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Editorial

Enlightening Confusion: How Contradictory Findings Help Mitigate Problematic Trends in Digital Democracies

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Abstract
This thematic issue includes ten articles that address previous contradictions in research on two main trends in digital democracies: news avoidance and political polarization. Looking at these contradictions from different angles, all contributions suggest one aspect in particular that could be important for future research to investigate more specifically possible countermeasures to harmful trends: the individualized, self-reflective way in which media users nowadays engage with political content. The increasingly value-based individualization of media use may be a hopeful starting point for reversing harmful trends to some degree by addressing individual media users as a community with a common base of civic values, rather than addressing them in their limited social group identities.

Keywords
civic norms; corrective action; disinformation; media trust; news avoidance; political polarization; politicized self; populism; selective exposure; social identity

Issue
This editorial is part of the issue "Enlightening Confusion: How Contradictory Findings Help Mitigate Problematic Trends in Digital Democracies" edited by Cornelia Mothes (Macromedia University of Applied Sciences) and Jakob Ohme (University of Amsterdam).

1. Introduction

Public discourse in digital democracies faces growing challenges, with two main trends being of particular concern, while at the same time leading to ongoing debates about their actual severity: news avoidance and political polarization. Both trends may be critically related to each other in that news avoidance potentially increases political polarization by leaving the political stage to the most emotionally involved and less open-minded participants in public discourse. Although many studies have examined these trends, both developments bear a complexity that often makes it difficult for research to reconcile contradictory findings and identify potential parameters for mitigating such detrimental trends for democracy.

This thematic issue contains contributions from a wide range of perspectives focusing on two challenges in the study of news avoidance and political polarization that may mutually reinforce each other: (a) a blurring definition of what users perceive as news and (b) an emerging divergence in the public's definition of what is perceived as news worth using and trusting.

2. News Avoidance and the Blurring Definition of the Concept of "News"

The study by Anna Sophie Kümpel, Luise Anter, and Julian Unkel provides important insights into the first challenge mentioned above—the blurring definition of the concept of "news." To provide more clarity on what it actually means to be "informed" in the social media era, the authors introduce a "self-concept of being informed". Lending some additional support to news avoidance research, they show that it is less important

for social media users to be informed about political news in general (undirected information needs) than about specific, personally relevant topics (topic-related information needs) and about what is happening in their social environment (group-related information needs). Interestingly, the study also shows that a person's political interest—although primarily related to political news demands—also relates to issue- and group-related information needs. This finding may reflect the increasing development of "politicized identities" (Bos et al., 2020) among media users or indicate a loosening conception of what qualifies information as political news. Either way, users appear to be able to satisfy their political interests at least to a certain extent by turning to non-political content and still feel informed by it, without necessarily having received actual information.

Such a view is also tentatively suggested in the study by Leonie Wunderlich and Sascha Hölig, which deals specifically with different types of information orientation and their effects on political knowledge. Their study again confirms current findings in news avoidance research by showing that young media users are least interested in political news. However, if interested in politics and public affairs, young users show a more diverse set of information sources, consisting of journalistic and non-journalistic sources, which tend to produce opposite effects on political knowledge. While young people who assign greater relevance to journalistic sources tend to show increased levels of political knowledge, young users assigning more relevance to non-journalistic sources show lower levels of political knowledge, with this negative relationship being almost equivalent to the—also negative—relationship between knowledge and a general lack of interest in political news. Users with a higher preference for non-journalistic sources thus do not seem to differ substantially in their level of knowledge from users who do not keep up with the news on a regular basis at all.

So, have we indeed entered an era of minimal media effects, as famously argued by Bennett and Iyengar (2008)? Not quite, shows the study by Stefan Geiß who revisits the question about the prevalence of agenda-setting effects by established journalistic sources in an age of digital media. Based on an extensive secondary data analysis of the German Longitudinal Election Study (GLES), Geiß finds that issue salience during an election campaign increases with higher media use, thereby confirming the agenda-setting function of mass media. But the slope of increase of issue salience based on media exposure strongly depends on the design choice of the study: Especially user-to-content linking and the analysis on an individual (rather than an aggregate) data level increase the explanatory power of statistical models. Hence, to find agenda-setting effects in fragmented media environments, research may need to focus more on the specific content of exposure and on changes within individuals, rather than changes on the aggregate level of society as a whole.

3. Political Polarization and Diverging Views on "Valuable News"

Many previous studies in selective exposure and cognitive misperception have shown that these individualized media effects depend significantly on political attitudes of media users—addressing the second challenge of diverging views on which news merits attention. The study by Gábor Polyák, Ágnes Urbán, and Petra Szávai partly corroborates these findings for a country that has become a major representative of the rise of right-wing populism in Europe. Based on a population survey in Hungary, the authors find that "more than half of Hungarians (52.9%) are balanced in their sources of information, but almost half of the voting age population is skewed in one direction or another—with a significant proportion having a completely one-sided orientation" (Polyák et al., 2022, p. 142). About one-third of the Hungarian population predominantly uses progovernment news sources, which in the Hungarian case equates to decreasing freedom to criticize the government and increasing political pressures on autonomous editorial practices in journalism.

These developments cannot remain without consequences for citizens' perceptions of political and social developments—not even in democracies with higher levels of press freedom, as a study by Adam Shehata and Jesper Strömbäck shows. The authors find that there are substantial differences in users' perceptions of social problems depending on the particular sources used. Posing the question of how media trust relates to the use of public service media and alternative media, the authors propose a "differential susceptibility to media effects model" and present findings from a four-wave panel survey conducted in Sweden. They show that media trust emerges over time as both an "antecedent variable guiding news selection" and as a "moderator variable conditioning the effects of news use on perceptions of societal problems" (Shehata & Strömbäck, 2022, p. 146). This leads us to the difficult question of how journalistic media can adequately fulfill their public service function for users who have either stopped using such media or do not trust their coverage—especially in times of increasing disinformation.

This is also a key question in the study by Michael Hameleers who found—based on two experimental studies in the United States—that people who distrust and are disenchanted with established mass media, in general, will reject information from those sources more readily, regardless of whether they are correct or how they are framed. However, a certain openness to corrective information from journalistic media is found among disenchanted audiences if this information comes from established news sources. This finding provides some grounds for optimism that fact-checking can be an effective means to debunk disinformation even among people who generally do not trust mainstream news media.

The ambiguous role of trust in media sources when building resilience to disinformation is also addressed in the study by Shelley Boulianne, Chris Tenove, and Jordan Buffie. They test whether citizens in the United States, Canada, the United Kingdom, and France differ in their resilience to misinformation. Contrary to theoretical expectations, higher trust in national news media predicted self-reported awareness and sharing of misinformation, but following public service news did not increase misinformation resilience. So again, research may need to pay more attention to the differences between individual- and macro-level factors: Strong public service broadcasters in a country may be related to misinformation resilience on the macro-level of a society, but PSB news consumption on an individual level may not.

Hence, individual effects of political news appear to depart to a certain extent from its societal-level effects. If we look at Christina Peter's study, this may be explained in part by the fact that individuals perceive the relationship between media coverage and public discourse in two very different ways, even if the same content is used. Peter's model suggests that we may need to distinguish more clearly between "reflection inference" and "persuasion inference" as two distinct individual user perceptions of how media coverage relates to public opinion—either as a mirror or a molder. The author shows that hostile media perceptions are more strongly linked to reflection inference, indicating that "people with hostile media perceptions see media coverage and public opinion as detached" (Peter, 2022, p. 192). Persuasion inference, instead, is more strongly linked to users' willingness to speak out for their own opinion, regardless of whether they perceive their opinion to represent a minority or a majority in society.

Individual differences in the perception of political content in terms of its relevance for political debates is also addressed in the study by Benjamin A. Lyons who proposes an interesting relationship between content perception and corrective intent regarding partisan (dis)information. Based on an experimental study, the author investigates this relationship specifically with respect to memes as an increasingly powerful tool in polarized political debates. Interestingly, the author finds less corrective intent among media users for memes, as compared to partisan news articles, and attributes this finding to a lower perceived influence on oneself: "People see partisan memes as trivial, and not worth corrective efforts. For this reason, however, memes may present a highly effective vehicle for the spread of misleading claims or outright misinformation" (Lyons, 2022, p. 201).

Considering that many of the studies presented in this thematic issue suggest in one way or another that dealing with politics today often takes on an individualized character at a time when media users' self-concept is generally becoming more salient during (political) media use (e. g., Dagnes, 2019), our final study may provide interesting clues about how we might address heightened self-reflection in political discourse to overcome detrimental trends of news avoidance and polarization: Based on a panel survey of Jewish and Arab citizens in Israel, Jennifer Oser shows that "good citizenship norms" have a positive effect on non-electoral political participation, regardless of status or political orientation. Oser's findings suggest that inequalities in civic participation among different groups of media users may be reversed to some extent by reinforcing their common denominator of belonging to the same democratic society, making them aware of shared values rather than being driven apart by values of confined social identities.

4. Conclusion

The articles of this thematic issue illustrate, in different ways, an increasingly individual value-based approach to news and politics that can lead to problems of news avoidance, if users do not have a clear stance on political issues, or to polarization, if users identify with a certain political group in particular. This value-based individualization of media use might be a hopeful starting point for future research, posing the question of whether harmful trends in digital democracies may be reversible to some extent by addressing individual media users as a community with a shared base of civic values.

Acknowledgments

We would like to express our heartfelt gratitude to all reviewers for their invaluable contributions. We sincerely thank them for their thoughtful comments and the time they invested to make this thematic issue a hopefully expedient contribution to the scientific debate.

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Article

What Does "Being Informed" Mean? Assessing Social Media Users' Self-Concepts of Informedness

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Abstract
In recent years, much research has—more or less candidly—asked whether the use of social media platforms is "making us dumber" (Cacciatore et al., 2018). Likewise, discussions around constructs such as the news-finds-me perception or illusions of knowledge point to concerns about social media users being inadequately informed. This assessment of inadequacy, explicitly or implicitly, builds on the ideal of the informed citizen with a broad interest in current affairs who knows about all important societal issues. However, research has largely ignored what citizens themselves understand as "being informed." Accordingly, this research project asks what people actually want to be informed about, which user characteristics predict different self-concepts of informedness, and how both of these aspects relate to feelings of being informed in the context of social media platforms. Based on a preregistered, national representative survey of German social media users (n = 1,091), we find that keeping up with news and political information is generally less important for people than staying informed about their personal interests and their social environment. However, feelings of being informed through social media are most strongly predicted by how suitable a given social media platform is perceived to be for keeping up-to-date with current affairs. This suggests that while information needs are diverse and related to different sociodemographic and personal characteristics, most people indeed seem to associate "being informed" with political information and news.

Keywords
feelings of being informed; information needs; self-concepts of informedness; social media

Issue
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1. Introduction

Social media platforms such as Facebook, Twitter, and Instagram have become important information sources for online users worldwide (Newman et al., 2021). Clearly, one of the main benefits of using social media seems to be that one can access all kinds of content under one roof—be it information about what goes on in the life of one's friends and family, updates related to own interests, or reports about current affairs. However, studies investigating social media information use usually equate information with political information and news in a narrow sense. Moreover, this strand of research often takes a deficit perspective, worrying that users are (increasingly) insufficiently informed. Thereby, just as their "old media" counterparts (e.g., Delli Carpini & Keeter, 1996; Jerit et al., 2006), these studies build on the normative ideal of the informed citizen who not only continuously stays informed about current affairs but also has a sound knowledge of the democratic system (Schudson, 1998). The ideal is implicit in studies investigating social media usage patterns such

as the passive news-finds-me perception or the superficial "news snacking" (Molyneux, 2018). It is explicit when studies correlate social media news use with perceived (e.g., Leonhard et al., 2020; Müller et al., 2016) or actual political knowledge (e.g., Cacciatore et al., 2018; Gil de Zúñiga & Diehl, 2019), without asking which amount of knowledge is actually "meritorious" for citizens (Ytre-Arne & Moe, 2018, p. 228).

Of course, in a democratic system, contributing to an informed society is one of the media's main functions. However, not only has the ideal of the informed citizen been described as too demanding (Moe, 2020), it also implies the aforementioned focus on political information when analyzing users' (feelings of) informedness. Consequently, there is limited knowledge about what "being informed" actually means for social media users—what and how much they aim to know about news and politics and which *other* information is relevant for them. Such user-centric research is needed to create a shared reality between researchers and respondents, thus allowing not only for improving measurements of (social media) information use but also for a greater understanding of its effects (see also Vraga et al., 2016).

Accordingly, this research project asks people directly what they want to be informed about, and it investigates which user characteristics are associated with different self-concepts of informedness, and how both of these aspects relate to feelings of being informed (FOBI) in the social media context. Employing a preregistered, national representative survey of German social media users (n = 1,091), we thus aim to enlighten the confusion around the "informed" user by applying a more holistic understanding of informedness and investigating its predictors.

2. Social Media and the Puzzle of the "Informed" User

2.1. Self-Concepts of "Being Informed"

Several attempts interrogate the "informed citizen" concept from a user perspective, with user concepts often resembling the aforementioned ideal (e.g., Hartley & Pedersen, 2019; Ytre-Arne & Moe, 2018). However, supporting this ideal is mainly rooted in the perceived moral duty to be informed; only rarely do people seem to have a genuine interest in the news. Moreover, people often cannot meet the high standards of the ideal and thus feel only "approximately informed" (Ytre-Arne & Moe, 2018). Although the mentioned studies provide a more realistic and user-centric account of informedness, they are also one-dimensional in their focus on political information. Research conducted in the tradition of the uses and gratifications approach has well established the notion that people not only turn to (social) media for using news or political information but also for entertainment, passing time, or social interaction (e.g., Phua et al., 2017; Whiting & Williams, 2013). Indeed, people do not only need information about current affairs to orient themselves and lead their lives. For a holistic understanding of informedness, we draw on information needs as defined by Hasebrink and Domeyer (2010), who build on a social understanding of information as subjectively new and/or useful.

Following the classification by Hasebrink and Domeyer (2010; see also Hasebrink, 2016), undirected information needs are based on users' general need for information about and surveillance of their environment. Users driven by these needs may search for news, be it from their neighborhood or the United Nations. *Topic-related information needs* result from users' personal interests and hobbies. They comprise information about specific subject areas that are important for users, be it pop music or pie baking. In order to socially integrate, people also have *group-related information needs*. They refer to information about social groups relevant to an individual, such as family, friends, or colleagues. Finally, people develop *problem-related information needs* when trying to handle a certain situation, such as passing an exam or changing a tire. However, since these needs are, in contrast to the first three, situation-specific and not context-independent, we do not include them as a subdomain of informedness.

