***F*(5, 505) = 46.79, p < .001, R2 = . 0.316**	
Problem vs Others (X1)	**0.2420 (0.0958)**	**[0.0555, 0.4336]**	**0.2076 (0.0965)**	**[0.0210, 0.3951]**
Solutions vs Others (X2)	0.2221 (0.1136)	[-0.0056, 0.4387]	0.1346 (0.1181)	[-0.1008, 0.3638]
Positive Affect	**0.1997 (0.0551)**	**[0.0896, 0.3073]**	**0.1890 (0.0599)**	**[0.0742, 0.3083]**
Efficacy Beliefs	**0.4409 (0.0430)**	**[0.3561, 0.5245]**	**0.4045 (0.0454)**	**[0.3165, 0.4915]**
Politics	-0.1682 (0.0333)	[-0.2338, -0.1048]	-0.1970 (0.0333)	[-0.2650, -0.1340]

Indirect Effects

	Self Efficacy		**Collective Efficacy**	
Paths	**Effect(SE)**	**95% CI [LL, UL]**	**Effect(SE)**	**95% CI [LL, UL]**
Conditions (X) >> Positive Affect >> Cancer Prevention Intentions				
Problem vs Others (X1)	-0.0521 (0.0227)	[-0.1083, -0.0166]	-0.0493 (0.0227)	[-0.1048, -0.0153]
Solutions vs Others (X2)	0.2568 (0.0723)	[0.1196, 0.4058]	0.2431 (0.0782)	[0.0973, 0.4050]
Conditions (X) >> Self Efficacy >> Cancer Prevention Intentions				
Problem vs Others (X1)	-0.0106 (0.0481)	[-0.1099, 0.0821]	0.0238 (0.0442)	[-0.0590, 0.1138]
Solutions vs Others (X2)	-0.2357 (0.0607)	[-0.3652, -0.1265]	-0.1482 (0.0526)	[-0.2585, -0.0503]

Conditions (X) >> Positive Affect >> Self Efficacy >> Cancer Prevention Intentions				
Problem vs Others (X1)	-0.0459 (0.0148)	[-0.0799, -0.0218]	-0.0487 (0.0156)	[-0.0853, -0.0234]
Solutions vs Others (X2)	0.2264 (0.0405)	[0.1553, 0.3182]	0.2401 (0.0393)	[0.1716, 0.3305]
Total Effects				
Problem vs Others (X1)	0.1334 (0.1037)	[-0.0704, 0.3372]	0.1334 (0.1037)	[-0.0704, 0.3372]
Solutions vs Others (X2)	0.4696 (0.1028)	[0.2675, 0.6716]	0.4696 (0.1028)	[0.2675, 0.6716]

APPENDICES

APPENDIX A: EXPERIMENTAL STIMULI FOR STUDY 1: ANIMAL WASTE POLLUTION (PROBLEM STORY)

WISCONSIN DAIRY FARMERS STRUGGLE WITH MANURE CRISIS

OSHKOSH. WI. Before dawn breaks over the rolling hills of Oshkosh, Wisconsin, John Smith is already busy with his daily routine. He tends to his herd of about 50 cows. He crafts a rhythmic blend of farm chores and cow care amid the verdant fields. The sun's rays reflect on the evaporating dew on the grass. Yet, as John moves through this idyllic scene, an imposing mound occupies the far-left corner. It's a giant, impossible-to-ignore pile of animal waste.

Dairy farmers like John face an ever-growing challenge. They must manage the large volumes of cow manure generated on their farms. "I've got decades invested in these lands," says Miller, a third-generation dairyman. "But the cost and effort to dispose of the waste keeps climbing." The sheer volume of waste, he explains, has become costly and environmentally risky to manage. "It's a double-edged sword. Manure is a useful fertilizer, but the scale now causes real issues."

Manure output state-wide reflects the immensity of the issue. Wisconsin, home to over 1.2 million dairy cows, generates over 30 billion pounds of cow manure annually. Herd sizes and production quotas have risen dramatically in recent decades. This has increased the economic and ecological pressures from this large byproduct.

The waste also has dire environmental consequences. When waste seeps into the earth, it trickles into fissures in porous rocks. It then enters groundwater. Waste spills also out of storage pits, lagoons, and pipes, polluting surface water.

