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From news images to action: the mobilizing effect of emotional protest images in news coverage

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The political power of images has probably never been stronger than in today's "information age" in which mobile devices allow instant access to news coverage of local, national, and global events, which are generally visualized in some way. Thus, this paper investigates whether political news images mobilize people to engage in political protest by appealing to their emotions. A pre-post-design integrating eye tracking with 143 participants examines how the observation of protest images in news coverage induces emotions and affects participatory intents. This reveals that a longer image observation activates both positive and negative discrete emotions (i.e., fascination, interest, sadness, anger, disgust, shame, guilt, and being touched) which increase the image recipients' willingness to participate politically. Additionally, for people with a high level of political interest, longer exposure to an emotion-inducing news image increases their willingness to participate in political activism, while a low level of political interest produces a negative effect.

KEYWORDS

media images, emotions, political participation, experiment, eye tracking, protest coverage, news reception, media effects

From news images to action: the mobilizing effect of emotional protest images in news coverage

Visual content has become an indispensable part of political news coverage. Nearly every news outlet, whether online or in print, nowadays incorporates visual elements such as news photographs, photo galleries, or video footage to capture viewers' attention and engage them more deeply with the news story (Schäfer and Yan, 2023; Vafeiadis et al., 2020; Fletcher et al., 2015). Particularly, emotionalizing news images spread quickly through traditional and social media, often reaching a global audience within minutes (Gerbaudo, 2012). This rapid dissemination can enhance the spread of news (Karnowski et al., 2020; Khuntia et al., 2016), making images a crucial component for engaging audiences. Such an audience-mobilizing function can be seen as a central prerequisite for informed political decision-making by citizens. However, from a participatory democratic perspective, the political significance of a news image lies in its ability to provoke thought, evoke emotion, and influence social attitudes and behaviors. According to this idea, news images are political because they have the potential to actively engage viewers, influence individual and social perspectives, and contribute to the formation of public opinion and political participation.

This "power of images" is well-illustrated by the example of press photographs used to report on protests: They typically depict social grievances or contentious issues, portray symbols of social movements, show acts of defiance and power dynamics between authorities and protesters, often capturing moments of conflict, solidarity and resistance,

highlighting socio-political struggles, and mobilizing public opinion (Corrigan-Brown, 2012; Mattoni and Teune, 2014; Won et al., 2017). Political participation—a wide range of actions to promote, prevent, or manage social, political, economic, or environmental change (Anduiza et al., 2012)—is closely linked to the visual rhetoric of these images. The powerful combination of visual impact and emotional engagement in such images can serve as catalysts for mobilizing supporters and achieving broader social impact. Research has accordingly shown that news images play a critical role in encouraging political participation by lowering the cost of engagement, triggering emotional responses, increasing expectations of success, and fostering collective identity, ultimately leading to greater mobilization (e.g., Adler-Nissen et al., 2020; Casas and Williams, 2019; Geise et al., 2021).

However, up to date, the interplay between image perception, emotional activation, and subsequent changes in participation intentions remains underexplored: How do news images of protest issues and activities affect the image recipients? Do they trigger the recipients' discrete emotions? Do people become more inclined toward political participation the more intensely they observe such news photographs?

Addressing these questions is crucial for a number of reasons. As visual content becomes more prevalent in the news and visual news media significantly shapes the political landscape, its impact on civic engagement and democracy is also becoming increasingly important. Understanding the emotional impact of news images and their influence on participation provides valuable insights for activists, policymakers, and media practitioners. More specifically, by learning how political interest levels mediate the effects of visual exposure, strategies for effectively mobilizing different segments of the population can be developed, thereby improving political campaigns and movements.

To examine the interplay between image perception, emotional activation, and subsequent changes in participation intentions, we conducted an experimental study in which 143 students from a German university (see sections on research design/sample as well as limitations for more information) were presented with a set of news images of protest issues and activities combined with textual news items. By combining pre- and post-survey methods with eye-tracking technology, we scrutinized the impact of perceiving potentially emotion-inducing news images on the willingness to participate in political activism. Looking at the micro level of individual information perception and processing and using data that allows inferences on sensory, affective and cognitive processes, our results expand our understanding of the interaction of image reception, emotions and participatory intents. We demonstrate that political news images activate discrete emotions (i.e., fascination, interest, sadness, anger, disgust, shame, guilt, and being touched) which increase the image recipients' willingness to participate politically. Additionally, for people with a high level of political interest, longer exposure (even by a millisecond) to an emotion-inducing news image is likely to increase their willingness to participate in political activism. In contrast, a low level of political interest produces a negative effect: for the least interested, longer exposure to an emotion-inducing news image is likely to decrease the willingness to participate.

Theoretical framework and literature review

Special characteristics of news images

Images and texts both serve as effective carriers of political information but differ significantly in the way they convey messages and evoke emotions (Geise and Baden, 2015). Due to their associative and analog nature, particularly photographic images have an immediate true-to-life quality that allow for quick processing and broad accessibility (Grabe and Bucy, 2009; Messaris and Abraham, 2001). This immediacy allows images to quickly capture attention and convey messages almost instantly, with less cognitive control. Even with only a fleeting exposure to the stimulus, visuals enable easy access to the perception process and help readers interpret the textual information (Coleman, 2010; Messaris and Abraham, 2001). As the human brain perceives, stores, and processes visual and textual information with distinct mechanisms in the cerebral cortex (Paivio, 1989), the information conveyed through photographs is often more easily remembered than textual information, leaving a lasting impression that influences attitudes and behaviors over time (Childers and Houston, 1984; Hockley, 2008). In addition, photographs are particularly suitable for arousing emotions (Barry, 1997; Iyer and Oldmeadow, 2006; Powell et al., 2015). These differences can be explained by *Dual Coding Theory* (Paivio, 1989; Paivio and Csapo, 1973), which posits that textual information is processed systematically and sequentially in a linear fashion, which often requires more cognitive effort to achieve the same level of emotional engagement (Barry, 2006; Elkins, 2003; Paivio, 1989; Schneider and Maasen, 1998). Photographs, in contrast, have the ability to portray raw, unfiltered realities that are processed rapidly and holistically, using a parallel processing system that aligns closely with the pathways emotions travel (Barry, 2006; Coleman, 2010; Geise and Baden, 2015; Messaris and Abraham, 2001). In line with these ideas, research has shown that pictorial and textual components of news media are treated differently by recipients when perceiving and processing political information (Bucher and Schumacher, 2006; Dahmen, 2012; Geise et al., 2021)—a finding that also serves as a central basis for our work.

Emotions, images, and political participation

Based on their special characteristics, news images can efficiently stimulate affective responses—such as discrete emotions—in recipients (Boomgaarden et al., 2016; Brantner et al., 2011; Powell et al., 2015), which then can sway related processes of perception, processing, and action (Frijda, 1988). Commonly, emotions are defined as individuals' mental and physical responses to significant stimuli—such as a news image of protest.