In addition to this breadth of informedness, which individually might encompass any combination of undirected, topic-, and group-related information needs, we also focus on the (desired) depth of informedness. We acknowledge that people may consider all domains relevant but simultaneously are "experts, informed citizens" and "men in the street" (Schütz, 1972, p. 86)—that is, having a deep knowledge is not equally important for every subject area. For example, users could be fine with scanning news snippets on Facebook while being "issue junkies" (Elsweiler & Harvey, 2015) when it comes to running or their romantic partners.

Thus, our conceptualization of informedness comprises four subdomains: (a) breadth of informedness *and* depth of informedness regarding (b) undirected, (c) topic-, and (d) group-related information needs. We first investigate which characteristics influence these self-concepts of informedness, focusing on sociodemographic characteristics (income, gender, age, education) and personality traits, namely political interest and the "fear of missing out" (FOMO). While there are a plethora of possible factors influencing self-concepts of informedness, we deliberately decided to concentrate on a set of core constructs for this first investigation. Specifically, for the personality traits, we wanted to include one factor each for which the literature suggests an association with the information needs that differ the most: the more news- and publicly-oriented undirected information needs and the more socially- and personally-oriented group-related information needs (Hasebrink & Domeyer, 2010).

Considering the depth of informedness regarding undirected information needs, we focus on political interest, defined as the "degree to which politics arouses

a citizen's curiosity" (van Deth, 1990, p. 289) and the attention people pay to politics. It is well established that politically interested users consume more news, search for them more actively, and know more about politics than those with lower political interest (e.g., Möller et al., 2020; Shehata & Strömbäck, 2021; Strömbäck & Shehata, 2010). Conversely, low political interest is associated with sparse news use, increased news avoidance, and lower levels of political knowledge (e.g., Boukes, 2019; Goyanes et al., 2021). Additionally, research shows that the news-finds-me perception (the belief that one can be informed without actively using news) is more prevalent among the less politically interested (Gil de Zúñiga & Diehl, 2019; C. S. Park, 2019). Taken together, these findings indicate that politically interested people have pronounced undirected information needs, aiming to gain deep knowledge about current affairs. Thus, we hypothesize:

> H1: The higher social media users' political interest, the more important it is for them to have a deep knowledge of international, national, and regional events/affairs (dependent variable: depth [undirected information needs] of informedness).

Considering the depth of informedness regarding group-related information needs, we investigate the role played by social media users' FOMO. It is defined as a "pervasive apprehension that others might be having rewarding experiences from which one is absent" (Przybylski et al., 2013, p. 1841), leading to a desire to constantly stay connected with what others are doing. Based on the psychological need for belonging, FOMO thus drives some to continuously seek the social information needed to determine their position in the social hierarchy (Przybylski et al., 2013). Social media platforms are considered an especially suitable resource for keeping in touch with peers, and FOMO has been found to be associated with more intensive use of social media (e.g., Bloemen & De Coninck, 2020; Franchina et al., 2018). Combined, these findings suggest that for users who experience more FOMO, group-related information needs (i.e., having a deep knowledge of their peers) will be particularly important, leading to the following hypothesis:

> H2: The higher social media users' FOMO, the more important it is for them to deeply understand their personal social environment (dependent variable: depth [group-related information needs] of informedness).

In addition to these specific hypotheses for two of the subdomains of informedness, we also want to explore the influence of sociodemographic characteristics, political interest, and FOMO more broadly. Research suggests that sociodemographic characteristics should influence self-concepts of informedness both indirectly, through their relation to the studied personality traits, and directly. For example, studies show that FOMO is mainly experienced by the young (e.g., Bloemen & De Coninck, 2020; cf. Milyavskaya et al., 2018) and that political interest is more prevalent among men and citizens with higher formal education (e.g., Easterbrook et al., 2016; Fraile & Sánchez-Vítores, 2020). In terms of a more direct influence, research shows that young adults are more susceptible to the feeling of information overload in the context of news (Beaudoin, 2008; Schmitt et al., 2018) and to news avoidance (Trilling & Schoenbach, 2013), suggesting that a deep current affairs knowledge is less important for them as compared to older users. However, several aspects of the relationship between sociodemographic characteristics, personality traits, and the different self-concepts of informedness remain unclear, leading us to consider the following comprehensive research question:

> RQ1: What influence do sociodemographic characteristics and personality traits have on the four subdomains of the self-concept "being informed" ([a] breadth and depth regarding [b] undirected, [c] topic-related, and [d] group-related information needs)?

2.2. Feelings of Being Informed Through Social Media Platforms

While self-concepts of informedness alone only tell us what social media users want to know about, they do not indicate how well informed people feel through social media platforms. Accordingly, we also aim to address users' FOBI and investigate their relation to self-concepts of informedness as well as related user characteristics. FOBI refers to users' meta-cognition of what they think they know—their subjective knowledge (Müller et al., 2016). To date, research on FOBI through social media has mainly taken the deficit perspective described above, measuring "illusions of knowledge" in relation to the ideal of an informed citizen (e.g., Leonhard et al., 2020; Müller et al., 2016; Schäfer, 2020). Moreover, it has not been addressed how self-concepts of informedness are associated with global FOBI: Does it make a difference for how well informed people feel depending on their personal importance of different information needs?

Research suggests that the extent of feeling informed might be influenced by how "demanding" one's self-concept of informedness is: If users do not aim to gain a deep understanding of a topic, FOBI should occur more easily. Indeed, people less politically interested and formally low educated—for whom, we assume, extensive informedness about news is less important—tend to express higher FOBI about current affairs (e.g., Leonhard et al., 2020; C. Park, 2001). Conversely, as mentioned above, those who share the ideal of the informed citizen often feel only superficially informed as they cannot meet their goals (Hartley & Pedersen, 2019; Ytre-Arne & Moe, 2018). However, being interested in a topic (that, therefore, is important within one's self-concept) might

also foster FOBI. It seems reasonable that the more important a topic is for users, the more information they gather about it, and—as familiarity has proven to be the main prerequisite for FOBI (e.g., C. Park, 2001; Schäfer, 2020)—the more informed they feel. Moreover, interest should also increase elaboration that, in turn, enhances not only one's factual but also one's subjective knowledge (Yang et al., 2020). Considering that users turn to different (social) media channels for different information needs (Hasebrink, 2016), another important factor influencing FOBI could be the perceived suitability of social media platforms for keeping up-to-date. For example, if a user thinks that Twitter is suitable for staying informed about current affairs, this should increase FOBI through Twitter. This is also supported by uses and gratifications research showing that different social media platforms are associated with different gratifications, with, for example, Instagram and Snapchat being perceived as more suitable for social interaction than Facebook or Twitter (Alhabash & Ma, 2017; Kim & Kim, 2019). Due to this mixed evidence and to take a broad look at the predictors of FOBI and their interdependencies, we consider the following research question:

> RQ2: What influence do sociodemographic characteristics, personality traits, self-concepts of informedness, and the perceived suitability of social media platforms for keeping up-to-date have on users' FOBI through social media platforms?

Digging deeper into two of these predictors, it seems sensible to consider possible interaction effects between self-concepts of informedness and the perceived suitability of social media platforms for keeping up-to-date. If a specific topic area is important to a user of a certain social media platform and they perceive it as a suitable source of information on said topic, they should feel better informed. Conversely, if a user perceives the platform as an unsuitable source of information, they should feel less well-informed by it. Moreover, users who consider a platform less suitable for specific information needs may process the information encountered there more critically (Griffin et al., 1999), which might also hinder FOBI. Accordingly, we propose:

> H3: The depth of informedness and the perceived suitability of social media platforms for keeping up-to-date interact in such a way that:
>
> (H3a) When the importance of having a deep knowledge of a topic area is high, and the perceived suitability of social media platforms for keeping up-to-date on this topic area is high, users' FOBI through social media platforms will be stronger;
>
> (H3b) When the importance of having a deep knowledge of a topic area is high, and the perceived suitability of social media platforms for keeping up-to-date on this topic area is low, users' FOBI through social media platforms will be weaker.

3. Method

All hypotheses, the design, sampling, and analysis plan for this study were preregistered before data collection started (https://doi.org/10.17605/OSF.IO/CM7UY). Moreover, we have made the questionnaire, data, and analysis scripts available in an OSF repository (https://doi.org/10.17605/OSF.IO/82MTK).

3.1. Sample

This study uses data from a national online survey conducted in Germany in December 2021. The panel provider *respondi* was contracted to recruit participants using quota sampling to ensure a demographic distribution resembling the German online population in terms of gender, age, education, and monthly household net income. Overall, 1,140 participants passed the quota screening and completed the entire questionnaire.

Reflecting tendencies reported in other studies focusing on the social media use of the German online population (Hölig et al., 2021), Facebook was used, at least rarely, by most participants (only 9.8% of participants reported never using Facebook), followed by Instagram (33.2% non-use), and Twitter (62.6% non-use). Only 49 participants reported using neither Facebook, Instagram, nor Twitter and were thus classified as non-social media users. While we started from the premise that there might be more non-social media users in the sample and that it might be interesting to conduct additional exploratory analyses on whether non-social media users and social media users differ in their self-concepts (see preregistration), we decided to exclude all non-social media users from the analyses reported hereafter.

Accordingly, our final sample consists of 1,091 German social media users (gender: 49.3% female; age: M = 47.0, SD = 14.8; education: 32.4% low, 32.1% medium, 35.6% high; monthly household net income: 17.8% < 1.500€, 71.9% between 1.500 and 4.999€, and 10.3% ≥ 5.000€).

3.2. Measures

3.2.1. Self-Concepts of "Being Informed''

Building on the theoretical conceptualizations described above, the self-concept "being informed" focuses both on the breadth and the depth of informedness. To assess the breadth of informedness, participants are asked how important it is for them, personally, to keep up-to-date on the following areas/aspects:

1. international events/affairs;
2. national events/affairs;
3. regional events/affairs;

4. own thematic interests;
5. own hobbies/leisure activities;
6. close social environment (e.g., friends, family);
7. wider social environment (e.g., colleagues, acquaintances).

Participants provided their answers on a 7-point scale ranging from "not important at all" (1) to "very important" (7). Overall breadth of informedness was then calculated with a sum index of all seven items (i.e., the higher the score [max: 49], the broader the self-concept of informedness; *M* = 33.8, *SD* = 8.4).

To assess the depth of informedness, participants were presented with a two-item semantic differential ranging from 1 to 7, focusing on the aforementioned seven areas/aspects surveyed in succession (i.e., starting with international events/affairs). Participants are asked to think about the respective area and rate the following two opposing statements:

1. "It is enough for me to be informed about the most important developments in this area" (1) through "It is important for me to be informed about all developments in this area" (7).
2. "With topics from this area, it is enough for me to know about them roughly" (1) through "With topics from this area, it is important for me to know all the details" (7).

The first three areas are conceptualized as being related to undirected information needs and are summarized to a sum index of "depth (undirected)," (*M* = 25.0, *SD* = 9.1 [max: 42]). The fourth and fifth areas are conceptualized as being related to topic-related information needs and are thus summarized to a sum index of "depth (topic-related)" (*M* = 19.3, *SD* = 6.1 [max: 28]). The last two areas are conceptualized as being related to group-related information needs and are summarized to a sum index of "depth (group-related)" (*M* = 18.5, *SD* = 5.9 [max: 28]). For all three indices, a higher score indicates an increased importance of having a deep knowledge of the respective areas/aspects. Correcting for the different number of items in the three sum indices, we see that depth regarding topic-related information is most important for people, followed by depth regarding group-related information, and, lastly, depth regarding undirected information. However, we also find medium-to-strong correlations between all four self-concepts of being informed (*r* ranging from .385 to .569; see Table A2 in the Supplementary File), suggesting that people who (do not) aim to be thoroughly informed show this tendency across all information areas.

3.2.2. Feelings of Being Informed Through Social Media Platforms

Adapting earlier conceptualizations of FOBI (Mattheiß et al., 2013; Müller et al., 2016), participants were asked to rate four items (e.g., "my [platform] use allows me to keep up-to-date well") on a 7-point scale ranging from "does not apply at all" (1) to "fully applies" (7). In contrast to previous measurements, the items were not focused on news or politics but were deliberately phrased to represent a broad understanding of "being informed." Depending on participants' self-reported social media use and response rates for this question, one of the three platforms (Facebook, Twitter, Instagram) was used instead of the placeholder "[platform]." For example, if a participant reported that they used Twitter and Instagram and we had—at the time of the survey—less data for FOBI through Twitter, the participant got the questions for Twitter. Participants' overall FOBI was calculated with a mean index of all four items (*M* = 3.88, *SD* = 1.85, ω_h = .97).

3.2.3. Political Interest

Political interest was measured using the five-item Short Scale Political Interest (SSPI; see Otto & Bacherle, 2011). Participants provided their answers on a 7-point scale ranging from "does not apply at all" (1) to "applies fully" (7). A mean index of all five items was calculated (*M* = 4.49, *SD* = 1.69, ω_h = .95).

3.2.4. Fear of Missing Out

FOMO was measured using the ten-item Fear of Missing Out Scale (Przybylski et al., 2013). Participants provided their answers on a 7-point scale ranging from "does not apply at all" (1) to "applies fully" (7). A mean index of all ten items was calculated (*M* = 3.48, *SD* = 1.32, ω_h = .88).

3.2.5. Perceived Suitability of Social Media Platforms for Keeping Up-To-Date

For every social media platform that participants reported using at least rarely, they were asked how suitable these platforms are for keeping up-to-date about the aforementioned three areas related to undirected, topic-related, and group-related information needs: (a) international, national, and regional events/affairs; (b) own thematic interests and hobbies/leisure activities; (c) personal social environment. Participants provided their answers on a 7-point scale ranging from "not suitable at all" (1) to "very suitable" (7). Twitter was perceived to be most suitable for undirected information needs (*M* = 4.11, *SD* = 1.94), Instagram was perceived as most suitable for topic-related information needs (*M* = 4.63, *SD* = 1.80), and Facebook most suitable for group-related information needs (*M* = 4.51, *SD* = 1.86).

For more information about the measures, please see the descriptions in the preregistration. Descriptive statistics for all variables of interest (Table A1) and zero-order correlations (Table A2) are available in the Supplementary File.

4. Results

To investigate predictors of social media users' self-concepts of informedness (RQ1), we computed four hierarchical linear regression models, predicting the sum indices of (a) the breadth and depth of informedness for (b) undirected, (c) topic-related, and (d) group-related information needs, respectively (see Table 1).

Sociodemographic variables (gender, age, education, and income) were included first, with the mean indices of political interest and FOMO included in a second block. All four dimensions of informedness were positively associated with both political interest and FOMO, with political interest being the strongest predictor for breadth of informedness (β = .54, p < .001) as well as the depth of informedness for undirected (β = .56, p < .001) and topic-related information needs (β = .31, p < .001). At the same time, FOMO emerged as the strongest predictor for group-related information needs (β = .28, p < .001), confirming H1 and H2. Relationships between participants' self-concepts of informedness and sociodemographic variables were less clear-cut. For breadth of informedness, participants' age (β = .08, p = .003), a high formal education level (β = .18, p = .006), and the top three income levels emerged as significant predictors. In contrast, only a somewhat high income level was related to the depth of informedness for undirected and topic-related information needs. Finally, depth of informedness for group-related information needs was predicted by (female) gender (β = .21, p < .001) and the medium income steps.