"The numbers just don't make sense anymore," Miller says, weary frustration seeping into his voice. "What used to be manageable now feels out of control." Miller and farmers across the state together face disposal costs climbing into the millions.

The local community tried to collaborate with the University of Wisconsin Oshkosh to pioneer a waste-to-energy conversion facility.

The goal was to convert organic waste streams like manure into renewable fuels using an engineering process called the Fischer-Tropsch synthesis.

The Fischer-Tropsch synthesis transforms biogas into renewable fuels through a reforming process, creating a type of gas rich in carbon and hydrogen. This gas, often called syngas is then purified and processed, becoming suitable for applications in vehicles like cars, trucks, and planes. It is a process used on a large scale by companies like Shell and Arco.

But the plans have run into big problems, the project leaders report. "We've struggled to get enough organic waste to begin the process," explained Dr. Susan Smith, the lead researcher at the university. "Even when we have materials like manure, there have been issues with contamination and inconsistent composition that have made the machinery fail."

It's been a learning curve," admitted Ron Jones, operations manager. "But the difficulty in getting people interested has been a challenge."

APPENDIX B: EXPERIMENTAL STIMULI FOR STUDY 1: ANIMAL WASTE POLLUTION (SOLUTIONS STORY)

HOW WISCONSIN DAIRY FARMERS TURN MANURE INTO FUEL WITH INNOVATIVE TECHNOLOGY

OSHKOSH, WI. Before dawn breaks over the rolling hills of Oshkosh, Wisconsin, John Smith is already busy with his daily routine. He tends to his herd of about 50 cows. He crafts a rhythmic blend of farm chores and cow care amid the verdant fields. The sun's rays reflect on the evaporating dew on the grass. Yet, as John moves through this idyllic scene, an imposing mound occupies the far-left corner. It's a giant, impossible-to-ignore pile of animal waste.

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The waste also has dire environmental consequences. When waste seeps into the earth, it trickles into fissures in porous rocks. It then enters groundwater. Alternatively, waste spills out of storage pits, lagoons, and pipes, polluting surface water.

"The numbers just don't make sense anymore," Miller says, weary frustration seeping into his voice. "What used to be manageable now feels out of control." Miller and farmers across the state together face disposal costs climbing into the millions.

In response, the University of Wisconsin Oshkosh has partnered with a local company to pioneer a waste-to-energy conversion facility. The plant aims to convert organic waste streams like manure into renewable fuels using an engineering process called the Fischer-Tropsch synthesis.

The Fischer-Tropsch synthesis transforms biogas into renewable fuels through a reforming process, creating a type of gas rich in carbon and hydrogen. This gas, often called syngas is then purified and processed, becoming suitable for applications in vehicles like cars, trucks, and planes. It is a process used on a large scale by companies like Shell and Arco.

Early evidence shows strong potential. This waste-to-energy technology is already implemented in some regions around the country. It also extends beyond animal waste. It can process a variety of sources like food waste and organic materials such as yard waste.

The goal for the new commercial facility is to make about 1,800 gallons of fuel per day, Long said.

There is only so much energy left in the manure after being digested by a cow, which limits the amount of gas available.

"But obviously there are other farms," Long said. "So the goal is that after we get the first farm going, it is to partner up with other sites that also have waste streams and create the multiplier effect by virtue of multiple sites."

APPENDIX C: EXPERIMENTAL STIMULI FOR STUDY 1: ANIMAL WASTE POLLUTION (CONTROL STORY)

DIFFERENT ENERGY SOURCES

The United States is one of the largest energy producers and consumers in the world, with a diverse portfolio of energy sources. According to the U.S. Energy Information Administration (EIA), the five major sources of primary energy in the U.S. in 2022 were natural gas, petroleum, coal, nuclear, and renewable energy.

Natural gas was the U.S.'s largest source of primary energy in 2022, accounting for 38% of the total. Natural gas is a fossil fuel that is extracted from underground reservoirs and used for heating, cooking, industrial processes, and electricity generation.

Petroleum was the second largest primary energy source in the U.S. in 2022, accounting for 32% of the total. Petroleum is a liquid mixture of hydrocarbons that is refined into various products, such as gasoline, diesel, jet fuel, and lubricants.

Coal was the third largest primary energy source in the U.S. in 2022, accounting for 11% of the total. Coal is a solid fossil fuel mined from the ground and burned to produce heat and electricity.