Aiming to understand how individuals process and respond emotionally to political information, *Cognitive Appraisal Theory* (CAT) has been a foundational framework in political and

communication science and has enhanced understanding of voter behavior, political mobilization, and media effects (Sabucedo et al., 2017; Valentino et al., 2011; Vasilopoulos et al., 2019; Weber, 2008). Originating from psychology, CAT posits that emotional responses are elicited through an individual's assessment (appraisal) of an event or stimulus, considering factors such as relevance, implications, and coping potential (Lazarus, 1991). According to CAT, emotions are thus triggered and guided by a cognitive appraisal, and they are accompanied by a set of mental and physiological changes (Frijda, 1986; Lazarus, 1991). These include a bodily response (usually in preparation for an action), changes in the recipients' cognitive activities that potentially support that action, and the conscious experience of a "feeling" (Brader, 2005; Mulligan and Scherer, 2012).

In recent years, numerous researchers have devoted attention to the relationship between emotions and political participation. In the context of electoral advertising and voter turnout, this has allowed scholars to highlight the role of emotions as short-term components of people's motivation to participate politically—playing a significant role alongside stable factors such as age, education, ability, and interest (Powell et al., 2015; Coleman and Banning, 2006; Miller, 2011; Valentino et al., 2011, 2009). This has, for example, revealed that emotional campaigns affect voting behavior and the willingness of citizens to donate money for the campaign (Lau and Pomper, 2004; Brader, 2005). In the context of collective action and social movements, scholars as well have explored the role of discrete emotions in shaping individuals' participation in such actions (Lu, 2021; Milan, 2023; Pizarro et al., 2022; Van Zomeren et al., 2004). While studies generally highlight the importance of various emotions (Jasper, 2011), particularly the feeling of anger over unfairness to one's in-group was found to be an important driver of collective action (Shi et al., 2015; Van Zomeren et al., 2004). Taking a process-oriented perspective, some studies also suggest that "reactive" emotions during the initial stage of mobilization occur which can immediately influence collective action intention (Lu, 2021), while moral emotions were activated at a later stage in sustaining commitment over time (Milan, 2023).

However, because most of these studies have not included the effect of news images in their analysis, we still know little about how news photographs influence participation and the role emotions play in these processes (Groenendyk, 2011; Schill, 2012; Miller, 2011). Nonetheless, in the context of protest reporting, Stamps and Mastro (2020) demonstrated that news images can trigger complex emotional reactions in recipients. Using physiological measurement methods, Sánchez-Navarro et al. (2006) also uncovered complex emotional responses and accompanying motivational processes in people who had viewed various "pleasant" and "unpleasant" media images from the *International Affective Picture System* (Bradley and Lang, 2007). They thus demonstrated that certain media images not only lead to the activation of discrete emotions in the recipient, but then also stimulate further motivational processes. Accordingly, by pairing the analysis results of presidential candidates' non-verbal behavior with survey data from the *National Election Studies*, Coleman and Banning (2006) showed that the visual news content shaped the image recipients' emotional reactions as well as their impressions of the candidates. In addition, Iyer et al. (2014) as well as Brantner

et al. (2011) found that news images can trigger specific emotions, such as compassion, fear, and anger, which subsequently shape the recipient's assessment of political issues.

The stimulation of emotions by visual and textual news has often been empirically associated with media consumption, information seeking, and learning (Bastos et al., 2015; Dolan and Holbrook, 2001; Valentino et al., 2009)—which can be seen as important preconditions for political action. Few studies have gone one step further and looked more closely at the mobilizing effect of media images. This revealed that the exposure to images, particularly news photographs, can influence perceptions and participatory intentions. For example, Fahmy et al. (2006) demonstrated that exposure to emotion-inducing news images increased the perceived relevance of the images' subject matter and the individual perception of threats of terrorism, which in turn shaped the image recipients' motivation to further engage in political activism. Brader (2005) showed that emotion-evoking photographs in political ads enhanced the recipients' willingness to participate in political action; that is, the subjects exposed to positive media images showed greater interest in the campaign and were more willing to vote. Powell et al. (2015) found that single news photos exerted a dominant influence on the image recipients' participatory intents; their perception of the news images enhanced their commitments to discuss political issues in an in-depth way, to donate money to the campaign, to sign a petition, and to protest in support of the actors embroiled in a conflict. To examine the impact of emotions on collective action intentions for environmental justice, Lu (2021) exposed participants to victim portrayals, one group including a photographic portrayal and the other group not (photo-present vs. photo-absent condition). The photographic victim portrayals elicited higher levels of compassion, distress, and moral outrage, and those victim portrayals that elicited more moral outrage, compassion, and distress also led to more collective action intentions (Lu, 2021).

Since research has shown that news images can induce discrete emotions such as anger, fear, disgust, and can thus effectively shape the cognition of people exposed to such images (Brader, 2005), it is important to further study whether and how this influences their participatory intents and behavior (Stamps and Mastro, 2020). To this end, we expect:

If a news image induces discrete emotional responses in a recipient (e.g., fear, anger, disgust, sadness, and shame), his/her willingness to participate in political activism increases (H1).

Conditional effects of negative emotions

Scholars in political and communication science have mostly based their conceptualization of emotions on *Cognitive Appraisal Theory* (CAT, e.g., Smith and Ellsworth, 1985), understanding distinct emotions as an implicit perceptual lens for interpreting information, and discrete emotions have been repeatedly applied in the field (e.g., Druckman and McDermott, 2008; Miller, 2011; Small and Lerner, 2008). From a theoretical perspective, there are several arguments for applying CAT: It is well-established in

political science and media effect research (e.g., Sabucedo et al., 2017; Vasilopoulos et al., 2019; Weber, 2008); it addresses the complexity of human emotions (e.g., Fontaine et al., 2007) and emphasizes the “importance of examining specific emotions rather than global (positive–negative) feelings” (Lerner et al., 2003, p. 144). As mirrored by H1, this work also grounds considerations in appraisal theory assuming that emotions stem from subjective evaluations of the world (e.g., Frijda, 1986; Lazarus, 1991).

However, some scholars raised the concern that CAT, firstly, neglects the prospect that people can experience several emotions during one singular event and, secondly, has been largely uninformed by contemporary neuroscience research on emotions, which suggests that emotion emanate from distinct yet interrelated brain circuitry (Marcus et al., 2019). Addressing this observation, the *Affective Intelligence Theory* (AIT) proposes different emotional subsystems (namely the “disposition,” “surveillance,” and “aversion” system) which lay a foundation for rational behavior by navigating citizens between reliance on habituated practices (e.g., traditions) and more effortful thought processes (e.g., deliberation) to produce, reflect, and then enact new solutions regarding the demands of the political environment (Brader, 2005; Marcus, 2003; Marcus et al., 2006, 2019). These neural subsystems are activated by different types of information (e.g., the “surveillance” system is activated through threatening treatments; the “disposition” system by information consistent with an individual’s beliefs) and in turn generate discrete emotions (e.g., fear, fascination, or anger).