To investigate predictors of social media users' FOBI by a particular social media platform (RQ2), we computed a hierarchical linear regression model predicting said variable (see Table 2). In addition to this preregistered model (designated as Model 1), we also considered a model that not only includes the social media platform participants reported their FOBI for (Facebook, Instagram, or Twitter) but also the frequency of platform use (designated as Model 2), allowing us to better account for usage intensity. Sociodemographic variables (gender, age, education, and income), the specific social media platform the participant reported their FOBI for, and—in the case of Model 2—frequency of platform use were included first. The mean indices of political interest and FOMO were included in the second block, the four self-concepts of informedness in the third block, and the perceived suitability of the respective social media platforms for keeping up-to-date was included in the fourth block. Last, we included interaction effects of depth of informedness and the perceived suitability of social media platforms for keeping up-to-date in the fifth block.

In Model 1, FOBI was positively associated with political interest (β = .10, p = .001), FoMO (β = .09, p < .001), and the social media platform's perceived suitability to fulfill undirected information needs (β = .53, p < .001), with the latter being the strongest predictor overall. This suggests that participants associate FOBI through social media mainly with information about news and current affairs. Furthermore, both Instagram (β = −.11, p = .040) and Twitter (β = −.30, p < .001) were negatively associated with FOBI as compared to Facebook, indicating that the social media platform most used by the participants is also the one by which they feel best informed. This is confirmed by the results in Model 2, in which the frequency of platform use (β = .31, p < .001) emerged as the second strongest predictor, coming right after the perceived suitability to fulfill undirected information needs (β = .48, p < .001). While the influence of political

Table 1. Linear regression models predicting self-concepts of informedness among social media users.

Model	Breadth		Depth: Undirected		Depth: Topic-related		Depth: Group-related	
Predictors	β	p	β	p	β	p	β	p
Block 1								
Gender: Female [a]	.037	.440	−.044	.380	−.001	.992	**.213**	<.001
Age	**.077**	.003	.052	.062	.011	.734	.012	.714
Education: Medium [b]	.062	.291	−.069	.274	.085	.248	.136	.063
Education: High [b]	**.179**	.006	−.048	.482	.139	.080	.036	.649
Income: Step 2 [c]	.124	.080	.058	.446	.156	.075	**.215**	.015
Income: Step 3 [c]	**.172**	.018	−.004	.957	.095	.289	**.233**	.010
Income: Step 4 [c]	**.324**	<.001	**.160**	.049	**.212**	.025	**.270**	.004
Income: Step 5 [c]	**.264**	.005	.092	.365	.188	.110	.193	.102
Block 2								
SSPI	**.544**	<.001	**.560**	<.001	**.310**	<.001	**.169**	<.001
FOMO	**.195**	<.001	**.095**	<.001	**.099**	.002	**.275**	<.001
Intercept	−.275	<.001	.002	<.001	−.206	<.001	−.353	<.001
Adj. R^2	.437		.362		.140		.134	

Notes: Standardized regression coefficients (significant predictors in bold), n = 1,091; SSPI stands for Short Scale Political Interest and FOMO for "fear of missing out"; [a] reference category: not female; [b] reference category: low; [c] reference category: Step 1 (lowest income).

Table 2. Linear regression model predicting FOBI through a social media platform.

	Model 1		Model 2	
Predictors	*β*	*p*	*β*	*p*
Block 1				
Gender: Female [a]	.078	.068	**.092**	.020
Age	−.029	.238	.008	.734
Education: Medium [b]	−.065	.218	−.072	.141
Education: High [b]	−.071	.218	**−.108**	.044
Income: Step 2 [c]	−.047	.461	−.041	.484
Income: Step 3 [c]	−.004	.949	.013	.833
Income: Step 4 [c]	.044	.526	.027	.672
Income: Step 5 [c]	−.099	.239	−.114	.146
Platform: Instagram [d]	**−.106**	.040	−.023	.633
Platform: Twitter [d]	**−.304**	<.001	−.003	.961
Frequency of platform use			**.305**	<.001
Block 2				
SSPI	**.099**	.001	**.104**	<.001
FOMO	**.091**	<.001	**.092**	<.001
Block 3				
Breadth of informedness	−.035	.247	−.040	.152
Depth: Undirected	−.018	.076	−.020	.194
Depth: Topic-related	−.002	.422	.007	.565
Depth: Group-related	.013	.683	.019	.633
Block 4				
Suitability: Undirected	**.527**	<.001	**.477**	<.001
Suitability: Topic-related	.125	.403	.057	.929
Suitability: Group-related	.117	.352	.085	.720
Block 5				
Depth: Undirected × Suitability: Undirected	.034	.095	.019	.311
Depth: Topic-related × Suitability: Topic-related	.018	.403	.016	.441
Depth: Group-related × Suitability: Group-related	.016	.454	.020	.319
Intercept	.145	<.001	.028	.501
Adj. R²	.563		.621	

Notes: Standardized regression coefficients (significant predictors in bold), *n* = 1,091; SSPI stands for Short Scale Political Interest and FOMO for "fear of missing out"; [a] reference category: not female; [b] reference category: low; [c] reference category: Step 1 (lowest income); [d] Reference category: Facebook.

interest (*β* = .10, *p* < .001) and FoMO (*β* = .09, *p* < .001) remained largely the same, gender (*β* = .09, *p* = .020) and a high education (*β* = −.11, *p* = .044) also reached statistical significance in this model. The coefficients suggest that—controlling for all other variables—females are more likely to feel informed through social media platforms, while a high formal education level is negatively associated with FOBI. No further significant predictors emerged, including the hypothesized interaction effects specified in H3.

5. Discussion and Conclusion

While social media platforms provide citizens with the opportunity to address various information needs and simultaneously keep up with current events, their friends, and hobbies, research to date has largely equated "being informed" with being informed about news and politics. Acknowledging that the normative ideal of the informed citizen is likely too demanding for most people (Ytre-Arne & Moe, 2018) and that informedness from a user perspective also entails subjectively important information about one's interests and social environment (Hasebrink & Domeyer, 2010), this study set out to investigate social media users' self-concepts of informedness and their relation to FOBI.

On a mere descriptive level, our findings show that keeping up with news and political information (i.e., addressing undirected information needs) is generally less important for people than staying informed about their personal interests (topic-related information needs) and their social environment (group-related

information needs). Looking at the predictors of the different self-concepts of informedness, our findings consistently show a significant positive association with the relatively stable dispositional traits political interest and FOMO—although to different extents. As expected based on prior research, political interest emerged as the strongest predictor for the depth of informedness regarding undirected information needs (i.e., the higher social media users' political interest, the more important it is for them to have a deep knowledge of international, national, and regional events/affairs). Likewise, FOMO emerged as the strongest predictor for the depth of informedness regarding group-related information needs, suggesting that people who worry about being out of touch with the experiences of their peers have an increased interest in being informed about all developments across their extended social environment. The influence of sociodemographic characteristics was less clear-cut: The most notable findings are that group-related information is more central to female users' self-concepts and that older social media users and those with a high formal education strive to be more broadly informed. Looking at the predictors of the different self-concepts of informedness, it becomes apparent that the variation of depth regarding topic-related (*adj.* R^2 = .14) and group-related (*adj.* R^2 = .13) information needs is explained noticeably less well by the predictors than the depth regarding undirected information needs (*adj.* R^2 = .36), implying that additional characteristics or traits might be important for these dimensions of informedness. While we concentrated on a set of core constructs for this first investigation, future research could include a more diverse set of predictors, aiming both at the more news- and publicly-oriented information needs (focusing, for example, on variables such as users' internal political efficacy; see Lu & Luqiu, 2020), and particularly the more topically and socially oriented information needs. For this, constructs such as the need for affect (Anspach et al., 2019) or users' contextual age (Sheldon & Bryant, 2016) could be considered, which have been shown to be associated with various aspects of informational social media use. Another finding that stood out was that all self-concepts were fairly highly correlated, suggesting that some social media users seem to be "information junkies" across the board, while others care neither for news nor information about their hobbies or friends. In terms of directions for future research, this points to the need to also consider more overarching personality traits such as the need for cognition (Cacioppo & Petty, 1982).

Thus, while information needs are diverse and undirected information needs are, overall, the least important for German social media users, most of them indeed seem to associate "being informed" with political information and news, echoing findings of previous research (Hartley & Pedersen, 2019; Ytre-Arne & Moe, 2018). This became apparent when looking at what determines whether people (subjectively) feel informed through using social media. By far, the strongest predictor of FOBI was the perceived suitability of a given social media platform to address undirected information needs (i.e., how suitable the platform is for keeping up-to-date about international, national, and regional events/affairs). However, this finding might also have been influenced by our methodological design. Although we specifically created our FOBI measure to accommodate the different concepts of informedness, people still seemed to predominately associate terms such as "keep up to date" or "know about what is happening in the world around me" with news or current affairs information. Moreover, FOBI was assessed at the very beginning of the questionnaire, so participants had no contextual cues from the later questions about the importance of different information needs. Thus, future research might consider not only how to survey informedness as unbiased and openly as possible but also how to conduct more qualitative research to investigate how self-concepts of informedness inform *actual* social media use, how people balance suitability with convenience, or the extent to which they feel able to reach their individual goals of "being informed." This will help "bolster the 'thin' abstract concepts of citizen ideals with 'thick' concepts that are meaningful to, and guide, people in their everyday lives" (Ytre-Arne & Moe, 2018, p. 242).

The frequency with which one uses a platform showed the second strongest association with FOBI, indicating that people feel better informed by social media platforms the more they use them (see also Müller et al., 2016; C. Park, 2001). Echoing research on media trust that shows that (German) online users tend to trust the news brands they use more than the news media in general (Newman et al., 2021, p. 81), this could be a kind of familiarity effect: people feel better informed because they are used to the platform's features and more comfortable with the information they receive there. However, the association could also result from a more "pragmatic trust" (Schwarzenegger, 2020) in that social media users trust the platforms they use most simply because they use them often, and thus they also feel better informed by them. Against our expectations, we did not find evidence for the proposed interaction effects between the desired depth of being informed about a certain topic area and the perceived suitability of a social media platform for keeping up-to-date about said topic area, which might at least partly be explained by the narrow understanding of informedness discussed above. Indeed, focusing just on *undirected* information needs, an exploratory simple slopes analysis (see Figure A1 in the Supplementary File) suggests that the association between depth regarding undirected information needs and FOBI tends to become negative when the perceived suitability of social media for addressing undirected information needs is low. Accordingly, if it is important for people to have a deep knowledge of international, national, and regional events/affairs, but they feel that their social media are not able to keep them up-to-date

about these issues well, they feel less informed. However, considering that this was only the case for undirected information needs and that none of the interaction effects reached statistical significance in either of the FOBI models, further work is required to investigate the interplay between self-concepts of informedness, platform perceptions, and FOBI.

Overall, while our findings help enlighten some of the confusion surrounding the "informed user," they also raise new questions. If we want to be open to concepts of informedness that go beyond the normative ideal of the informed citizen, then we also need to find new ways to measure that informedness. Although this study provides some initial insight into what kind of information is important for social media users and how this importance can be explained, more research on self-concepts of informedness needs to be undertaken. This will not only help researchers to develop more realistic ideas of what it means to "be informed" for citizens nowadays but also to better examine and understand the effects of (social media) information use.

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Conflict of Interests

The authors declare no conflict of interest.

Supplementary Material

Supplementary material, the replication code, and data for this article are openly available at https://doi.org/10.17605/OSF.IO/82MTK.

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Article

Types of Information Orientation and Information Levels Among Young and Old News Audiences

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Abstract
Studies on audiences' information behavior paint a mixed picture of young and old people's interests, their involvement with news and information, and the effects news consumption has on their learning. By adapting Giddens's structuration approach, this study aims to assess audience behavior and its relationship with journalism by comparing the use behavior and attitudes of three age groups—adolescents, young adults, and adults—as characterized by distinct media socialization and use patterns. We identify types of information orientation—that is, a typology of behavior and attitudes towards news and information—for the examination of news audiences. Based on a representative face-to-face survey (N = 1,508) with German adolescents (14–17 years old), young adults (18–24 years old), and adults (40–53 years old), we identify four types that can be characterized by a certain pattern of news-related attitudes, the use of sources, and their relevance to opinion formation, as well as the perceived information level of participants. We examine how these types of information orientation differ between and among the three age groups and explore their relationship with audiences' socio-political knowledge. The findings show that not all young people are necessarily less interested and engaged with news and journalism than older people. Moreover, it is a combination of interest with the use and perceived relevance of journalistic sources that is relevant for positive effects on information levels.

Keywords
adolescents; audience behavior; hybrid media system; information orientation; journalism; news use; young adults

Issue
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1. Introduction

Despite a growing body of audience-focused research, mainly driven by the "audience turn" in journalism studies (Meijer, 2016), a lack of clarity remains in analyses of what drives audiences' consumption and engagement with news (Peters et al., 2021, p. 1) and the effects it has on how informed they are. Previous studies reveal "generational gaps" (Andersen et al., 2021) between young and old people's media use and indicate that there are similar informational gaps within younger generations (Edgerly et al., 2018; Geers, 2020). Here, particular concerns are often expressed in regard to young audiences, as they are characterized by a lower level of interest in news, a tendency of incidental consumption, (Boczkowski et al., 2018), and an inclination to avoid news more than older people (Karlsen et al., 2020). In contrast, other scholars paint a more optimistic picture of young audiences, arguing that they use a wider range of channels—mainly social media platforms—for their information needs than older people do, while continuing to perceive news engagement, whether it be through social media or otherwise, as part of being an active citizen (Sveningsson, 2015) and benefit from news

exposure on social media as it pertains to political participation (Andersen et al., 2021).

Consequently, a clearer idea of news audiences' behavior in today's digital media landscape—attitudinally and in practice—is necessary to guide journalism scholars in clarifying stereotypical assumptions about young people's interest and involvement with news and aiding practitioners in the development of strategies and products that better address young audiences and positively affect the way they consume and interact with the news. It is also helpful to focus attention on the intrinsic role journalism plays in young audiences' news consumption habits as well as in comparison to that of older audiences. Since news content is consumed from an ever-increasing variety of journalistic and non-journalistic providers and content creators, across a variety of online platforms (Newman et al., 2021), it is important to consider audiences' relationship with journalism and how they interact along this cross-platform dynamic. In what follows, we will adapt Giddens's (1984) structuration theory to consider the relationship between news audiences' practices and their news-related attitudes at the level of the individual and at the macro-level of media institutions that act as news providers. By understanding media use as the consequence of a process in which audiences and institutions influence one another, audiences' practices and attitudes that constitute types of information orientation can be considered as a result of engaging with the structures that encompass the news media environment. The main question of our manuscript explores how far generational differences in news audiences can be explained by these overarching consumption patterns, patterns that encompass the totality of attitudes and practices with which news audiences relate to socially relevant matters in interaction with news media institutions. In addition, we examine whether or not differences exist in the way subgroups of news audiences benefit from their patterns of information orientation—that is, practices and attitudes towards news and information—in terms of objective sociopolitical knowledge.