Nuclear was the fourth largest primary energy source in the U.S. in 2022, accounting for 9% of the total. Nuclear energy is derived from the splitting of atoms in nuclear reactors, which release heat and electricity.

Renewable energy was the fifth largest source of primary energy in the U.S. in 2022, accounting for 10% of the total. Renewable energy is derived from natural resources that are replenished by natural processes, such as solar, wind, hydro, biomass, and geothermal.

APPENDIX D: EXPERIMENTAL STIMULI FOR STUDY 2: CANCER PREVENTION (PROBLEMS STORY)

RALEIGH MOM WITH CANCER FACE IMPOSSIBLE CHOICE BETWEEN TREATMENT AND CHILDCARE

Costa is sitting in a waiting room at Hartland Memorial Hospital, listening for her name to be called. It is a scene that is well too familiar for her. She's waited for results from the biopsy that would tell her whether the lump in her cervix was cancerous. She's waited for treatment in emergency rooms, where she goes when the pain from the tumor becomes too much to bear. Now, she's waiting to learn whether the weeks of treatment have effectively curbed the growth of cervical cancer in her body.

When Costa, 26, was diagnosed with an advanced stage of cervical cancer last year, she missed multiple early appointments, delaying the start of her treatment. The single mom knows only a few people in Raleigh and said she had no one she could ask to safely watch her daughters while she got care day after day, sometimes for hours on end. She couldn't afford traditional daycare or a babysitter.

Costa's struggle highlights a crisis many parents face - accessing medical care when they have no one to care for their children. A recent survey of 300 Hartland patients found over half had missed doctor appointments because they lacked childcare. "I wasn't going to my appointments or anything like I should have been," says Costa, a single mother of two young daughters.

After getting diagnosed last year, Costa repeatedly had to skip radiation and chemotherapy sessions, delaying the start of urgently needed treatment. The cancer continued to grow as missed appointments piled up.

A doctor once told Costa about a childcare center located at Hartland's hospital campus. However, Costa learned the center had a long waitlist and unaffordable fees. "I had hoped they could help solve my childcare crisis," Costa recalled. "If I had to pay, I wouldn't have been able to afford my cancer treatment.

However, facilities like the one the doctor described remain extremely rare. Establishing affordable childcare is challenging. This is especially true for public hospitals that serve uninsured and low-income patients. These places have been invaluable in removing barriers to cancer treatment. But, their small scale means they can only serve a fraction of needy patients

Dr. Rosa Tamayo, an oncology specialist, revealed that countless women's treatments are derailed by the lack of affordable childcare. Cancer shouldn't force mothers to choose between their health and their children.

A study published in the Journal of Women's Health found that out of over 4,000 women evaluated over seven years of visits, more than half of them had at least one missed appointment. Patients who missed appointments tended to have more complications than those who did not.

Shirley Walker, a mother of two boys, faced similar childcare challenges during cancer treatment. Diagnosed with gastric cancer, Shirley said she worked extra hours, maxed out credit cards, and barely got by paying for both a nanny and immunotherapy. But after a year, the cancer returned. "I was devastated," Shirley recalled.

For people like Costa, the future seems bleak, but she is hopeful. "I am not sure what will happen next," Costa said, her uncertainty casting a shadow over any optimism, "but for now, I find solace in the fleeting joy of moments shared with my children."

APPENDIX E: EXPERIMENTAL STIMULI FOR STUDY 2: CANCER PREVENTION (SOLUTIONS STORY)

FREE CHILDCARE REMOVES BARRIERS TO CANCER TREATMENT FOR RALEIGH MOM

Costa is sitting in a waiting room at Hartland Memorial Hospital, listening for her name to be called. It is a scene that is well too familiar for her. She's waited for results from the biopsy that would tell her whether the lump in her cervix was cancerous. She's waited for treatment in emergency rooms, where she goes when the pain from the tumor becomes too much to bear. Now, she's waiting to learn whether the weeks of treatment have effectively curbed the growth of cervical cancer in her body.

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Costa's struggle highlights a crisis many parents face - accessing medical care when they have no one to care for their children. A recent survey of 300 Hartland patients found over half had missed doctor appointments because they lacked childcare. "I wasn't going to my appointments or anything like I should have been," says Costa, a single mother of two young daughters.