In line with these assumptions, scholars have contrasted the effects of discrete “positive” vs. “negative” emotions elicited through political messages, and have presented divergent findings regarding their particular impact on political involvement, participation and mobilization (Brader, 2005; Isbell et al., 2006; MacKuen et al., 2010; Rudolph et al., 2000; Weber, 2012). Rudolph et al. (2000), for example, found that candidate-induced enthusiasm spurred involvement, while anxiety did not. Brader (2005) demonstrated that particularly fear-inducing messages stimulated greater attention to information while fascination-inducing ads led to a greater motivation to participate in an electoral campaign. Valentino et al. (2009) found that anger, but not fear, boosted political participation. In their follow-up study, Valentino et al. (2011) again established anger as a mobilizing factor. Weber (2012) also showed that anger-evoking political messages heightened the recipients’ participatory intention, elevated their political interest, and encouraged political discussions, volunteering, and voting in the upcoming elections. Fear and sadness, to the contrary, resulted in a decrease in civic engagement (Weber, 2012).

In addition to acknowledging the findings about the different effects of discrete emotions, especially anger and fear, in line with the core assumptions of AIT results seem to indicate a tendency in which threatening, “negative” emotions have a greater potential than “positive” emotions to mobilize people (potentially activating the “surveillance” system leading to changes in behavioral intentions, but still causing distinct “internal” effects on the content and process of judgments as a function of the cognitive appraisals associated with each specific emotion; Lerner and Tiedens, 2006; Small and Lerner, 2008). In information perception and processing, the general tendency that negative

information tends to elicit stronger and quicker emotional, cognitive, and behavioral responses than neutral or positive information is well-known as “negativity bias” (e.g., Ito et al., 1998; Mogg et al., 2000; Rozin and Royzman, 2001); and a number of studies suggests that it unfolds in political contexts as well (e.g., Knobloch-Westerwick et al., 2020; Park, 2015). This idea, in general, appears compatible with the assumptions of the AIT which has initially evolved from the supposition of two basic dimensions of affective appraisal, one most oft labeled “positive” (a dimension that arrayed affect from moribund to enthusiastic), and the second marked as “negative” (ranging from calm to anxious and fearful; Marcus et al., 2019; Brader and Marcus, 2013). Furthermore, in recent work, some researchers have established that discrete *and* dimensional perspectives on emotion can complement each other, contributing to a more elaborated understanding of the functions of emotions (Harmon-Jones et al., 2017). Kensinger and Schacter stress that the perceived valence of images can range from negative to positive (Kensinger and Schacter, 2006; Ziegele and Reinecke, 2017), exerting a variety of different effects. For instance, stimuli carrying a perceived negative valence have been shown to activate thoughts, mental images, and meanings (Kitayama and Howard, 1994; Cohen-Chen et al., 2020), which, in turn, might further a person’s willingness to vote in a particular way or to engage in a particular activity (e.g., Clarke et al., 2011; Fridkin and Gershon, 2021). Renaud and Unz differentiate between different discrete emotions, including anger, disgust, contempt, shame, or guilt, as well as surprise, pleasure, satisfaction or affection (Renaud and Unz, 2006). While the former emotions form a bundle that carries a negative valence (see results of our factor analysis in the data analysis section), the latter forms a bundle with a positive connotation. Contrasting effects of positive and negative emotions was found to be particularly effective when trying to understand the processing of emotion-inducing visual messages (Müller et al., 2012). From a theoretical viewpoint, there are sound reasons for considering visual messages inducing negative emotions as exceptionally activating: the inducement of negative emotions heightens attention to the information presented, enhances learning, breaks people’s political-thought-related habits, and reasonably results in behavior executed as a strategy to deal with one’s strong undesirable emotions (Brader, 2005; Valentino et al., 2009).

However, there has been no study to date that uses observed data about people’s selective attention to certain information to examine the impact of discrete, emotion-eliciting media messages on such people’s political participation. Including visual attention as a central explanatory factor of media perception and its processing—as scholars have suggested recently (Kruikemeier et al., 2018; Marquart et al., 2016)—seems particularly relevant as the underlying processes are well-documented but all too infrequently examined in political science and communication research. Building on the existing perception and reception theories (e.g., Zaller, 1996), eye movement research (Duchowski, 2007; Geise, 2012; Just and Carpenter, 1976) and our summarized observations, we expect that longer exposure to news media images activating negative emotions will amplify their effects. We therefore hypothesize:

Under the condition that a news image primarily evokes negative emotions in a recipient, a longer image observation duration leads to an increased willingness to participate politically (H2).

Visual attention toward news images and the moderating role of political interest

Cognitive psychology has a long history of establishing that the immediate sensory perception and processing of information alter the impact of a media content. Defined as “the preferential processing of some items to the detriment of others” (Findlay and Gilchrist, 2003, p. 3), selective *visual attention* is a key concept regarding such processes. As such concept determines the information chunks to be perceived and how these will be processed and stored in the mind (Bucher and Schumacher, 2006), the recipients must be attentive for any information to have measurable effects (De Vreese and Boomgaarden, 2006; Zaller, 1996).

While sensory perception cannot be directly observed, eye movements indicate the underlying attentional processes and thus reflect visual attention (Bucher and Schumacher, 2006; Duchowski, 2007). More precisely, by providing objective and quantitative data about where, how often, and how long people look at a certain set of information, eye tracking helps determine the target of a person’s visual attention and the length of time that his/her eyes are fixed on it, regularly measured by the number and/or duration of foveal fixations. While eye movement research has investigated readers’ selection and attention patterns in the context of newspaper design (Garcia and Stark, 1991), few scholars have used eye tracking to compare selective attention to textual information in the news with selective attention to visual information in the same (Bucher and Schumacher, 2006; Dahmen, 2012, 2015; Marquart et al., 2016). This is of interest as press photography has long been used in the media as a way of capturing attention, often depicting emotional and provoking political contents and sometimes even overstepping journalistic ethics when trying to attract readers (Perlmutter, 1998). Such an “attention-grasping” function of emotion-inducing news images is also supported by empirical findings (e.g., Holmqvist et al., 2003; Geise et al., 2020). Graphic press photographs in particular, typically embedded in professional media coverage, can quickly catch people’s visual attention (Dahmen, 2015; Holmqvist et al., 2003). Likewise, in a recent study by Lee and Ho (2018) comparing visual attention guided toward multimodal (photographic-textual) contents to that directed toward monomodal (textual-only) contents, it was found that the subjects who had been exposed to multimodal contents had higher attention levels than those who had been exposed only to textual contents.

According to cognitive psychology and eye movement research, higher visual attention is also linked to a deeper further cognitive processing of the retrieved information (Duchowski, 2007; Geise, 2012; Just and Carpenter, 1976). Emotion-inducing news images were thus found to not only attract and bind the recipients’ attention, but also to succeed in activating the reception of the following textual information (Bucher and Schumacher, 2006; Dahmen, 2015; Rössler et al., 2011). Drawing on these findings,

we assume that people’s exposure to potentially emotion-inducing news photographs raises their selective attention and is thus more likely to increase their willingness to participate in political activism (compared to exposure to non-emotionalizing news photographs and especially to textual elements).