Drawing on a quantitative, face-to-face survey with German teenagers, young adults, and adults (N = 1,508), all of whom can be characterized by distinct media socialization and usage patterns, we first identify four distinct types of information orientation that can be classified according to certain patterns of news-related attitudes, the use of sources (as opposed to the use of discrete media artifacts and technologies), how relevant (non-)journalistic sources may or may not be for the processes of opinion forming, as well as subjective feelings of being informed. By considering the concept of information orientation as it occurs in the relationship between news audiences and journalistic practice, we aim to enlighten mixed findings on age as the most deterministic factor behind different news consumption patterns as well as mixed findings regarding the relationship between (social) media use and knowledge.

2. Transformations and Challenges in Today's Hybrid Media Environment

To investigate the relationship between the public and journalism in today's media environment, we adapt Giddens's (1984) structuration theory as it allows for the integration of both individual-level (audiences dimension; their practices, and attitudes) and macro-level constructs (structural dimensions, the institutions that act as resources for audiences). In the context of audience studies, Webster (2011, p. 45) illustrates how individuals "repeatedly use or avoid media offerings" in the digital media environment while Yuan and Ksiazek (2011) adopt the structuration approach to research audience behavior in the context of China's television market.

Giddens's (1984) structuration theory is led by three major elements: agents, structures, and duality. Agents are the individuals who use digital media, or, in this context, the members of news media audiences. They rely on individual preferences and the consumption habits they build as they develop their own news repertoires (Webster, 2011, p. 46). In today's hybrid media system (Chadwick, 2017), more options for individual and personalized information consumption from different content providers emerge (Thorson & Wells, 2016) as users increasingly influence what kind of content they see in their social media feed by following or subscribing to certain sources (Merten, 2020). Audiences have limitless options when selecting news sources ranging from both traditional news outlets that have been produced along established journalistic norms and values as well as content from non-professional actors that is distributed based on economic, personal, or social interests (Shehata & Strömbäck, 2021). In the context of this study, the most relevant structures are media institutions, such as public broadcasters or commercial media that have different motives for providing and distributing content that audiences use for information purposes (Webster, 2011, p. 47). In today's hybrid media system, different types of media co-exist and form a system that evolves through "interactions among older and newer media" (Chadwick, 2017, p. xi). On social media platforms in particular, professional journalism is one source among many; alternative actors such as political social media influencers (Bause, 2021) have become increasingly important in the context of news consumption. These "new journalistic actors" (Banjac & Hanusch, 2020, p. 2) are doing the work of redefining traditional journalism (Loosen, 2015). Together, individuals and institutions mutually construct the media environment by influencing and shaping one another in a process that can be referred to as a "duality of structure" (Giddens, 1984). Audiences consequently rely on and interact with old and new media, institutionally and technologically, to keep informed and, in doing so, participate in their reconfiguration.

To better understand young and old news audiences' behavior and their relationships to journalism, we draw

on the concept of *information orientation* that helps illustrate patterns of both news-related attitudes (interest, motivation, and subjective information level) and behaviors (use of sources and their relevance to opinion formation). We distinguish between the use and the attributed relevance for opinion formation since use of a source does not necessarily mean that this source is also trusted or of personal relevance. Some sources seem to satisfy gratifications in which trust is not the relevant factor; for example, more than half (52%) of young adults in Germany use social media on a weekly basis to obtain information, but just 15% trust news on social media (Hölig et al., 2021). For this reason, it cannot be assumed that all used sources are equally relevant for opinion-forming, which is why we distinguish between use and relevance. In addition, for a more thorough picture, we take newer forms of news use such as the active curation and individualization of information feeds, especially on social media platforms, into account (Merten, 2020). News consumption is related to a number of other factors such as interest in news and politics (Boulianne, 2011; Strömbäck et al., 2013) and personal attitudes towards news and journalism (Fletcher & Park, 2017; Tsfati, 2010). However, we focus on the institutional role of journalism as a sender and not on used sources, as they are usually examined in repertoire studies. Conceptually, it is not about transmission channels, but about the distinction between journalistic and non-journalistic sources. In sum, we aim for a more comprehensive understanding of news audiences' behavior and its relationship to journalism and ask:

> RQ1: What patterns of information orientation can be identified among news audience members based on their interests and motivation, their interaction with media sources, and subjective knowledge?

2.1. The Age-Related Practices and Attitudes of News Use in Today's Hybrid Media Environment

With the introduction of online and social media platforms, cohort-specific divergence in news consumption has become ever more discernible (Vara-Miguel, 2020). Differences between older generations, who grew up in a print and broadcast news environment and who are relatively late in adapting online sources to their lives, and younger generations, who have grown up in digital media environments, find expression in "generational gaps" (Andersen et al., 2021) in relation to media use. Younger cohorts consume less news and in more passive ways (Antunovic et al., 2018; Tamboer et al., 2020), mostly through online media and social networking platforms (Kümpel, 2020; Shearer & Gottfried, 2017). By contrast, older generations actively seek news and information and engage with journalistic content more intentionally through traditional channels such as television and newspapers (Andersen et al., 2021; Newman et al., 2021). However, contrary to this commonly assumed generational gap, Taneja et al. (2018, p. 1809) show that young adults (18–34 years old) and adults (55–64 years old) largely consume the same set of popular outlets, pointing to a smaller than commonly assumed generational gap in online news usage. On social media platforms, where "genres—once uniformly defined and enforced—are now murky and contested" (Edgerly & Vraga, 2020, p. 416), the juxtaposition of content leads to blurred boundaries between professional and non-professional content (Loosen, 2015) and, consequently, to diverge understandings of news and journalism (Edgerly & Vraga, 2020). For instance, while young adults turn to established news providers during breaking news events but use several online sources in their everyday consumption, older people generally rely on more traditional, legacy journalistic outlets with which they have established a sense of trust (Kalogeropoulos, 2019, p. 57). Young people do not tend to link the term "news" to professional journalism but, rather, they consider all kinds of new information as "news," which leads not only to a focus on news use but on information use.

Besides these inter-generational differences, news repertoire studies indicate that there are also informational gaps *within* generations. Thus far, the identification of news types or news repertoires is only based on the use of certain media genres (van Rees & van Eijck, 2003) or the use of different platforms (Lee & Yang, 2014). Here, authors distinguish between online and offline (social) media platforms, or, in more recent studies, between legacy and algorithmic media (Peters et al., 2021). Various methods are applied to the measurement of news exposure and in the subsequent construction of repertoires resulting in a growing number and a widening spectrum of repertoires and types of users. For example, Edgerly et al. (2018) incorporated social media as one platform for news consumption and identified four distinct types of news repertoires among US teenagers aged between 12 and 17 years of age: news avoiders, curated news only, traditional news only, and news omnivores. While news avoiders are characterized by low news use and represent about half (52%) of young respondents, news omnivores who seek out news content across all possible sources and platforms only represent 14% of adolescents. In addition, these platform-based news repertoires are related to preferences for specific news content. In general, news avoiders or "minimalists" (Geers, 2020) pay little attention to any type of news content whereas young news omnivores pay a moderate to an extensive amount of attention to *all* types of news content, while young online news users tend to be most attentive to news content about entertainment and celebrities (Geers, 2020).

As far as inter-generational differences in attitudes towards news and information are concerned, younger cohorts are shown to have less interest in news and politics than older people (Chyi & Lee, 2013). Besides, the use of social media platforms is positively associated with the news-find-me perception among young adults

(Boczkowski et al., 2018). Studies also find that young people are more likely to perceive information overload and negativity in their engagement with news content—attitudes that are related to intentional news avoidance (Skovsgaard & Andersen, 2020). In general, young people are more likely to avoid news than older people, an "age gap" (Karlsen et al., 2020, p. 808) that has slightly increased over time. Extremely low news consumption is related to a disinterest in politics, perceptions of the news lacking relevance, low news self-efficacy, and a lack of knowledge about news systems (Edgerly, 2021).

In sum, studies on young and old audiences' information behaviors create a mixed picture. While most studies highlight a generational gap in news usage, other studies conclude that this gap is actually smaller than assumed (Taneja et al., 2018). With regard to inter-generational differences especially among young audiences, studies, on the one hand, present a pessimistic view of young news audiences by defining them as less interested, passive, and generally relating to news information with a "news-finds-me" mindset (Boczkowski et al., 2018). They are even more likely to avoid news completely than older people are. In this analysis, "emerging 'replacement' channels for journalism" (Peters et al., 2021, p. 2) are discussed as prevalent within younger cohorts' media practices. On the other hand, a number of scholars adopt a more optimistic approach and suggest that young people use different channels, mainly social media platforms, for informational aims, while still grasping the importance of staying up to date with current affairs as it relates to their role as an active and informed citizen (Sveningsson, 2015). At the same time, younger cohorts tend to benefit from news exposure on social media in relation to their political participation (Andersen et al., 2021).

Against this background, we aim to investigate the extent to which generational differences in news use can be explained by overarching consumption patterns that encompass the totality of attitudes and practices—attitudes and practices that news audiences relate to socially relevant matters in their interactions with news media institutions. Since the identification of differences and similarities depends strongly on the level of detail, we would like to know which patterns appear when the more abstract and holistic level of information-oriented types are applied rather than carrying out a simple observation of particular sources. Additionally, by focusing attention on both traditional journalistic outlets and non-professional content creators we also hope to add to the low number of studies that deal with "de-centring and situating journalism by considering informational alternatives" (Peters et al., 2021, p. 17). In addition to age-related patterns of news consumption, education also has a role to play in digital literacy (van Deursen et al., 2011) and (online) news consumption patterns (van Deursen & van Dijk, 2014; van Dijk, 2006). On these terms, we expect types of information orientation to vary both between and within groups of teenagers, young adults, and adults, with education playing a critical role. This leads us to our second research question which asks:

> RQ2: To what extent do types of information orientation differ between and within young and old groups of news audiences?

2.2. Becoming Informed in Today's Media Environment

Previous research has not been particularly conclusive when addressing learning effects and knowledge acquisition from different types of online news media (Van Aelst et al., 2017, p. 18). For example, Anspach et al. (2019) show that reading information articles on Facebook can generate political knowledge but, at the same time, lead to an overestimation in the self-perception of knowledge. Bode (2016) found that social media (Facebook and Twitter) users do not know more than non-users but argues that the potential for users to educate themselves through the consumption of political information on social media exists even though it may not be generally realized. By contrast, other studies indicate a missing relationship between exposure to content about public affairs on Facebook and political knowledge (Wells & Thorson, 2017). People who use Facebook for news do not possess higher levels of objective knowledge than people who do not use Facebook at all (In der Au et al., 2017). Results from a panel survey even show that Facebook use can cause a decline in knowledge acquisition while Twitter use positively influences the acquisition of current affairs knowledge (Boukes, 2019).

Furthermore, studies indicate that being informed is conditional on the type of source. Results from a recent panel study demonstrate positive learning effects from using traditional news media and online news websites, but not from using social media: It was shown that "political social media use has no effect on learning—irrespective of how politically interested or knowledgeable citizens are" (Shehata & Strömbäck, 2021, p. 138). Exposure to hard news delivered by newspapers and public broadcasting also has a positive effect on political knowledge, while sources more likely to emphasize soft news (commercial broadcasters and tabloids) do not contribute to the acquisition of knowledge (Fraile & Iyengar, 2014).

Mixed findings on the relationship between media use and knowledge likely emerge from both methodological issues and the fact that knowledge acquisition is not only related to media use but is also entangled with other factors such as attitudes towards news. For instance, people who do not actively seek out news information are more likely to use social media for informational purposes and be less knowledgeable about politics over time (de Zúñiga et al., 2017, p. 117). As a result, incidental information consumption via social media might lead to overconfidence in one's knowledge while, in real terms, not being overly knowledgeable at all. However, Boukes (2019, p. 48) argues that knowledge acquisition through

social media networks "cannot be generalized" but depends on specific platforms and their individual characteristics. These contradictory findings as well as the unspecified possibilities of social media use, once again, give reason to consider not only the influence of individual sources, but to choose the integrative approach of general information orientation. Media structures as well as individual information-related behaviors and attitudes influence audiences' knowledge of current affairs. Against this background, our final research question asks whether differences exist in the way individuals benefit from their information-orientation patterns in terms of sociopolitical knowledge:

> RQ3: To what extent are different patterns of news audiences' information orientation related to sociopolitical knowledge?

3. Data and Method

To answer our questions, a quantitative survey (N = 1,508) administered in person was carried out along three age groups of 14–17-year-olds, 18–24-year-olds, and 40–50-year-olds (n ≈ 500 in each group). The groups were organized in this way to achieve maximum contrast between young and old audiences. While teenagers and young adults (14–24 years old), typically referred to as Gen Z, grew up in a digital media environment without memories of the pre-internet age (Kalogeropoulos, 2019) and are able to navigate social media platforms with relative ease (Andersen et al., 2021, p. 40), the older cohort of adults (40–50 years old) grew up in a print- and broadcast-dominated media environment and, although they may increasingly use the internet as a source of information, they primarily refer to traditional channels such as television and the press (Newman et al., 2021). The samples form a structurally identical representation of the German-speaking population in private households within the respective groupings regarding age, gender, and region. In terms of formal education, the sample was split 50% each way between high and low formally educated individuals, which corresponds to the distribution in the population in the two age groups of 14- to 17-year-olds and 18- to 24-year-olds. We defined formal education by the criterion of holding an "Abitur" (high school diploma). The fieldwork was conducted between October 12 and December 6, 2020, by the survey institute Gesellschaft für Innovative Marktforschung. To take different concepts and definitions of "news" into account, we avoided the word "news" in the questionnaire and used paraphrases such as "become informed about what is going on in Germany and the world'' instead.

3.1. Measures

The questionnaire contained seven variables for the identification of "Types of Information Orientation" which were: general interest in news, the importance of being informed, subjective informedness, the use of (non-)journalistic sources, and the relevance of (non-)journalistic sources for opinion formation. The questionnaire can be found as a supplementary file on the online page of this article.

Interest in news: Interest in news was measured by asking, "Generally speaking, how interested are you in information about current events in your city, in Germany, and in the rest of the world?" Responses were given on a scale ranging from *not interested at all* (1) to *very interested* (5).