After getting diagnosed last year, Costa repeatedly had to skip radiation and chemotherapy sessions, delaying the start of urgently needed treatment. The cancer continued to grow as missed appointments piled up.

Then a doctor told Costa about a potential solution - Fanny's Place, a first-of-its-kind childcare center located at Hartland's hospital campus. Operated by the nonprofit Sister's Help, Fanny's Place offers Hartland patients free, drop-in childcare whenever they have a medical appointment.

Initially, Sister's Help provided in-home care. Now, any family facing a medical crisis — be it a cancer diagnosis, a high-risk pregnancy, treatment for substance use disorder, or something else — could qualify for six months of free, in-home child care for up to 40 hours a week.

In all, Sister's Help has provided care for 77 families so far. Fanny's Place allowed Costa to finally complete 10 weeks of radiation and chemotherapy without missing a single appointment.

According to Natasha Bowie, founder of Sister's Help, Fanny's Place is helping redefine how the healthcare system views childcare. "Nowhere are people talking about childcare as a factor in accessing medical care," says Bowie. "What we discovered is it's a huge barrier to appointments." For patients like Costa, free services like Fanny's Place can mean the difference between life-saving treatment and being unable to get care.

However, facilities like Fanny's Place remain extremely rare. Establishing affordable childcare is challenging. This is especially true for public hospitals that serve uninsured and low-income patients. Places like Fanny's Place have been invaluable in removing barriers to cancer treatment. But, their small scale means they can only serve a fraction of needy patients.

"Fanny's Place has been a complete blessing," says Costa. "Without it, I would have had to choose between being there for my children or getting the cancer treatment I desperately needed. Thanks to their help, I didn't have to make that impossible choice."

APPENDIX F: EXPERIMENTAL STIMULI FOR STUDY 2: CANCER PREVENTION (CONTROL STORY)

THE DIFFERENT TYPES OF CANCER

Cancer is a disease that can affect people of all ages. Many different types of cancer can occur in different parts of the body. Some of the most common cancers are breast, lung, colon, and prostate cancer. The major types of cancer are based on the type of cells they originate from and their location in the body. Three major types of cancer include the following:

Carcinomas are cancers that arise from outer cells, which line the surfaces of organs, glands, and tissues. They account for about 80 to 90 percent of all cancers. Examples of carcinomas include breast, lung, colon, and prostate cancer.

Melanomas are cancers that originate from melanocytes, the pigment-producing cells in the skin. They are the most serious type of skin cancer, as they can spread quickly to other parts of the body. They are more common in people with fair skin, light eyes, and a history of sun exposure.

Leukemias are cancers that affect the blood cells, especially the white blood cells. Leukemias can cause symptoms such as fatigue, fever, bleeding, bruising, and infections.

Other categories include Sarcomas are cancers that develop from connective tissues, such as bone, cartilage, fat, muscle, and blood vessels. Lymphomas are cancers that affect the lymphatic system, which is part of the immune system.

APPENDIX G: SURVEY MEASUREMENTS (ANIMAL WASTE POLLUTION STUDY 1)

Affect

Scale: 4-point scale (Does not apply/Describe, Somewhat Describes, Mostly Describes, Completely Describes)

Measures: Now, please indicate how the following describes your feelings about the cancer story: Happy, Inspired, Enthusiastic, Hopeful, Excited, Upset, Angry, Annoyed, Disgust, Afraid

Issue Importance

5-point scale (Not at all important to Extremely important)

Question: "How important are environmental issues to you personally?"

Attitudes towards the news story

Scale: 5-point Likert scale (Strongly disagree to Strongly agree)

Measures: Engaging, Enjoyable, Appealing, Useful, Positive, Good, Favorable, Attractive, Exciting, Pleasant, Likeable, High Quality, Interesting, Well-written

Efficacy Beliefs

Scale: *7-point scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (7). Now, think about the story you read. Please state your agreement or disagreement with the following:*

Collective Efficacy

- I am sure that we can achieve progress because we are all pulling in the same direction to address environmental pollution.
- I am certain that we will find ways to turn environmental pollution around.
- We can come up with creative ideas to solve environmental problems effectively, even if the external conditions are unfavorable.