The potential of news contents to stimulate attention, to deepen information processing, and to mobilize their recipients, however, depends not only on the stimulus (e.g., visual vs. text) but also on the recipients’ individual predispositions. In the context of political participation, *political interest* is a central prerequisite for mobilization (Gil de Zúñiga et al., 2012; Holt et al., 2013). Defined as “a citizen’s willingness to pay attention to political phenomena at the possible expense of other topics” (Lupia and Philpot, 2005, p. 1,122) and as “the degree to which politics arouses a citizen’s curiosity” (Van Deth, 2000, p. 119), political interest is a motivational precondition for reception, information processing, learning, and opinion formation (Delli Carpini, 2004). People with a high level of political interest are thus not only more likely to pay attention to political information in general (Lupia and Philpot, 2005); their reception of political information is also more likely to trigger attitudinal change in them (Kazee, 1981; Zaller, 1996) and to goad them toward political participation (Kenski and Stroud, 2006; DiGrazia, 2014).

Notwithstanding this general pattern, images in particular were often regarded as having special potential to appeal primarily to those who otherwise have little interest in politics (Mattoni and Teune, 2014; Lilleker, 2019). In considering why images resonate most with those considered political cognitive underachievers, Lilleker (2019), for example, argues that images provide cognitive shortcuts to support simple reasoning and heuristic decision making, particularly when these images stand out, receive full attention, and are persistently stored in memory.

Yet, the longer exposure to political information to those citizens with a low level of political interest can also result in a derogation and even rejection of the information (Brehm and Brehm, 2013) and can thus decrease or inhibit one’s willingness to participate (Meirick and Nisbett, 2011). In the same vein, Marcus (2003) has suggested that “aversion” triggered by disliked issues inhibits follow-up actions such as new-information seeking. Such follow-up actions can be expected to be compounded if a recipient with a low level of interest will be exposed to attention-grabbing, emotion-inducing press photographs or political media images (Müller et al., 2012). We thus expect:

If the level of political interest is increasing, higher visual attention (measured as a longer observation duration) to a news image will lead to an increase in the recipient’s willingness to participate in political activism (H3a).

If the level of political interest is decreasing, higher visual attention (measured as a longer observation duration) to a news image will lead to a decrease in the recipient’s willingness to participate in political activism (H3b).

Research design

The research design was applied to capture conditions under which exposure to a potentially emotion-inducing political

news image stimulates the visual attention of its recipients' (measured via eye tracking), induces emotions in them (measured via questionnaire), and—through possible interactions of such attentional and emotional processes during image perception and processing—can mobilize people to become politically active (measured via questionnaire). Therefore, we combined a pre- and a post-survey with an observed eye tracking part. The resulting experiment was conducted as a within-subject design; all participants were confronted with a series of four news images of protest issues and activities. Following a pretest-posttest logic, no control group was formed, but measurements were taken before and after treatment exposure, allowing causal inferences to be made from the reception of the treatment to the variables under investigation.

That way, 143 participants were exposed to a set of four press photographs embedded in four multimodal news articles appearing in a randomized order. The news images were taken from daily media coverage of protests¹, and depicted protest actions (such as an ongoing demonstration) as well as protest issues (such as factory farming, old-age poverty; see [Appendix](#) for further details and examples).

The images were then combined with neutral news articles covering the respective protest themes. The news articles were comparable in structure, style, length, and content, and each article contained the same proportion of visual and textual elements. This incorporates an article headline, a typical press photograph, a caption, a publication date, and the names of the respective authors. While the articles were similar to articles typically appearing in the news further references to a news source or platform were not made so as not to provide any extraneous cues. The articles were then presented to our participants in a randomized order so that each participant was exposed to four articles, each containing one news image. While the participants thus saw four multimodal news articles in total featuring four press photographs, two news images depicted protest actions and two visualized protest issues (see [Appendix](#)).

The study started with the pre-survey capturing the control variables (i.e., gender, age, level of political knowledge, and level of political interest of each study participant) and factors that, when combined with the post-survey results, allowed for the construction of the dependent variable (i.e., change in the willingness to participate in political activism). After the pre-survey, participants' calibration of the eye tracking equipment took place; then,

participants were presented with four news images embedded in four multimodal news articles, and eye movements were observed². For this, we employed mounted eye trackers (Tobii Pro) invisibly integrated in a customary computer screen and used at a sample rate of 120 Hz to capture the participants' visual attention guided to the news articles and their elements, particularly the embedded news images (but also the text, captions, headlines, dates, authors, etc.). Next, the post-survey was conducted in which we captured the participants' emotional responses to each of the images to which they were exposed and gathered data on their willingness to participate in political activism in each of the four issue areas. Thus, to measure changes that could be causally attributed to the observed news articles, the study utilized a pretest/posttest design.

Sample

For this study, 156 participants were recruited among the student population of a midsized German university. Thirteen participants covered <90% of the eye tracking measures and were, therefore, excluded from the analysis. After eliminating these cases, the final sample was comprised of 143 participants: 69 women, 72 men, and two neutral/other-gender individuals, whose ages ranged from 18 to 43 years ($M = 23.76$; $SD = 3.84$). Each of the 143 participants was exposed to four multimodal news articles, and the measures for each treatment were gathered separately. Our dataset thus contained a total of 572 observations³ on the dependent and independent variables.

Measures

Willingness to participate politically was measured asking the following question for each policy field (social inequality, education, peacekeeping, and animal rights) separately: "Some people tend to be more involved in the political arena, others less. What about you: What is your basic willingness to exercise the following forms of political participation in the field of [*insert policy field*]?" The implanted dimensions of participatory actions were based on established definitions which understand participation as a complex phenomenon that incorporates a wide array of partaking actions ([Marsh and Kaase, 1979](#); [Verba et al., 1995](#)). More

¹ In the first selection step, the researchers collaboratively put together a sample of 63 current press photographs of protest issues and activities, in which they identified 44 typical visualizations. In the second step, these images were presented to 75 undergraduate students at a midsize German University. In this qualitative pre-study, the students performed picture sorting tasks, categorizing the images regarding its thematic focus and estimating their visual qualities. Based on these audience perceptions, we selected 16 images representing four political issues (social inequality, education, animal rights, and peacekeeping) that were used to create the experimental treatments in our study. In the final image selection, half of the press photographs depicted protest actions (such as an ongoing demonstration), and half visualized protest issues (such as factory farming, old-age poverty; see [Appendix](#) for further details and examples).

² In preparation for the eye movement measurement, the study participants carried out a calibration task to make the eye tracking system fit their individual physiology and to ensure the precision and validity of the measurement. When the measurements were found to be valid and accurate, the study participants were randomly presented four different news images depicting four different policy fields (social inequality education, peacekeeping, and animal rights).