Importance of being informed: The general importance of being informed was measured by asking the question, "People differ in how important they think it is to be up to date. To what extent do you agree with the following statement: 'It's important to stay informed about news and current events'?" Responses were given on a scale ranging from *I do not agree* (1) to *I agree* (5).

Use and importance of (non-)journalism: Respondents were asked how often they read, hear, or watch informative content from traditional journalistic sources. Importance of opinion formation was measured by the question, "If you want to form your own opinion, how important are journalistic news brands such as…for you?" Responses were given on a scale ranging from *never* (1) to *several times a day* (5) for use and *not important at all* (1) to *very important* (5) for the relevance of sources. The same two questions about the use and relevance of journalistic sources were asked for non-journalistic sources, such as influencers, celebrities, or politicians.

Subjective informedness: General subjective informedness was measured as followed, "How well informed would you say you are about current and political events in Germany?" Responses were given on a scale ranging from *not well informed at all* (1) to *very well informed* (5).

Objective knowledge: Based on the Hohenheim inventory of political knowledge (Trepte et al., 2017), six questions assessed respondents' knowledge of three topical areas: "democracy and politics," "journalism and media," and "contemporary issues," which were reported by major news outlets and discussed on social media platforms. Five response categories, including "does not occur to me just now," were given for each question.

Sociodemographic variables: We asked for each respondent's age, gender, and the region of Germany in which they lived.

In addition, we asked each participant to indicate several media outlets and platforms they used regularly and sources that they followed on social media.

3.2. Data Analysis

To identify the participants' types of information orientation, an exploratory factor analysis was first conducted using SPSS statistics (chi-square (21) = 3294,577; $p < 0.001$; Kaiser-Meyer-Olkin criterion (KMO) = 0.850).

Employing principal component analysis and varimax rotation, the solution leads to two factors with an eigenvalue higher than 1.0, accounting for 72.3% of the variance. The first factor contains five variables and the second factor two variables.

4. Results

4.1. Types of Information Orientation Among News Audiences (RQ1)

The exploratory factor analysis revealed two principal components that operate as latent constructs behind news audiences' attitudes and behaviors. The first factor encompasses the journalistic dimension, which is associated with interest, relevance, and subjective informedness, whereas the second factor encompasses the non-journalism component, which is associated with the use and relevance of non-journalistic sources for information. After a reliability test (Cronbach's Alpha = 0.895 for the first component and 0.74 for the second component), the variables for each of the two factors were added and then divided by the number of respective variables. This was carried out to ensure that the scale values of the two factors had the same range of values as the underlying items. To determine the four types of information orientation, delimitation occurred at a value of more than three, which corresponds to a high or very high expression of the respective factor. For example, for the journalistically information-oriented type, the first factor was set as higher than three in combination with the second factor as less than or equal to three. By contrast, for the non-journalistically information-oriented type, the first factor was set as lower than or equal to three in combination with the second factor as higher than three and for the comprehensively information-oriented type, both the first and second factor was set as higher than three. Thus, the four types of information orientation, as depicted in Figure 1, are each characterized by the combination of the respective high or low expression of the two factors.

Journalistically information-oriented people are generally very interested in information. For them, it is very important to be up to date on news and current events. They mainly use informative content by well-known journalistic news media, which are also highly relevant for forming their opinions. Non-journalistic sources, on the other hand, are hardly used for information and play only a minor role in opinion building. For news audience members of this type, professional journalism holds a unique position in their information repertoire, and they consider themselves as well-informed.

Non-journalistically information-oriented people have a comparatively low interest in news. However, being well informed remains important to a certain degree as they do not consider themselves as completely uninformed. Journalistic sources are hardly used for information and play only a minor role in forming their own opinion. Rather, news audience members of this type use content from non-journalistic sources such as influencers, celebrities, or politicians both for information and opinion formation.

In general, comprehensively information-oriented users have a high interest in news and think it is extremely important to be well informed. This subgroup of news audience frequently uses journalistic sources that also play a very important role in their opinion formation. The same applies to non-journalistic sources which are also widely used and considered as important sources. Consequently, news audience members who match the comprehensively information-oriented type consider themselves as well informed. For this type, journalistic and non-journalistic content are equally important for information gathering and opinion formation.

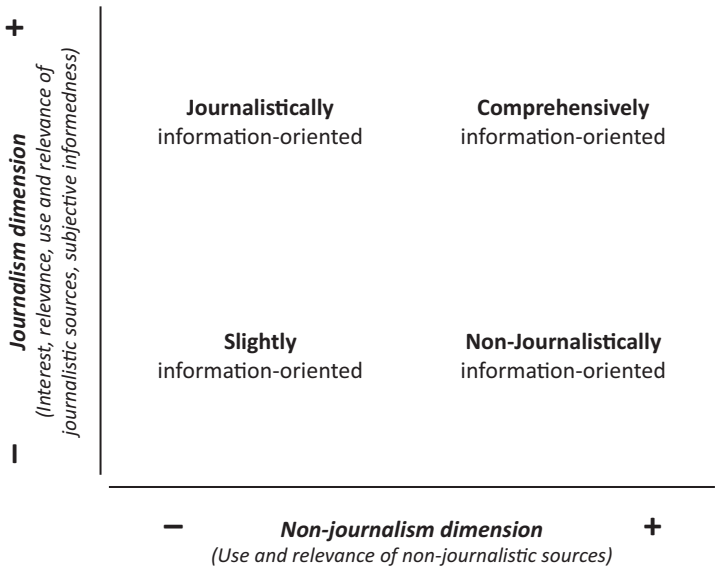

Figure 1. Types of information orientation among news audiences.

By contrast, news audience members who match the slightly information-oriented type demonstrate a low level of interest in news as well as placing little importance on being informed. Journalistic sources play no role in their information repertoire and are not relevant for forming an opinion. The same applies to non-journalistic sources, which are barely used for information and are, therefore, not important for opinion formation either. Since audience members in this group consider themselves as poorly informed, the low level of interest in news and their use behavior reflect their self-perception. Journalism as a source of information is perceived similarly to non-journalistic providers: Both are equally irrelevant because this group does not interact with either of them.

News audiences' types of information orientation differ to the combination of and interaction with different information sources as depicted in Table 1. Regarding information orientation between and within generations, two points should be highlighted. First, traditional sources such as television, radio, and the press play a major role for news audience members who are *journalistically* or *comprehensively information-oriented*, even in the two youngest age groups. Second, social media platforms play a major role across all four types, especially in the two younger age groups. It is particularly interesting to note that adolescents and young adults who are *journalistically* or *comprehensively information-oriented* combine social media with traditional sources, while people who are only *slightly* or *non-journalistically information-oriented* do not do so to the same degree. The fact that someone uses social media for information reveals little additional value about audience behavior in the first place. Rather, it is much more important which other sources people interact with and which actors they follow on social media platforms.

Depending on the type of information orientation, news audience members follow or subscribe to a wide range of (non-)journalistic actors on social media platforms, which are also considered more or less relevant for opinion formation on current affairs (see Table 2). Teenagers and young adults that match the types comprehensively and non-journalistically information-oriented largely use non-journalistic sources such as influencers and thematic groups on social media platforms which are just as relevant for opinion formation. By contrast, users that are journalistically information-oriented predominantly follow journalistic sources such as individual journalists and news media outlets that are also regarded as highly relevant in the processes of opinion formation across age groups. This suggests that news audiences who interact with traditional journalistic channels offline are more likely to subscribe to or follow certain journalists and journalistic outlets online as well. At the same time, for teenagers that correspond to the slightly information-oriented type, influencers and celebrities are the most likely source of information and important for opinion formation. Besides these interactions with new and old media institutions, personal contacts such as friends, acquaintances, and family are particularly relevant for information and opinion formation across all types of information orientation and age groups.

4.2. Types of Information Orientation Between and Within News Audience Generations (RQ2)

There are clear differences in the respective proportions of the four types of information orientation among news audiences with respect to age and education. As expected, in the oldest cohort the journalistically information-oriented type is most dominant (59%) whereas only 2% match with the slightly

Table 1. Types of information orientation and daily sources for information, in %.

	Journalistically information-oriented			Non-journalistically information-oriented			Comprehensively information-oriented			Slightly information-oriented		
Ages	14–17	18–24	40–50	14–17	18–24	40–50	14–17	18–24	40–50	14–17	18–24	40–50
Television	74	81	90	21	27	78	74	80	89	23	35	63
Radio	70	75	86	33	55	89	75	79	88	24	33	56
Newspaper	29	38	62	5	5	44	26	46	69	5	12	24
Magazine	14	13	27	4	0	11	20	24	45	3	3	6
Online newspaper	19	29	22	11	5	33	26	43	47	4	10	12
Online magazine	14	29	24	4	5	22	32	39	51	1	6	6
Online broadcast	26	28	23	5	9	33	42	44	54	7	13	15
Aggregators	32	42	37	37	41	56	52	70	58	19	22	15
Social media	71	72	47	100	100	100	94	95	77	74	69	45
Podcasts	23	22	8	35	45	22	35	46	25	13	10	5

Notes: 14-to 17-year-olds—n = 494; 18- to 24-year-olds—n = 500; 40- to 50-year-olds—n = 500.

Table 2. Sources that are followed or subscribed to on social media platforms by type of information orientation, in %.

	Journalistically information-oriented			Non-journalistically information-oriented			Comprehensively information-oriented			Slightly information-oriented		
Ages	14–17	18–24	40–50	14–17	18–24	40–50	14–17	18–24	40–50	14–17	18–24	40–50
Journalistic outlets	7	12	14	2	0	0	19	21	26	1	3	8
Certain journalists	4	4	3	2	5	22	11	10	17	1	3	4
Politicians/ parties	3	5	3	0	9	11	9	14	15	1	1	1
Scientists	5	4	2	4	0	11	15	14	15	1	3	4
Influencers	21	22	3	60	55	33	60	41	15	30	27	5
Thematic groups	18	19	8	40	41	56	50	44	31	10	12	12
Stars (film, music)	20	17	6	49	50	33	58	30	15	34	27	6
Activists (e.g., Greta)	10	7	2	9	9	22	31	21	9	6	2	0
NGOs	9	5	2	2	5	0	24	23	10	1	1	0
Friends and family	46	48	31	68	64	67	75	67	56	53	52	35

Notes: 14- to 17-year-olds—n = 494; 18- to 24-year-olds—n = 500; 40- to 50-year-olds—n = 500.

information-oriented. By contrast, the largest proportion of teenagers (45%) demonstrates a low overall interest in news and the use of (non-)journalistic sources, corresponding with the slightly information-oriented type. Particularly interesting is the fact that the comprehensively information-oriented type, for which both journalistic and non-journalistic sources are important for information and opinion formation, is most strongly represented in the two young age groups. This implies that young people have not abandoned the interest in news and the perceived importance of traditional journalism as held by their elders; they are, instead, similarly motivated to learn about the world around them. Here, young audiences make use of the endless options for news consumption in different ways, reflecting a diversity in their practice and attitudes towards information. Despite these differences between age groups, there are large differences within age groups as well, mainly related to the level of formal education. As depicted in Figure 2, more than half (52%) of the young people with

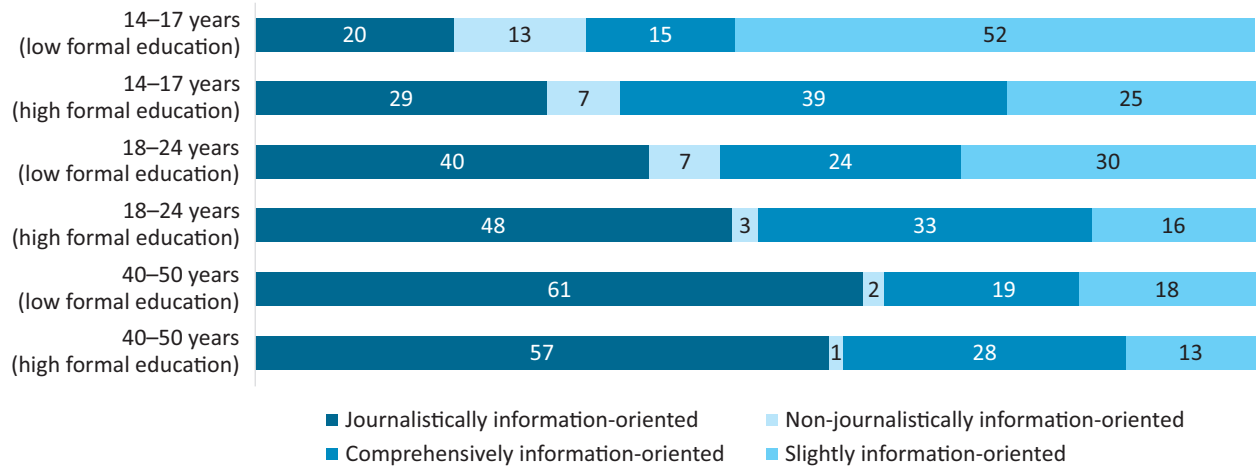

Figure 2. Distribution of types of information orientation by age group and educational level, in %. Notes: 14- to 17-year-olds—n = 494; 18- to 24-year-olds—n = 500; 40- to 50-year-olds—n = 500.

a low education level are slightly information-oriented whereas only a quarter of young people with a high level of education match this type. These differences can also be observed among young adults and adults, although the differences between educational groups are not that pronounced among the latter.

4.3. News Audiences' Patterns of Information Orientation and the Informational Level (RQ3)

The third research question asked about the relationship between news audiences' patterns of information orientation and informational level. Overall, there are considerable differences in the way individuals benefit from their news orientation patterns in terms of sociopolitical knowledge. Here, one pattern becomes clear since the proportion of those who answered the questions correctly in each case is always higher among the journalistically and comprehensively information-oriented than among the slightly and non-journalistically information-oriented types. That means the types in which journalism plays an important role both gave more correct answers than the two types in which journalism is not considered a relevant source. As depicted in Figure 3, the positive effects of higher education and age can be observed in the comparison of the four types.

To determine which aspects of information orientation influence news audiences' knowledge, we conducted a multiple linear regression with age, gender, and formal education as well as attitudes toward news, news use, and attributed relevance to opinion formation as independent variables (Table 3). We see that levels of education have a relatively large influence on the degree of objective informedness within all three age groups. This is consistent with previous findings on knowledge gaps between higher and lower education groups (Eveland & Scheufele, 2000). In comparison, the effects of age and gender are less pronounced; it is only for 14- to 17-year-olds where age plays a significant role. However, a stepwise regression analysis that is not depicted in Table 3 shows that the influence of sociodemographic variables decreases when attitude, use, and relevance attribution are included, pointing to other factors that determine informational level. Here, we see that interest in news and the use of journalistic sources have the greatest effects on the informational level within all three age groups. Former studies showed the reciprocal relationship between news use and political knowledge (Moeller & de Vreese, 2015). Also of interest is the influence of sources considered relevant for opinion forming, which can be seen in two ways. On the one hand, the perceived relevance of journalistic sources positively influences (young) adults' informational level, while on the other hand, for teenagers, relying on non-journalistic sources for opinion formation has a negative effect on their knowledge level. This suggests that news audiences' level of interest in news about current events as well as their interactions with journalistic sources for information and opinion formation determine how much individuals know about socio-political topics. For young adults or teenagers, the use or relevance of non-journalistic sources even has a negative effect on their degree of informedness. This result underlines the role journalism plays in democratic systems and the need to strengthen that role in both journalistic practice and competence approaches. Overall, these variables explain between 28 and 34% of variance.