Self-Efficacy

- My actions can contribute to addressing environmental pollution
- I can make changes by pushing for environment-friendly government policies
- I have the ability to take action to address environmental pollution.
- Although it may be inconvenient, I can still change my behavior to prevent environmental pollution

Behavioral Intentions

Scale: 7-point scale (Extremely Unlikely to Extremely Likely)

Measures: Thinking about addressing cancer related issues, how likely or unlikely are you to engage in the following statements:

- Endorse taxpayers' money to support local waste-to-energy initiatives
- Vote for elected officials who support local waste-to-energy initiatives
- Volunteer for an environmental groups participating in local waste-to-energy initiatives as described in this story
- Donate money to an organizations working to reduce environmental pollution
- Read more stories on local waste-to-energy initiatives highlighted in the story
- Talk with others about the local waste-to-energy initiatives highlighted in the story

News Engagement

Scale: 5-point scale (Extremely unlikely to Extremely likely)

Measures: How likely or unlikely are you to do the following

- Share the article on social media (Facebook, Instagram, X, Whatsapp, e.t.c.)
- Read more articles from the author/news platform
- Read more articles about the issue

Control Variables

- Gender: Categorical (Man, Woman, Non-Binary / Third Gender, Prefer not to say, Prefer to Self-Describe)
- Age: Open-ended numerical
- Education: 7-point ordinal scale (No High School to Graduate or Professional Degree)
- Ethnicity: Native American/American Indian, Black/African American, Hispanic/Latin(o/a/x), White, Asian/Pacific Islander, More than one, Other
- Political orientation: 5-point scale (Very Liberal to Very Conservative)
- State of residence

APPENDIX H: SURVEY MEASUREMENTS (CANCER PREVENTION, STUDY 2)

Affect

The Affect measure uses a 4-point scale ("Does not apply/Describe" to "Completely Describes") for how participants feel about the cancer story, including:

- Positive emotions: Happy, Inspired, Enthusiastic, Hopeful, Excited
- Negative emotions: Upset, Angry, Annoyed, Disgust, Afraid

Issue Importance

This is measured with a single-item 5-point scale:

- "How important is the issue of cancer to you personally?" (Not at all Important → Extremely Important)

Attitudes toward the News Story

Measured using 16 semantic differential items on a 5-point scale (Strongly disagree → Strongly agree):

- Engaging, Enjoyable, Appealing, Useful, Positive, Good, Favorable, Attractive, Exciting, Pleasant, Likeable, High Quality, Interesting, Engaging, Enjoyable, Well Written

Efficacy Beliefs

All measured on 7-point scales (Strongly Disagree → Strongly Agree). Now, think about the article you read. Please state your agreement or disagreement with the following:

Collective Efficacy

- "I am sure that we can achieve progress because we are all pulling in the same direction to address cancer"
- "I am certain that we will find ways to turn cancer around"
- "We can come up with creative ideas to solve health related issues effectively, even if external conditions are unfavorable"

Self-Efficacy

- "My actions can contribute to enhancing cancer prevention"
- "I can make changes by pushing for cancer prevention government policies"
- "I have the ability to take action to improve cancer prevention"
- "Although it may be inconvenient, I can still change my behavior to prevent cancer"

Behavioral Intentions

Measured on 7-point likelihood scales (Extremely Unlikely → Extremely Likely). Thinking about addressing cancer related issues, how likely or unlikely are you to engage in the following statements:

- Support efforts the story described to support cancer patients
- Vote for elected officials who support this kind of cancer-related initiative
- Endorse spending taxpayer money to provide cancer support in the ways described
- Donate money to public health organizations supporting cancer patients
- Read more stories on the issue highlighted in the story
- Talk with others about the issue highlighted in the story
- Get involved to help solve the issue highlighted in the story

News Engagement

Measured on 5-point scale (Extremely unlikely → Extremely likely): How likely or unlikely are you to do the following

- Share the article on social media
- Read more articles from the author/news platform

Control Variables

- Age (18-29, 30-39, 40-49, 50-60+)
- Gender (Man, Woman, Non-Binary/Third Gender, Prefer not to say, Prefer to Self-Describe)
- Education (7 levels from No High School to Graduate/Professional Degree)
- Ethnicity (multiple selection)
- Political affiliation (Very Liberal to Very Conservative, 5-point scale)
- U.S. state of residence

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