³ In our study, each participant was exposed to four news images, one for each policy field (social inequality education, peacekeeping, and animal rights). Each news image was embedded in typical online news article. For each of these four policy fields, the participant's political online engagement was measured twice: before and after the treatment. For each participant, we thus collected four observations of change in the intent to political engagement. Given that there were 143 participants in our study, there were 572 observations in all.

specifically, we measured the following 19 components using 5-point Likert scales, discretely before and after treatment exposure (where 1 = lowest support and 5 = highest support): keeping oneself informed through traditional media, keeping oneself informed through online media, liking a political post, composing a political post, sharing a political post, discussing politics, speaking up during official political events, donating money to a political organization, donating money for specific causes, signing a petition, attending a demonstration, participating in a strike, submitting a complaint, becoming part of a citizens' initiative, becoming a member of a political party, organizing a demonstration, participating in a political organization, participating in a militant protest, and voting. Constructing our dependent variable, we then merged the 19 types of political participation into one compound variable ($M = 0.006$, $SD = 0.576$) using an arithmetic average and calculated the difference between post- and pre-political participation ratings by subtracting the latter from the former. The dependent variable was continuous in nature and ranged empirically from -2.8 to 2.3 (see Table A1).

Visual attention was captured through eye tracking, measuring the total observation duration through foveal fixations on the treatment in seconds (rescaled from milliseconds). All participants underwent an individual calibration of the Tobii Pro eye-tracking system used for this study to adjust it to their specific physiognomics. The calibration procedure ensured measurement accuracy (calculated as the mean offset in millimeters and thereafter gaze angles based on the distance between the eye and eye tracker) and validity.

For fixation detection, we applied the standard fixation algorithm (Tobii I-VT filter): The minimum duration required for a fixation to be registered as a data point was 60 ms, which captured shorter as well as longer fixations as are common during reading (Radach et al., 2008). The velocity threshold was set for 30° per second, which is sufficient for recordings with various levels of noise (Chen et al., 2008). By applying this algorithm, the processing script could classify the observed eye movements as "fixations."

For extracting the data, we created "areas of interest" (AOIs) for each news article, covering typical areas (e.g., news visual, article text, headline, subline, caption, date, and author), allowing to determine how long participants guided their visual attention to specific parts of the news article. The observation duration ranged from 0.102 to 24.677 s ($M = 5.286$, $SD = 3.868$) for stimulus images, and from 0.575 to 42.705 s ($M = 13.286$, $SD = 6.173$) for texts.

Emotions were measured directly after treatments exposure, applying a modified version of the *Differential Emotions Scale* (DES) initially proposed by Izard and colleagues (Izard et al., 1974). More precisely, intending to acknowledge that media reception is not only swayed by negative affects, but significantly shaped by the experience of positive emotions as well, we used the *Modified Differential Emotion Scale* (M-DES), developed by Renaud and Unz (2006) to capture positive emotions as possible media effects in a more differentiated way. Applying the M-DES, we measured the following 16 emotions/emotional responses, using a 5-point Likert scale (with 5 = highest and 1 = lowest reported reaction): interest, enjoyment, surprise, anger, disgust, contempt, fear, shame, sadness, guilt, pleasure, satisfaction, affection, fascination, being touched, and boredom (Renaud and Unz, 2006). As can be derived from this catalog, positive emotions—in contrast to the

original DES—are weighted more strongly in the M-DES, which seems more in line with the importance of negative and positive emotions experienced during media reception. The measurement was performed separately for each of the news images presented asking: "What did you feel when looking at the news image just now? We have prepared below a list of words that can be used to describe certain feelings and emotional reactions. Please go through these words one by one and indicate in each case what you felt when you saw the press photo. Please answer as spontaneously as possible—we are interested in your very personal, completely spontaneous impression" (compare Renaud and Unz, 2006).

Political interest was measured using the following standard survey item: "Are you generally interested in politics or are you not?" The respondents could indicate the level of their political interest using a 5-point Likert scale, where 1 meant "I am not interested in politics at all" and 5 meant "I am highly interested in politics" (see Table A1).

We also asked about the gender of each respondent (male, female, other) and the level of *factual knowledge* (Zhang et al., 2015) with respect to the political system of Germany (see Table A1). Participants were asked to state spontaneously which statements they considered right or wrong. The five statements conveyed basic facts about Germany's political system, including questions about the federal president, citizens' basic rights, the number of seats in parliament, the federal states, and election rules. For further analysis, we formed a summative index for which each correct answer was included with a value of 1 (see Table A1).

Data analysis and results

Our data structure is hierarchical as we observed the emotionalizing impact of news images four times for each participant, focusing on the treatment-specific variables⁴. As such, and because the dependent variable was continuous in nature, we opted for linear multi-level regressions with random intercepts. Although not commonly used in experimental psychology, the state-of-the-art multi-level modeling approaches often used in other disciplines (e.g., the educational and developmental areas) represent a viable alternative to ANOVA (analysis of variance) or the regression-based approaches for repeated-measures designs (Hoffman and Rovine, 2007). The LR (likelihood ratio) test as well as the ICC (Intra Class Correlation Coefficient) suggest that multi-level analysis is superior to the OLS (ordinary least squares) models with regard to our study.

To avoid negative degrees of freedom, we used parsimonious models, and we ran each model for each emotion separately. Each model controlled for gender and the level of factual knowledge. Our models remain robust when we additionally control for the type of issue at stake and whether the news image depicts a protest activity or a protest issue (c.f. Table A2), which revealed that neither the type of image nor the policy area has in itself a significant effect and that all of the substantive findings remain robust⁵. We additionally

⁴ The level 1 variables were the image fixation duration and the emotions triggered by the images while the level 2 variables were the study participants' individual characteristics, such as gender and levels of political knowledge and political interest.

TABLE 1 Multi-level regressions with cross-level interactions for high level of political interest.

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
Emotions																
Boredom	-0.079*** (0.016)															
Pleasure		-0.006 (0.020)														
Joy			0.001 (0.018)													
Satisfaction				-0.015 (0.017)												
Affection					0.028 (0.027)											
Fascination						0.048** (0.018)										
Being touched							0.065*** (0.015)									
Interest								0.096*** (0.018)								
Surprise									0.017 (0.019)							
Sadness										0.066*** (0.014)						
Anger											0.058*** (0.014)					
Disgust												0.032* (0.014)				
Contempt													0.025 (0.018)			
Fear														0.028 (0.016)		

(Continued)

TABLE 1 (Continued)