5. Conclusions

This study examined the extent to which generational differences in news use can be explained by overarching consumption patterns that encompass the totality of attitudes and practices with which news audiences relate to socially relevant matters in their interactions with news media institutions. With the concept of information orientation as introduced in this study we showed both the extent to which respective sub-aspects are present

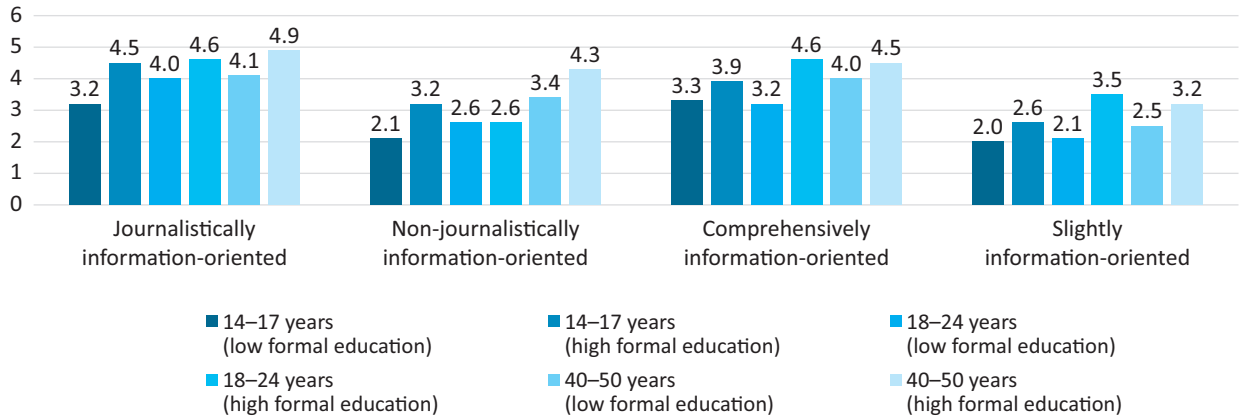

Figure 3. Socio-political knowledge by type of information orientation, age group, and education. Notes: Mean values of correct answers from six knowledge questions; 14- to 17-year-olds—n = 494; 18- to 24-year-olds—n = 500; 40- to 50-year-olds—n = 500.

Table 3. Regression analysis of the factors influencing news audiences' degrees of knowledge.

	Teenagers (14–17 years old)			Young adults (18–24 years old)			Adults (40–50 years old)		
	B (standardized)	*B*	*SE*	*B* (standardized)	*B*	*SE*	*B* (standardized)	*B*	*SE*
Intercept		3.435***	0.987		0.563	0.770		0.792	0.882
Sociodemographic									
Age	0.130***	0.212***	0.061	−0.017	−0.014	0.032	−0.002	−0.001	0.017
Gender	−0.045	−0.161	0.131	−0.102**	−0.333**	0.123	−0.108**	−0.335**	0.119
Education	0.227***	0.341***	0.060	0.306***	0.513***	0.067	0.214***	0.310***	0.058
Attitudes									
Interest	0.175**	0.313**	0.107	0.134*	0.252*	0.108	0.177**	0.329**	0.104
Importance	0.123*	0.203*	0.091	0.088	0.148	0.093	0.089	0.159	0.095
Use of sources									
Journalistic	0.173**	0.292**	0.094	0.157**	0.254**	0.091	0.109*	0.163*	0.080
Non-journalistic	0.006	0.009	0.076	−0.118*	−0.191*	0.078	−0.094	−0.14	0.072
Relevance for opinion formation									
Journalistic	0.054	0.091	0.087	0.119*	0.204*	0.089	0.137**	0.235**	0.085
Non-journalistic	−0.091*	−0.172*	0.085	−0.025	−0.044	0.080	−0.051	−0.074	0.069
R^2		0.351			0.321			0.295	
Adjusted R^2		0.339			0.309			0.282	

Notes: 14- to 17-year-olds—n = 494; 18- to 24-year-olds—n = 500; 40- to 50-year-olds—n = 514; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

in adolescents, young adults, and adults, while providing insights into specific patterns of interplay between the individual aspects and their relation to sociopolitical knowledge.

Consistent with past research, the slightly information-oriented type is most dominant among teenagers (Edgerly et al., 2018; Geers, 2020). While concerns have been raised about today's youth being less interested in current affairs and turning away from traditional news channels (van Deursen & van Dijk, 2014), our study shows that across the three age groups users rely predominantly on traditional journalistic sources for information and opinion formation, especially those subgroups that are journalistically and comprehensively information-oriented. People who use traditional journalistic sources offline are also more likely to subscribe to journalists and journalistic outlets on social media platforms, regardless of age. This implies that social media should not be researched in isolation when trying to come to conclusions about information use, and in the event that they are, they would likely benefit from a more differentiated approach taking into account which actors and institutions are followed and engaged with on social media. However, growing up in this information landscape, the two younger age groups make use of a variety of (non-) journalistic sources and actors on social media platforms to stay informed; this suggests that future studies would benefit from a deeper understanding of these sources, especially in regard to social media influencers as well as thematic groups and online fora.

By incorporating news-related attitudes alongside the use of platforms, this study reveals interesting information orientations across generations that can advance our understanding of news audiences while contributing insight into previously identified news media repertoires among users. The findings show that not all young people are necessarily less interested and engaged with news and journalism than older people. There are differences between young and old generations' consumption patterns, but these are less pronounced once we include the totality of attitudes and practices with which news audiences relate to socially relevant matters by interacting with new and old media institutions. Thus, age is less important for differences between audiences' consumption patterns than the institutions and structures that make up today's hybrid news media environment, and the structural elements that audiences turn to for their news and informational needs (Taneja et al., 2018).

These findings also show that sociodemographic characteristics, especially in regard to education, are positively related to objective informedness (Eveland & Scheufele, 2000). At first sight, these results confirm current arguments about the digital divide that exists in (online) media use related to educational attainment (van Deursen & van Dijk, 2014). However, it is notable that, despite the sociodemographic variables, orientation and attitudes toward journalism are powerful

determining factors that affect audiences' knowledge of sociopolitical issues. Which sources are considered relevant for opinion formation is influential in two ways: On the one hand, the perceived relevance of journalistic sources positively influences (young) adults' knowledgeability, while on the other, teenagers, relying as they do on non-journalistic sources for opinion formation, may find themselves left in the dark on local and global events that can affect them in all kinds of ways. These findings suggest that contradictory findings can be explained if it is not only the use of particular sources which is surveyed, but a more abstract and holistic perspective is taken. The types of information orientation integrate attitudes and user behavior.

The difficulty in reaching clear conclusions regarding the acquisition of knowledge and the learning effects of (social) media use possibly stems from the fact that, while traditional information channels such as the press and broadcast media are invariably associated with professional journalism, social media rarely are; the reasons why remain unexplored, but they may be found in an understanding that social media has a multiplicity of uses that are in no way related to news and informational needs. The majority of studies exploring news users' knowledgeability tend to neglect informational needs that are not related to politics and current affairs; while social media platforms occupy a significant informational space across all age groups, our findings reveal that it is crucial that we account for other sources that are used in combination with them to explain inconclusive findings on knowledge acquisition. The concept of types of information orientation focuses on the structural level of the source as sender and not on the source as transmission channel. In doing so, capturing the ambiguity of converging media environments can be overcome and at the same time integrated patterns of use and attitudes can be made fruitful.

Finally, there are several implications for journalistic practitioners which result from the study's insights on audiences' attitudes and interactions with (new) media sources. For instance, the finding that news audience members who use traditional journalistic channels offline are more likely to subscribe to or follow certain journalists and their outlets online reflects that an already disinterested audience has little reason to be more curious about current affairs just because it is now accessible on the internet. However, counterstrategies that specifically set out to reach young audiences could focus on producing content that is meaningful to them and is produced according to the structures of the platforms they embrace. Moreover, our findings can hopefully aid journalists in better understanding and addressing their audiences. There exist boundless opportunities for the development, in part through technological affordances, of innovative types of practice that transgress the popular myth that young people are disinterested in serious information that is relevant to their lives. There remains a tension between journalism's long-established location firmly at the center of the democratic process and its dependence on an audience that is willing to pay for it. It is for this reason that explorations into the informational orientations of its many-faceted audiences are valuable both to the field itself and the social terrains in which it is situated.

Of course, this study is not without its limitations. First, we relied on self-reported media use and attitudes to identify types of information orientation. In particular, we did not provide a concrete definition of non-journalistic news sources such as "influencers," for example, for which there still remain unexplored and imprecise definitions. Second, we only used six knowledge-related questions to create an index of objectively measurable informedness and we do not claim any comprehensiveness or precision in our measurement of it. However, we drew on an already tested pool of questions designed to reliably quantify knowledgeability (Trepte et al., 2017) which led to a reliable knowledge indicator. Finally, this study is set against the context of the German media system and environment, one that is characterized by its public service obligations and high levels of trust among its audience (Hölig et al., 2021). In different media environments, the distribution and the expression of typified information orientations might operate differently in a news environment characterized by its public service obligations and state regulation leading to the possibility that the journalistically and comprehensively information-oriented type would possibly be less pronounced than the non-journalistically oriented type.

This study took a closer look at news audiences' information orientations in a contemporary hybrid news media environment and its implications for their knowledgeability of current affairs. While information orientation is heterogeneous both between and within different generations, these findings reveal how most young people are, indeed, motivated to engage with news content and acknowledge journalism as a reliable and vital source of information that plays an essential role in the democratic systems in which they live.

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Conflict of Interests

The authors declare no conflict of interests.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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Article

A Matter of Perspective? The Impact of Analysis Configurations on Testing the Agenda-Setting Hypothesis

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Abstract
The media's capacity to stimulate public concern and create a common ground for issues can counteract the fragmentation of society. Assessing the intactness of the media's agenda-setting function can be an important diagnostic tool for scholars. However, the manifold design choices in agenda-setting research raise the question of how design choice impacts analysis results and potentially leads to methodological artefacts. I compare how the choice between 20 plausible analysis configurations impacts tests of the agenda-setting hypothesis, coefficients, and explanatory power. I also explore changes in agenda-setting effect size over time. I develop a typology of analysis configurations from five basic study design types by four ways of linking content analysis to survey data (5 × 4 = 20). The following design types are compared: three single-survey/between designs (aggregate-cross-sectional, aggregate-longitudinal, and individual-level) and two panel-survey/within designs (aggregate-change and individual-change). I draw on the German Longitudinal Election Study data (2009, 2013, and 2017). All 20 tests of the agenda-setting hypothesis support the hypothesis, independent of the analytical configuration used. The choice of analysis configuration substantially impacts the coefficients and explanatory power attributed to media salience. The individual-level analyses indicate that agenda-setting effects became significantly weaker at later elections, though not linearly. This study provides strong empirical support for the agenda-setting hypothesis independent of design choice.

Keywords
agenda-setting; aggregation; design choice; data analysis; data linkage; methodological artefacts

Issue
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1. Introduction

Agenda-setting research is more relevant today than ever. The media's capacity to stimulate public concern for issues is an important prerequisite for effective public problem management in democracies. Facing changes in information environments and information habits, the media's capacity to (a) focus the public's attention on the most pressing issues, (b) create a common meeting ground, and (c) contribute to collective memory can no longer be taken for granted. Fragmentation is a common apprehension, and the presence of strong and universal agenda-setting effects is a strong bulwark against such centrifugal social forces. In that sense, agenda-setting research could provide orientation in telling us whether, where, and at which pace there is an erosion of the agenda-setting function (Djerf-Pierre & Shehata, 2017)—and how societal integration can be safeguarded and strengthened.

Agenda-setting research is characterized by methodological diversity, which is an asset through which methodologies with specific strengths can compensate for each other's blind spots. I leave aside the experimental tradition (e.g., Iyengar et al., 1982) and focus on non-experimental studies. McCombs' (2007) Acapulco typology distinguishes four types of non-experimental

agenda-setting study designs: (a) automaton studies (McLeod et al., 1974), (b) cognitive portrait studies (Rössler, 1999), (c) competition studies (e.g., McCombs & Shaw, 1972), and (d) natural history studies (e.g., Brosius & Kepplinger, 1990; Geiß, 2019b). Each of these design types tests the original and seemingly simple (first level) agenda-setting hypothesis which will also be at the core of this article:

> H1: The more salient an issue is on the media agenda, the more salient it will become on the public agenda.

The potential theoretical insights that methodological diversity could generate for agenda-setting research are clouded by the confusion that has emerged. We lack an understanding of which differences in results can be attributed to methodological differences between study designs and which signal theoretical implications such as previously unknown mechanisms or contingencies.

My review of the findings from studies of the distinct design types (see Section 2) suggests that the degree of support for the agenda-setting hypothesis varies strongly between design types. For instance, the competition studies tradition consistently supports the agenda-setting hypothesis (Luo et al., 2019; Wanta & Ghanem, 2007); natural history, cognitive portrait, and automaton studies often find no (or weaker) general agenda-setting effects but suggest a set of contingent conditions for the effect to play out (Brosius & Kepplinger, 1990; Geiß, 2019b; Luo et al., 2019; Rössler, 1999). As Rössler (1999, p. 667) notes, "The question of whether the supposed media effect is analyzed on an aggregate level…or on an individual level…has become a crucial point in agenda-setting research….Obviously, the meaning of the results varies according to the research strategy applied." As a consequence, there is substantial disagreement regarding the contingency, strength, and pervasiveness of the effect.

On the one hand, differences in results may reflect theoretical nuances: Longitudinal versus cross-sectional studies test a different mechanism just as aggregate studies and individual-level studies test a different mechanism (see e.g., Shehata & Strömbäck, 2013). We could split up the agenda-setting hypothesis into four (or even more) sub-hypotheses that all deal with the transfer of salience from the media to the audience, one for each of the design types. Each of them can be treated and tested separately. We would expect consistency within, but not between the distinct design types.

But, on the other hand, differences in results can also trace back to methodological factors. Historically, the different designs were developed in the attempt to find the best way to test the agenda-setting hypothesis (and establish causality) rather than formulating additional hypotheses (Erbring et al., 1980; McLeod et al., 1974). This means that tests of these hypotheses that are based on the same data do not constitute statistically independent tests. Also theoretically, the designs test different facets of agenda-setting theory. Together, they form a comprehensive system of steering societal attention towards issues. The hypotheses remain closely related, conceptually and empirically, and inconsistencies between tests can still be puzzling when developing the theory further.