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10	Model 11	Model 12	Model 13	Model 14	Model 15	Model 16
Shame															0.050**	
															(0.018)	
Guilt																0.087***
																(0.017)
Total duration fixation image	0.037***	0.042***	0.042***	0.042***	0.042***	0.039***	0.037***	0.035**	0.041***	0.043***	0.042***	0.043***	0.042***	0.041***	0.042***	0.046***
	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)	(0.011)
Political interest	-0.182***	-0.170***	-0.170***	-0.170***	-0.171***	-0.175***	-0.165**	-0.182***	-0.168***	-0.173***	-0.178***	-0.170***	-0.170***	-0.168***	-0.169***	-0.175***
	(0.050)	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)	(0.050)
Fix. duration * high pol interest	0.018**	0.018**	0.018**	0.018**	0.018**	0.018**	0.017**	0.017**	0.018**	0.019**	0.019**	0.018**	0.018**	0.018**	0.018**	0.020***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)	(0.006)
Control: factual knowledge	-0.026	-0.029	-0.029	-0.029	-0.030	-0.030	-0.028	-0.020	-0.028	-0.028	-0.027	-0.028	-0.026	-0.029	-0.029	-0.031
	(0.050)	(0.051)	(0.051)	(0.051)	(0.051)	(0.050)	(0.051)	(0.051)	(0.051)	(0.050)	(0.051)	(0.051)	(0.051)	(0.051)	(0.051)	(0.050)
Control: gender	-0.090	-0.119	-0.119	-0.117	-0.119	-0.122	-0.106	-0.096	-0.121	-0.100	-0.095	-0.118	-0.124	-0.113	-0.114	-0.104
	(0.079)	(0.080)	(0.080)	(0.080)	(0.081)	(0.079)	(0.080)	(0.081)	(0.080)	(0.080)	(0.080)	(0.080)	(0.080)	(0.080)	(0.080)	(0.079)
Constant	0.069	-0.023	-0.035	-0.008	-0.070	-0.118	-0.191	-0.370	-0.063	-0.210	-0.219	-0.097	-0.074	-0.086	-0.121	-0.213
	(0.240)	(0.245)	(0.245)	(0.244)	(0.246)	(0.242)	(0.245)	(0.253)	(0.244)	(0.243)	(0.246)	(0.243)	(0.244)	(0.244)	(0.244)	(0.243)
Observations	572	572	572	572	572	572	572	572	572	572	572	572	572	572	572	572
Var. class	0.167***	0.172***	0.172***	0.171***	0.173***	0.167***	0.172***	0.178***	0.170***	0.168***	0.172***	0.170***	0.171***	0.170***	0.170***	0.168***
	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)	(0.012)
Var. residual	0.125***	0.131***	0.131***	0.131***	0.131***	0.130***	0.126***	0.122***	0.131***	0.126***	0.126***	0.130***	0.131***	0.131***	0.129***	0.125***
	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
AIC	717.010	741.044	741.126	740.312	740.033	734.498	723.770	713.516	740.328	720.101	723.184	736.181	739.141	738.191	733.586	716.319
BIC	756.152	780.186	780.269	779.454	779.175	773.640	762.912	752.658	779.470	759.244	762.326	775.323	778.283	777.333	772.728	755.462
Marginal R ²	0.103	0.079	0.079	0.080	0.080	0.087	0.096	0.111	0.080	0.101	0.096	0.083	0.080	0.081	0.087	0.104
Conditional R ²	0.616	0.601	0.601	0.601	0.603	0.600	0.618	0.638	0.600	0.615	0.618	0.602	0.602	0.601	0.606	0.619
PCV (level 2)	0.150	0.128	0.127	0.131	0.123	0.152	0.124	0.096	0.135	0.145	0.125	0.137	0.129	0.136	0.136	0.144
PCV (level 1)	0.066	0.022	0.022	0.023	0.026	0.029	0.060	0.089	0.022	0.061	0.061	0.030	0.026	0.026	0.036	0.069

Standard errors in parentheses with *p < 0.05, **p < 0.01, ***p < 0.001.

look at the cross-level interactions between political interest and the total fixation duration of an image (Hypothesis 3). This allowed us to determine whether a higher level of political interest (see Table 1) has a different moderating effect on the role of observing media images in the individuals' willingness to participate in political activism compared to a lower level of political interest.

Firstly, the news images generated all 16 emotions in the participants, but are not every emotion was equally pronounced. On the one end of the spectrum was affection ($M = 1.250$; $SD = 0.676$) followed by joy ($M = 1.559$; $SD = 0.986$), while interest ($M = 2.955$; $SD = 1.147$) preceded by being touched ($M = 2.410$; $SD = 1.219$) were located on the other end of the spectrum. We found no systematic variation in emotions triggered by news images in the four different policy areas. For instance, in social inequality education, peacekeeping, and animal rights the most prevalent emotion generated was interest, while the least generated emotion was affection. Similarly, we observed no systematic clustering of emotions depending on whether the news images depicted the protest issue or the activity with respect to the issue at stake.

Our analysis, secondly, revealed that the perception of protest images embedded in news articles stimulates the emotional reaction of fascination, interest, and being touched, of sadness, anger, disgust, shame, and guilt; and these emotions increase the recipients' willingness to participate in political activism (H1; see Table 1). Boredom is the only emotion that unfolds a significant negative effect on the change in the recipients' participatory intentions, while the signs of the coefficients are positive in respect to the other emotions. If a political media image induces fascination, interest, being touched, sadness, anger, disgust, shame, and guilt, his/her willingness to participate in political activism increases. Yet, participatory intentions are not increased if the news image activates boredom, pleasure, joy, satisfaction, affection, surprise, contempt or fear. Thus, H1 is supported partially.

5 Table A2 shows that the types of images (depiction of protest actions and protest issues) do not influence our findings and has no significant effect itself. Both types of images relate to protest. While this is obvious for images of protest actions, images of social grievances are also perceived as protest images as they show politically salient and contentious issues, that are known to have triggered protest movements to become active in the past. In order to investigate the robustness of the findings even further, we also disaggregated the dependent variable into its 19 individual components (keeping oneself informed through traditional media, keeping oneself informed through online media, liking a political post, composing a political post, sharing a political post, discussing politics, speaking up during official political events, donating money to a political organization, donating money for specific causes, signing a petition, attending a demonstration, participating in a strike, submitting a complaint, becoming part of a citizens' initiative, becoming a member of a political party, organizing a demonstration, participating in a political organization, participating in a militant protest, and voting). This reveals that in most instances our findings remain robust with respect to their signs and significance, whereas the emotionalizing and activating impact of news images loses significance (but remains robust) with respect to participating in elections, becoming a member of a political party, making donations, composing a political post, speaking up during official political events and participating in a strike (the 19 additional regression tables are available upon request).

TABLE 2 Regressions for the two groups—image fixation duration.

	Group of positive emotional response to images	Group of negative emotional response to images
	Model 1	Model 2
Total duration fixation image	0.039*** (0.010)	0.005 (0.007)
Political interest	-0.071 (0.056)	-0.058 (0.046)
Control: factual knowledge	-0.068 (0.063)	-0.020 (0.056)
Control: gender	-0.175 (0.102)	-0.131 (0.088)
Constant	0.530 (0.273)	0.481* (0.219)
Observations	186	355
Var. class	0.204*** (0.018)	0.184*** (0.015)
Var. residual	0.098*** (0.008)	0.126*** (0.006)
AIC	270.927	496.380
BIC	293.507	523.485
Marginal R ²	0.155	0.043
Conditional R ²	0.727	0.611

Standard errors in parentheses with * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

H2 expected a negativity bias in information perception and processing: we assumed that the image observation duration increases a person's participatory intentions particularly in cases in which the image perception engenders mainly negative emotions in that person. Further investigating these assumption, we firstly tested if the theoretical idea to generally differentiate between "positive" and "negative" emotions (Harmon-Jones et al., 2017; MacKuen et al., 2010; Marcus, 2003; Müller et al., 2012) is supported by our data. A factor analysis shows that the set of "positive" emotions (surprise, pleasure, satisfaction, affection, and fascination; Cronbach's alpha: 0.715) and the set of "negative" emotions (emotion, grief, anger, disgust, contempt, guilt, and shame; Cronbach's alpha: 0.872) each formed a separate factor while boredom formed a third one. We then estimated two other models (see Tables 2, 3) to examine whether the effect of the visual-image observation duration on the change in the willingness to participate in political activism is conditioned by whether the person primarily experiences negative emotions when he/she perceives the image. Tables 2, 3 shed light on the plausibility of H2 (Table 2: regarding the observation duration of images; Table 3 regarding the observation duration of textual contents).

Contrary to H2, for the image recipients who experienced mainly negative emotions after viewing an emotional media image, a longer image observation duration did not significantly

TABLE 3 Regressions for the two groups—text fixation duration.

	Group of positive emotional response to images	Group of negative emotional response to images
	Model 1	Model 2
Total duration fixation text	−0.001 (0.007)	0.006 (0.005)
Political interest	−0.079 (0.057)	−0.058 (0.046)
Control: factual knowledge	−0.097 (0.065)	−0.013 (0.056)
Control: gender	−0.162 (0.105)	−0.139 (0.088)
Constant	0.858** (0.302)	0.408 (0.228)
Observations	186	355
Var. class	0.208*** (0.019)	0.184*** (0.015)
Var. residual	0.110*** (0.009)	0.126*** (0.006)
AIC	284.520	495.139
BIC	307.100	522.244
Marginal R ²	0.095	0.047
Conditional R ²	0.688	0.613

Standard errors in parentheses with *p < 0.05, **p < 0.01, ***p < 0.001.

increase participatory intentions (Table 2, Model 2). Yet, the image observation duration increased the change in an image recipient's willingness to participate in political activism for the images that caused predominantly positive, discrete emotions in the recipient (Table 2, Model 1): Observing news images that trigger primarily positive emotions in the recipient, his/her inclination toward political participation increased by 0.039 units with every additional millisecond that the image was looked at. As we found a *positivity bias* instead of a negativity bias, H2 is not supported by our data.

Our analysis also offers insights into the plausibility of H3, which focuses on the effect of the image observation time on participatory intents if the political interest were high (H3a; see Table 1). Regarding the former, all estimated models in Table 1 show that if the level of political interest were high, the longer an individual looks at a protest image the higher his/her willingness to participate in political activism becomes. As this effect is highly significant, and robust in all models, H3a is supported by our data. For persons which would have a high level of political interest, every additional millisecond that a news image is observed increases the change in the willingness to participate in political activism, by 0.037 units (Model 1, Table 1).

If the political interest were decreasing, the longer a person looks at the protest image, the less willing he/she is to participate in political activities.

To complement the view, we also analyzed how the reception duration of *textual* news contents impacts participatory intentions. Here, our results indicate that the textual-content reception duration did not impact the change in the person's willingness to participate in political activism (Table 3). Hence, while the length of time that an image is looked at significantly increases the willingness to participate in political activism if the image triggers primarily positive emotions (see Table 2, Model 1), the length of time that an individual views a *textual* content does not have a similar effect on his/her mobilization (see Table 3, Model 1).

Although public political protest heavily depends on visual communication to raise attention, protest performances often rely on shocking effects (Mattoni and Teune, 2014). In a nutshell, our results show that publicity at any price is not the best strategy for protest movements. Consider, for example, the infamous PETA protests for animal rights (Stokes and Atkins-Sayre, 2018). Raising awareness of rather indifferent people about disastrous conditions of industrial farming or the maltreatment of animals in clinical laboratories the usage of scary images or spilling artificial blood might even harm the noble aim. It is more likely that especially politically uninterested citizens are disgusted by the performance and care even less about the protest issue. Politically interested people, in turn, could be even more willing to participate and support the PETA protests, if positive emotions are stimulated as they might fully draw their attention to the protest issue.

Conclusions and outlook

The debate about the visualization of politics is in full swing, and media images are increasingly being acknowledged as performative elements of political discourses. Yet, despite the theoretical assumption that emotions are important politically, few scholarly works have empirically assessed their consequences on political participation.

Aiming to contribute to the empirical body of research, we extended the analytical perspective, measured the sensory perception of news images via eye tracking and included a broad array of negative and positive emotions in our analysis exploring the impact of specific emotions engendered by observing protest images on participatory intents. Examining how news images and individual predispositions shape information perception and processing, our results shed light on how people are affected and mobilized by exposure to emotion-inducing news images of protest.

Our study shows that protest images trigger discrete emotional responses, namely fascination, interest, sadness, anger, disgust, shame, guilt, and being touched, which increase the willingness to participate in political activism. These findings are consistent with research in the context of collective action and social movements, in which scholars have explored the role of discrete emotions in shaping individuals' engagement in collective action and their intentions to further participate (Lu, 2021; Milan, 2023; Pizarro et al., 2022; Van Zomeren et al., 2004).

As our data analysis also reveals indications for a "positivity bias," we found that positive and negative emotions seem to

impact the inclination toward political participation differently. In addition, we found cross-level interaction effects between the observation duration of an emotion-inducing protest image and the level of political interest. For highly interested recipients, by inducing emotions and affecting participatory intents, a longer observation of protest images indeed can have a mobilizing function. Yet, the mobilizing function of images does not unfold when the political interest is low: longer perceiving protest images with a low level of interest seems to cause an inhibiting effect on participatory intents. However, while the length of time that a person looks at an emotion-inducing news image matters, we found no comparable effect regarding the length of time that a person looks at textual content.

Acknowledging that people are confronted with an ever-expanding number of news images in traditional and social media, our finding that such media images matter is important. While our findings support previous research showing that images can activate discrete emotions (e.g., Brantner et al., 2011; Iyer et al., 2014) and shape participatory intents (e.g., Brader, 2005; Lu, 2021; Powell et al., 2015), we demonstrated that not all recipients respond equally to emotion-inducing news images: Because political interest unfolds a conditional effect on the impact of image observation duration on the change in participatory intentions, emotionalizing news images can be used to politically mobilize specifically those who are already interested in politics. Interestingly, in our study, such a mobilization was not associated with the activation of “negative” emotions such as anger, fear, shame or sadness, as prior research has suggested considering a “negativity bias.” Integrating observed measures on eye movements and the visual attention guided to news information, our results show that the mobilizing function of image exposure especially works when the images trigger *positive* emotions.