Hence, clarifying the impact of design choice on tests of agenda-setting is a pressing question. Answering it would allow telling apart substantial from methodologically rooted differences in study results. This would reduce confusion and expand enlightenment from methodological diversity and conflicting results in agenda-setting theory: Which results really challenge the hypothesis and/or reveal additional contingent conditions? Which can rather be attributed to methodological choices?

The present study uses the same data set to implement five different study design types and four different ways of estimating news exposure. As the same underlying data are treated in 5 × 4 = 20 different ways—which I call analysis configurations—it allows estimating the systematic impact of these choices on the results. In all these configurations, a positive relationship between media and public salience is hypothesized (see H1). I explore the impact of these choices on coefficient values (RQ1) and explanatory power (RQ2). I will also explore whether there are any signs of erosion of effect size with time (RQ3), as some scholars apprehend in the face of changes in the information environments that citizens draw on for forming their personal agenda (Djerf-Pierre & Shehata, 2017; Shehata & Strömbäck, 2013).

My argument is developed as follows: In Section 2, I will explore five different agenda-setting study designs. In Section 3, I will present several distinct ways of computing media salience at aggregate or individual levels, which yields four different data linking choices that demonstrate the range of possible solutions. In Section 4, I combine designs (five types) and data linking (four setups) into a five-by-four matrix of analysis configurations as any data linking setup can be freely combined with any design type. I then present methods, results, and a discussion of the study.

2. Agenda-Setting Study Designs

I build my typology of agenda-setting study designs (Table A1 in the Supplementary File) on the basic distinction in the survey data (public salience measurement) between *between-data* and *within-data*. Between-data relies on one or several cross-sectional surveys (or treats the data like cross-sectional survey data). Changes in individuals over time are not measured or not analyzed. Other studies analyze within-data using panel surveys where the same person is interviewed and is identifiable in at least two-time slices, and the analysis considers this information on within-person change. All designs conduct analysis across 23 different issues, so all make use of between-issue variation.

2.1. Between/Cross-Section Data

2.1.1. Aggregate Between Design (Design I)

The aggregate between design (Design I) regresses the aggregate public salience of an issue (e.g., the percentage of the population that rates an issue as important) on the aggregate media salience of an issue (e.g., the number of news stories published about the issue). Time is not considered as a variable. The classical agenda-setting study by McCombs and Shaw (1972) is an example of an aggregate cross-sectional design. It corresponds to the competition type in the Acapulco typology. A vast number of studies uses this design (Luo et al., 2019). Wanta and Ghanem (2007) conducted a meta-analysis of this type of design, finding strong support for a positive correlation between the media and the public agenda. This also holds in newer studies (Geiß, 2019b; Luo et al., 2019; Shehata & Strömbäck, 2013). I conclude the likelihood to find support for H1 is high when using Design I.

2.1.2. Longitudinal Between Design (Design II)

The longitudinal between design, like the aggregate between design, regresses the aggregate public salience of an issue (e.g., the percentage of the population that rates an issue as important) on the aggregate media salience of an issue (e.g., the number of news stories published about the issue). However, it considers time by dividing the media and public salience data into different time slices, computes the media and public salience measure for each time slice, and analyzes them as a time series. The study by Funkhouser (1973) can be regarded as the prototype for aggregate longitudinal designs in agenda-setting research. It corresponds to the natural history type in the Acapulco typology. The evidence for the agenda-setting hypothesis in this type of study is more mixed (Boukes, 2019; Brosius & Kepplinger, 1990; Djerf-Pierre & Shehata, 2017; Geiß, 2019b). The bottom line is that in many issues' natural histories, agenda-setting effects are conditional on the characteristics of the issues and the coverage (Brosius & Kepplinger, 1990; Geiß, 2019b; McLaren et al., 2017). For example, the stronger the movement on the media agenda, the more likely are we to find patterns that fit the agenda-setting hypothesis (Geiß, 2019b). I conclude the likelihood to find support for H1 is moderate in Design II.

2.1.3. Individual Between Design (Design III)

Individual between designs regress individual issue salience on individual exposure to the issue. Time is not considered as a variable. The study by McLeod et al. (1974) can be regarded as the prototype of individual-level design studies. Erbring et al. (1980) refined that design and more fully exploited the types of analyses it permits. Often, the aggregate media salience of an issue is used as a regressor instead of individual issue exposure. This simplification of the analytical logic presumes a more or less monolithic media agenda across outlets (e.g., Djerf-Pierre & Shehata, 2017; Sheafer & Weimann, 2005). Individual between designs largely correspond to automaton studies. However, automaton studies are defined as analyses of entire agendas rather than single issues; individual between design studies are defined by the kind of variation that is analyzed: The analysis stems from differences between issues and individuals, not change within individuals over time. The results from individual design studies vary between showing either no, small, or conditional agenda-setting effects (Djerf-Pierre & Shehata, 2017; Erbring et al., 1980; McLeod et al., 1974). I conclude that with Design III, *the likelihood of finding support for H1 is moderate*.

2.2. Within/Panel Data

2.2.1. Aggregate Change Design (Design IV)

Aggregate change designs regress aggregated changes in individual salience on aggregate changes in individual exposure to media coverage about the issue *i*. Time is not considered explicitly but having at least two-time slices is essential for calculating the individual change scores. Aggregate change designs are technically possible but do not take full advantage of the panel design feature (studying change at the individual level) and are therefore usually not chosen—at least I am not aware of any study that uses an aggregate change design. Given the similarities with Design I, I expect that the likelihood of finding support for H1 is high when using Design IV.

2.2.2. Individual Change Design (Design V)

Individual change designs regress changes in individual issue salience to changes in the same individual's exposure to media coverage about the issue *i*. Time is not considered explicitly but having at least two-time slices is essential for calculating the individual change scores. The study by Rössler (1999) can be regarded as the prototype of individual change design studies. It corresponds to the cognitive portrait type in the Acapulco typology. There are some other examples of such studies (Geiß, 2022; Matthes, 2008; Shehata, 2010). Results from individual change designs are mixed (Shehata & Strömbäck, 2013), mostly in line with those that employ Design III: Some studies find agenda-setting effects and others do not, but all emphasize contingent conditions at the individual level. I conclude that the likelihood of finding support for H1 is moderate when using Design V.

3. Content-to-User Linking

Estimating how much audience members were exposed to media coverage about an issue is of paramount importance in the individual-level Designs III and V.

In the current study, it also affects the aggregate media salience measures in Designs I, II, and IV. However, I expect that the aggregation will smooth out some of the differences created by the detailed individual-level linking procedure. Hence the choice of linking procedure would be less consequential in Designs I, II, and IV vis-à-vis Designs III and V.

The first attempts to assign each study participant their individual exposure to news about an issue started early in agenda-setting research (Erbring et al., 1980; McClure & Patterson, 1976; McLeod et al., 1974), and have become more elaborate over time (Dalton et al., 1998; Matthes, 2008; Rössler, 1999; Schuck et al., 2015). I base my argument on my own systematic approach to linking users with the content they were exposed to, which considers time frames, effect envelopes, news story salience, and individuals' news use (Geiß, 2019a). The code for the analysis is available from my GitHub repository (Geiß, 2021).

3.1. Time Frame

The time of exposure relative to the time of interview affects the agenda-setting potential of content. Only content that has been received prior to the interview can affect issue salience which is measured in the interview. Also, exposure that has happened a long time ago may no longer be relevant (Price & Tewksbury, 1997). To account for that, content-user-linking needs to specify a time frame. In a panel survey, only content received between the two interviews can have contributed to a *change* in issue salience between the two interviews.

In the present study, the time frame is held constant at a maximum 14-day time window before the interview (for the non-panel analysis) or for the whole period between the two interviews of the same individual (in the panel analysis).

3.2. Effect Envelope

The effect of exposure to media coverage about an issue will fade over time. Hence, recently published content would get a greater weight than content received a longer time ago.

The present study uses a linear effect envelope throughout. If the time window is 14 days, the content received on the day before the interview is assumed to still have full effect (14 ÷ 14 = 100%) whereas content received at the start of the time window has almost no assumed effect (1 ÷ 14 = 7%).

3.3. Precision of News Story Salience Measurement

Lead stories on the front page have a high chance of being read and of making an impact on issue salience. In contrast, stories published at the bottom of the lower-right column on page eight will most likely be overlooked by most. More salient news stories have a higher potential to trigger agenda-setting effects. They attract more attention and function as agenda cues (Pingree & Stoycheff, 2013).

The present study varies between a *high precision* and a *low precision* measurement of news story salience. This is to check how neglecting news story salience impacts (and probably impairs) the prediction of agenda-setting effects: Setup 1 (high precision for salience, S+) uses all news story salience measures included in the content analysis to create a salience score between 0 and 1 for each news story. Setup 2 (low precision for salience, S−) simply weighs all news stories with the full weight of 1, independent of the salience.

3.4. Precision of Media Use Measurement

Which media a person uses has implications for the content that person will be exposed to and that can affect issue salience. Besides some studies based on copy tests (Donsbach, 1991a, 1991b) and prototype studies with online tracking (Stark et al., 2017), media use is usually (and also in this study) measured not at the level of individual news stories or editions, but the (habitual) usage of news outlets. Respondents will usually only use a few news outlets regularly, and only content published in outlets they habitually use is considered when estimating exposure. The more frequent the use of the outlet, the greater the likelihood of exposure to its content, according to this logic. If, for instance, a person exclusively relies on a single outlet that chose to not cover an issue, that person might have little exposure to the issue even if it is generally covered broadly.

The present study varies media use measurement, contrasting two setups. In Setup 1 (high precision for usage, U+), we use these data in their full level of detail: If a person used the news outlet in that a news story was published on four out of seven days, the news story would be weighted by 4 ÷ 7 = 0.57. In Setup 2 (low precision for usage, U−), we construct a simple index of news use and use the highest media use measurement of any of the 10 news media considered as the total exposure index.

3.5. A Practical Example

The overall weight of a news story for an individual would be calculated like this—It is a multiplicative filter of all four components: time frame weight × effect envelope weight × content salience weight × usage likelihood weight. It is calculated for each combination of news items and individuals. For example, if we have 1,000 news stories and 1,000 interviews, this results in one million weights.

If a news story was published eight days before the interview, it passes the time frame filter (1: *passed*; 0: *not passed*) and receives an effect envelope weight of (14 − 8 + 1) ÷ 14 = 0.5 (meaning that we assume that half of the effect has already faded). If the news

story is not very well placed, this would be indicated by a low content salience weight, e.g., 0.3. If the individual uses the publishing outlet on six out of seven days, this results in a usage likelihood weight of 6 ÷ 7. The exposure weight for this news item/interview combination would be: 1 (time frame) × 0.5 (envelope) × 0.3 (news story salience) × 0.86 = 0.129. The maximum value of a news story would be 1.0 (right time frame, immediately before the interview, salient front-page coverage, in an outlet the individual always uses). If any of the weights becomes 0, the total weight becomes 0. Table A2 in the Supplementary File shows some examples of how different weights affect the total exposure weight.

4. Analytical Configurations

Combining the five design types (I–V) and the four user-to-content linking procedures (1–4) results in a four-by-five matrix of analysis configurations (Table 1). Each design has specific strengths and weaknesses. For instance, Design V is best suited to establish causality. In contrast, Design I is relatively easy to implement and can show the de-facto similarity between agendas that powerfully shape political debates and political decision-making. Designs III and V avoid the danger of an ecological correlation when it comes to detecting causality (Robinson, 1950) but they may fail to account for broader societal patterns of cumulative effects. A mismatch between individual-level and aggregate-level results would occur when many individuals respond to media coverage of an issue by heightened attention to the issue, but the exact strength of their reaction is conditional on individual factors and is not linearly responding to the extent of exposure. This would result in apparently strong effects at the aggregate level and apparently weak effects at the individual level. However, if results with all these different designs—I through V—point in a similar direction, it would be a strong argument for the occurrence of agenda-setting effects that (a) can be traced at the individual level but that (b) also do not cancel out in the aggregate and make a meaningful and observable difference in society.

A similar argument applies to the user-to-content linking: High precision (Linking 4: U+S+) is more useful for tracing individual-level effects of just the content that the individual was exposed to. However, a low precision linking (such as Linking 1: U−S−) can be advantageous if the media agenda is highly consonant across news media, leading to relatively similar exposure across individuals independent of which outlets one is using. One can expect that precision of content-to-user linking is consequential (and more precision is beneficial) in Designs III and V whereas it is less consequential (and potentially, more precision can even be detrimental) in Designs I, II, and IV. On the other hand, more precise content-to-user linking could also be advantageous in aggregate-level analysis because it induces a precise aggregate-level weighting of content according to the estimated frequency of exposure among the respondents. For instance, if the content analysis included some highly popular and some less popular news outlets, the popular outlet will figure more prominently in the aggregate media salience measure. Again, if the results establish that agenda-setting effects can be observed independent of content-to-linking choice, it offers strong support for the agenda-setting hypothesis.

5. Methods

5.1. Data Overview

I use two components of the German Longitudinal Election Study (GLES) 2009, 2013, and 2017: the newspaper and TV content analysis (GLES, 2019a) and the Rolling Cross Section survey with an additional post-election panel wave (GLES, 2019b). The raw data can be downloaded in the GESIS data archive (GLES, 2019b, 2019a) as presented in Sections 5.2 and 5.3. In Sections 5.4 and 5.5, I document how I modified the data for implementing the 20 analysis configurations (Section 5.4) and how I analyzed the data (Section 5.5).

5.2. Survey

The surveys are two panel waves of telephone interviews with a probability sample of the German population with the right to vote in the Bundestag election. The interviews were spread out such that each day a random cross-section of the total panel was interviewed on each day (with approximately 100 participants per day). A total of 21,537 interviews were conducted and are included in the analysis. I did not use any weights for the analysis since representing the population's distribution of demographics was not deemed necessary.

Table 1. Overview of all 20 analytical configurations.

	Between variance			Within variance	
Content-to-user linking	Aggregate I	Longitudinal II	Individual III	Aggregate IV	Individual V
1. Low precision (U−S−)	I.1	II.1	III.1	IV.1	V.1
2. Mixed precision (U−S+)	I.2	II.2	III.2	IV.2	V.2
3. Mixed precision (U+S−)	I.3	II.3	III.3	IV.3	V.3
4. High precision (U+S+)	I.4	II.4	III.4	IV.4	V.4

The respondents were asked for the most important problem (MIP) in Germany today. The GLES team recorded the open-ended responses and coded them using the same category system that was used in the media content analysis for classifying issues (328 different issues). The follow-up question on one's second most important problem was ignored to not give more weight to those respondents that mentioned two problems rather than only one problem.