Our findings align with existing research that stresses the relevance of “positive” emotions during media reception, showing that they can reduce or even diminish negative moods (Zillmann, 1988; Unz et al., 2002). They are also in line with recent studies which suggest that these mechanisms also apply to political mobilization: Gerbaudo (2016), for example, demonstrated that in the realm of protests in Spain and Egypt the dissemination of hopeful messages via social networks spurred enthusiasm and “emotional contagion” which contributed to the conditions of possibility for mass protest participation. Further examining the effectiveness of “positive posting”—that is, a campaigning strategy expected to elicit positive emotional reactions from the user base, ultimately aiming to maximizing motivation and mobilization—, Gerbaudo et al. (2019) in the context of the 2017 UK national election again found that the appeal to positive emotions (such as hope or compassion) attracts user attention and increases their political engagement. Taken together, in certain circumstances, a communication strategy focusing on positive and optimistic messages thus can be very successful in generating higher levels of engagement and in mobilizing potential supporters. A theoretical explanation for these findings is provided by the “*broaden-and-build model of positive emotions*” (Fredrickson, 1998, 2001) which suggests that positive emotions may prompt recipients to broaden habitual patterns of thought and behavior, e.g., toward more flexible and creative thinking and action (e.g., Fredrickson and Branigan, 2005; Isen and Daubman, 1984; Isen et al., 1987).

Our results are also consistent with the existing literature, which shows that audiences do not consistently exhibit a negativity bias when evaluating political news (Bruchmann et al., 2023; van der Meer and Brosius, 2024). Accordingly, while some studies have claimed that positive information also influences people’s perceptions (e.g., Brannon and Gawronski, 2018), positive news has also been found to be stronger than negative news in some circumstances (e.g., Korn et al., 2016; Zhang et al., 2022). And even if a negativity bias has been repeatedly observed in the reception of news, the results are less clear when it comes to participatory actions following reception—such as news sharing (van der Meer and Brosius, 2024). One possible explanation, which is quite compatible with the idea of the “broaden-and-build model of positive emotions” (Fredrickson, 1998, 2001), could be that people become more skeptical as soon as the news exceeds a certain level of negativity, which activates more sophisticated information processing: “Here, individuals might stop and reflect on the content of the news more elaborately which, in turn, results in a more critical evaluation processes” (van der Meer and Brosius, 2024, p. 75).

Considering these implications underlines the importance of our methodological considerations to capture a broad array of positive *and* negative emotions (as applied by the M-DES) and differs from earlier studies which included fewer positive emotions (e.g., as measured by the DES). While our study illustrates that media images trigger a broad set of different emotions, in which the positive emotions possibly “overwrite” the effect of negative emotions, a shortcoming of previous studies might be that they overemphasize negative emotions in their measurements of affective reactions whilst including only a few positive ones (Fredrickson, 1998, 2001). Further research should approach these inquiries in more depth and with a larger body of data, to further explore the link between the reception of multimodal news, the activation of discrete emotions, and political mobilization. Given the importance of this topic, a more nuanced analysis of the underlying processes as well as a more nuanced account of how positive and negative emotions intertwine in the reception of political messages and how they contribute in different ways to mobilization processes seems crucial (Gerbaudo et al., 2019).

Our results are of interest for strategic political communication for several reasons: First, while scholars have argued that particularly negative emotions can have the desirable consequence of producing a more “active” electorate (e.g., Brader, 2005; Weber, 2012), negative images have been suggested as exceptionally successful in activating people (e.g., Perlmutter, 1998), but were also discussed regarding undesirable consequence, such as a greater reliance on heuristics, biases, and reduced attention to contemporaneous information (MacKuen et al., 2010; Valentino et al., 2011) and political-information seeking (Valentino et al., 2008). Contributing to this discussion, our findings support the idea that people can better be activated by the stimulation of primarily positive emotions, namely of pleasure, joy, satisfaction, affection, fascination, being touched, and interest—which, most likely, do not produce undesirable side effects. When applied to the real political sphere, the results of our study highlight the need for political communication to focus more on the activation of positive emotions in people to promote mobilization, which is a crucial element of a functional, modern democracy. Second, while our

findings fit with previous research on the role of political interest on citizens' participatory behavior (e.g., DiGrazia, 2014; Geise et al., 2020), they also pose challenges for mobilizing political action among the uninterested citizens. As our results indicate, protest images alone cannot overcome disinterest on their own. Rather, our study suggests a kind of "boomerang effect" for the politically uninterested which become less engaged the longer they observe to images of protest.

Understanding how and why media images elicit specific affective reactions and how such reactions shape political participation is important. Journalists, political actors, and citizens who are active in news media are not only subject to media images and their effects but can also influence others by strategically posting or sharing specific media images that trigger specific emotions. Therefore, the results of this study also appear to be crucial in developing ethical standards for distributing images that may elicit strong emotional reactions in a subset of recipients, potentially with undesirable consequences.

Limitations

Our study has some limitations. One important limitation is that we chose a student sample. We did this intentionally: Since we can assume that students have a particular affinity for protest issues and activities, it was plausible to suppose that the hypothesized media effects on participation in political activism could be studied particularly well in this particular group. At the same time, however, students are also well-educated and have a high level of media literacy; as such, their "susceptibility" to intended and strategically planned media effects is therefore likely to be lower than that of another sample. Thus, students are a least likely case for being emotionally influenced by media images and altering their willingness to engage in political protest in response in respect to the latter, but a most likely case in respect to the former, which makes them—in theory—to an ideal group to study for answering questions on image-based emotional activation of protest willingness. Whether this holds true in practice, will have to be examined in future studies with a non-student control group.

Second, as we examined the effects of emotion-inducing media images embedded in news articles focusing on four exemplary selected protest issues caution should be exercised when generalizing the results of this study to other policy fields or other highly salient issues, such as the recent Hamas attack on Israel and the Israeli war in response. Moreover, our study focused on newspaper reports with embedded images. We would assume that our findings also travel to other, image entailing social media platforms, such as Twitter/X, Facebook or Instagram, but this needs to be validated by further studies as well. In other words, future work should involve larger varieties of policy fields and protest issues and test the effects of embedded images also with respect to different media platforms.

Third, while we measured the activation of emotions through the established items of the survey method, further researches may make the measurements more precise by applying physiological approaches (Bradley and Lang, 2000). This can include the measurement of heart rates, the measurement of skin moisture or

even capturing brain waves to get additional observational data on emotional engagement (but not on specific discrete emotions).

Our study illustrated that in a study on the effects of emotions in politics, there is merit in using a more inclusive approach that also uses technological techniques such as eye tracking to zoom in on such effects. Integrating observed data on the perception process with the direction of selective attention by applying eye-tracking technology allowed us to shed light on the oft-neglected relationship between message and image recipients and media exposure, which can conceivably result in individual sensory, emotional, and cognitive reactions. Our findings also suggest that longer observations of news texts do not significantly increase the willingness to engage in political activities. However, this non-finding might have been due to the fact that we kept the textual content neutral as possible to isolate the impact news images.

Data availability statement

The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Ethics statement

The pre- and main study involved human participants. The complete research was approved by the Ethics Committee for research projects of the Institute of Communication Science at the WWU Münster. It was conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in the study.

Author contributions

SG: Conceptualization, Funding acquisition, Methodology, Investigation, Project administration, Formal analysis, Writing – original draft, Writing – review & editing. DP: Conceptualization, Funding acquisition, Methodology, Investigation, Formal analysis, Visualization, Writing – original draft, Writing – review & editing. AH: Conceptualization, Funding acquisition, Investigation, Writing – original draft.

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Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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