Media use was captured with a question on how many of the past seven days respondents had used the respective news outlet. Respondents could mention up to three newspapers and up to four TV news programs they watch regularly.

5.3. Content Analysis

The content analysis covers the following time periods: 28 June 2009 to 26 September 2009, 23 June 2013 to 21 September 2013, and 27 June 2017 to 23 September 2017. It analyses one popular and five prestige national newspapers across the political spectrum (*Die Tageszeitung*, *Frankfurter Rundschau*, *Süddeutsche Zeitung*, *Frankfurter Allgemeine Zeitung*, *Die Welt*, and *BILD*) in which all articles on the front page and in addition page 2 (*BILD*; most political news are placed on the second page), and the opinion page (*Süddeutsche Zeitung*, *Frankfurter Rundschau*, and *Die Tageszeitung*) were analyzed. In addition, the national TV newscasts in ARD, ZDF, RTL, and Sat.1 were considered completely. The news stories were scanned and only included in the sample if they dealt with national-level politics and policy. A total of 24,463 news stories were analyzed and are included in the analysis.

5.3.1. Issues Emphasized

In each news story the most prominent polity issue (political institutions and structures), politics issue (political processes), and policy issue (policy content) were coded, leading to up to three issues per news story. Per election, the GLES method report provides estimates of intercoder agreement separately for two media types (print, TV) and for three issue categories (polity, policy, and politics issues), leading to a total of 18 estimates (Table A3 in the Supplementary File). Eleven out of 18 are above 0.80 and five more are above 0.667. Two outliers at $\alpha = 0.22$ and $\alpha = 0.57$ are reported. These two low agreement estimates are based on an extremely small number of cases that make the estimates more volatile. Overall, intercoder agreement is acceptable.

5.3.2. Salience

For the news stories in newspapers, their page, placement on the page, size (from 1 *very small* to 5 *very large*), and illustration (0.00 = *no*, 0.33 = *small*, 0.67 = *medium*, 1.00 = *large pictures*) were recorded. For news stories in TV news, their duration (in seconds), the duration of the newscast (in seconds), and the runtime in the newscast at which the news story started (in seconds) were recorded.

5.4. Data Preparation

5.4.1. Issue Recoding

I created a recoding scheme that assigned each of the GLES issue codes to one of 23 different issue categories. This was applied to the MIP response of each participant such that each participant could mention only one issue category (0 = *category not mentioned* and 1 = *category mentioned*).

I re-classified the content analysis data issue variables (up to one polity, one politics, and one policy issues per news story) into 23 issue categories analogous to the responses to the MIP question. For each of the 23 issue categories (and the associated issue codes), I checked whether they occurred in either the polity issue, the politics issue, or the policy issue score such that binary data (23 variables) represent for each issue whether it is emphasized in a news story or not.

5.4.2. News Story Salience

For the news stories in newspapers, their page (1 = *front page* = 1 and 0.5 = *not front page*), salience on the front page (1 = *top of page* and 0.50 = *less favorable position*), size (recoded from 0 = *very small* to 1 = *very large*), and illustration (0.00 = *no*, 0.33 = *small*, 0.67 = *medium*, and 1.00 = *large pictures*) were recorded and multiplied to obtain a total salience score for newspaper news stories (ranging from 0 to 1). For news stories in TV news, their duration (1.00 = *100 or more seconds*, 0.75 = *45 to under 100 seconds*, and 0.50 = *below 45 seconds*) and relative position in the newscast (1 = first news story in the newscast; 0.75 = *news story number two to five*; 0.50 = *news story six or later*) was computed from the recorded variables. These two are multiplied to obtain a total salience score for TV news stories (ranging from 0 to 1).

5.4.3. Independent Variable

The main predictor in all models is the exposure to news stories about the issue whose salience should be predicted. The basis of this computation is the individual-level exposure measure created with the content-user linking procedure.

The content-to-user linking is conducted using an R script (Geiß, 2021) that has been used in several studies (Geiß, 2019a, 2020, 2022). It allows specifying the time frame and the effect envelope, the degree of usage of the outlet, and the salience of the news story. For each respondent r and each of the 23 issues i, the four weights are multiplied for each news story u that deals with the issue. Their sum gives the exposure score of that respondent r for the issue i.

$$\exp_{i,r} = \sum_{u=1}^{U} \text{Time frame}_{i,r,u} \bullet \text{effect envelope}_{i,r,u} \bullet \text{media use}_{i,r,u} \bullet \text{story salience}_{i,r,u}$$

5.4.4. Control Variables

The control variables are, depending on the model, the category of the issue (23 issues) and the election (three elections), included as random intercepts if possible. In the longitudinal design (II), there are two additional control variables: the lagged dependent variable (from the previous day; theoretical range: 0–1) and time (the number of days since the study was started in the respective election, divided by the total duration of the study in days; theoretical and empirical range: 0–1, in which 0 = *first day of study* in the respective election and 1 = *last day of study*).

5.4.5. Implementing Analysis Configurations

The five study design types are implemented in the current analysis in the following way: The raw data for the between data (neglecting the second measurement occasion) implement Design III. The data of Design III (n = 21,436; h = 495,351) are aggregated in different ways to implement Designs I (n = 69) and II (n = 4,485). The raw data for the within design (dependent variable: change scores between first and second measurement occasion) implements Design V; through aggregation of Design V (n = 13,624; h = 313,352), Design IV (n = 69) is implemented. The implementation of the different user-to-content linking decisions results from calculating the independent variable (see Section 5.4.3) based on different input data (see Sections 3.3, 3.4, and 4).

The independent variable is aggregated by computing the arithmetic means for the aggregate. The dependent variable varies by design (I–V) but is constant across data linking choices.

I. Share of the respondents that mentioned the issue *i* as the most important issue;
II. Share of the respondents on the respective day *d* that mentioned the issue *i* as the most important issue;
III. A respondent mentioning the respective issue *i* as the most important issue;
IV. Share of the respondents that changed towards the issue *i* as the most important issue;
V. A respondent changes towards mentioning the respective issue *i* as the most important issue.

5.5. Statistical Analyses

The following statistical analyses are conducted for each design type:

I. Linear mixed-effects model (Bates et al., 2015). Fixed part: logarithmized issue exposure, intercept. Random effects: 23 issues as random intercepts.
II. Linear mixed-effects model (Bates et al., 2015). Fixed part: logarithmized issue exposure, closeness to the election, lagged dependent variable, intercept. Random effects: 23 issues as random intercepts nested in three elections.
III. Generalized linear mixed-effects model. Fixed part: logarithmized issue exposure, intercept. Random effects: 23 issues as random intercepts.
IV. Linear mixed-effects model (Bates et al., 2015). Fixed part: logarithmized issue exposure, intercept. Random effects: 23 issues as random intercepts.
V. Generalized linear mixed-effects model. Fixed part: logarithmized issue exposure, intercept. Random effects: 23 issues as random intercepts.

6. Results

6.1. Agenda-Setting Hypothesis (H1)

All 20 analysis configurations support the agenda-setting hypothesis. Higher/lower media salience of an issue is associated with higher/lower public salience of that issue independent of design choice and content-to-user data linking choice (see analysis of coefficients in Section 6.2). The association's statistical significance is at $p < 0.05$ in all analysis configurations (though narrowly in cell IV.1; Table 2).

6.2. Coefficients (RQ1)

The coefficients of exposure to news stories about an issue are all positive and statistically significant (Figure 1). While the data analysis procedures differ, the direction of the relationship is always indicated by the sign of the coefficient, which is consistently in the positive range.

The size of coefficients within a design type increase with greater precision of the data linking choices. In the individual-level analyses (III and V), this difference is clearly statistically significant while confidence intervals overlap for the aggregate-level analyses (I and IV). The longitudinal analysis (II) also has overlapping confidence intervals. The main reason is the greater statistical power in the individual-level analyses.

To better envision the strength of a relationship expressed by the coefficients, I calculated a scenario prediction: In that scenario, an issue already is ranked MIP by 10% of the population (I, II, and IV) or has an a priori 10% probability of being mentioned as MIP by a person (III and V). Then, media attention towards that issue goes up such that the average exposure to that issue increases by 10 news stories. How does the percentage of people who mention the issue as MIP (I, II, and IV) or the probability that an individual mentions the issue as MIP (III and V) change?

According to this scenario, the greatest effect on the public agenda is predicted in Design I (10 to 17

Table 2. Statistical significance level of including issue exposure in the prediction of issue salience: Likelihood ratio tests.

Content-user linking	Usage precision	Content salience precision	Data gathering and data analysis: Between — I Cross-section aggregate	Between — II Longitudinal aggregate	Between — III Individual	Within — IV Aggregate	Within — V Individual
			(n = 69)	(h = 4,554) (t = 198)	(h = 495,351) (n = 21,436)	(n = 69)	(h = 313,352) (n = 13,624)
			$\chi^2_{df=1}(p)$	$\chi^2_{df=1}(p)$	$\chi^2_{df=1}(p)$	$\chi^2_{df=1}(p)$	$\chi^2_{df=1}(p)$
1. Low precision	Low (U–)	Low (S–)	15.5*** (<0.001)	55.9*** (<0.001)	2,497.5*** (<0.001)	6.5* (0.011)	137.0*** (<0.001)
2. Mixed precision	Low (U–)	High (S+)	17.2*** (<0.001)	74.7*** (<0.001)	3,038.1*** (<0.001)	7.4** (0.006)	202.2*** (<0.001)
3. Mixed precision	High (U+)	Low (S–)	17.8*** (<0.001)	76.7*** (<0.001)	3,164.6*** (<0.001)	8.6** (0.003)	258.3*** (<0.001)
4. High precision	High (U+)	High (S+)	18.1*** (<0.001)	87.7*** (<0.001)	3,315.1*** (<0.001)	8.8** (0.003)	301.2*** (<0.001)
Data analysis procedure			Linear regression	Linear regression (with lagged dependent variable)	Hierarchical binary logistic regression	Linear regression	Hierarchical binary logistic regression

Notes: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

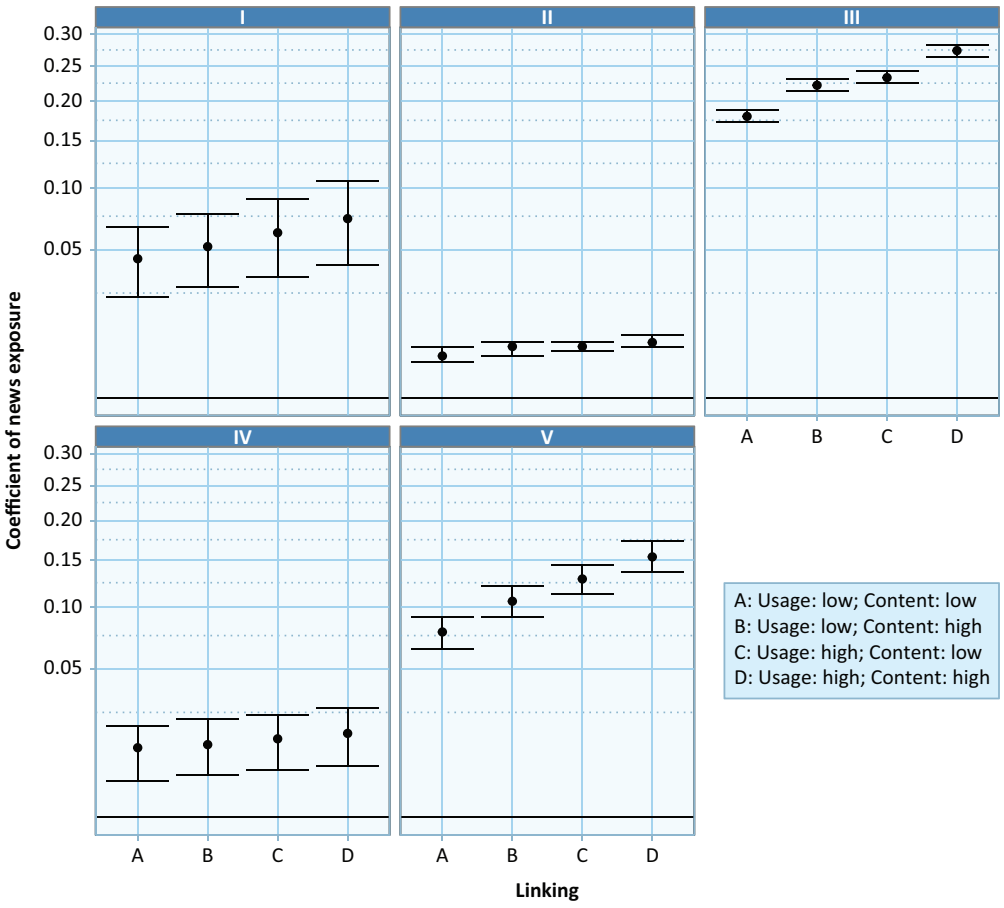

Figure 1. Coefficients of (logarithmized) issue exposure's effect on issue salience.

percentage points), followed by Design III (five to nine percentage points), Design V (two to five percentage points), Design IV (three to four percentage points), and Design II (one to two percentage points; Figure 2). While the strongest effects are observed in an aggregate-level analysis, the two individual-level designs exhibit moderate effects. More precise user-to-content linking seems to pay off in the sense that the coefficients appear to grow stronger if we measure exposure more precisely. This is observed within each design type.

However, the impact of user-to-content linking is not as clear-cut as it appears in Figure 2. The reason is that the more precise linking also leads to lower estimates of exposure. So, the exposure to 10 additional news stories is more likely to occur if user-to-content linking has low precision; if precision is high, exposure scores tend to be lower (Section 5.6.1, Figure A2 in the Supplementary File). Figure 3 displays, for a given issue, the predicted probability of mentioning the issue as MIP (Design III, left) or of changing their response to that issue (Design V, right), respectively. The four differently coloured lines represent the four user-to-content linkage conditions. The steepest increase is clearly found for the most precise linkage type (high/high), suggesting that the effect is strongest in this condition. However, the linkage procedure leads to a systematically lower estimate of exposure (see Figures A2, A3, and A4 in the Supplementary File). The steepness of the curves exaggerates the differences between the conditions because the density of cases in the upper sections of the curve is lower the more precise the linkage is. To account for that, black connecting lines in Figure 3 show the predicted value at comparable extents of exposure, comparing the top 10% with the highest exposure in each condition, the top 20%, top 30%, and so forth. If the black line is horizontal, it means that at comparable extents of exposure, the probability of mentioning the issue is the same. To find the condition with the strongest effect at equivalent levels of exposure, one would identify which of the connected points (=equivalent exposure) are the highest (on the y axis). This suggests that only among individuals with a high extent of exposure does user-to-content linkage lead to estimating stronger effects; among those with a low extent of exposure, the less precise linkage conditions may indicate stronger effects.

6.3. Explanatory Power (RQ2)

Change in explanatory power of the proposed models when introducing exposure to an issue is greater for

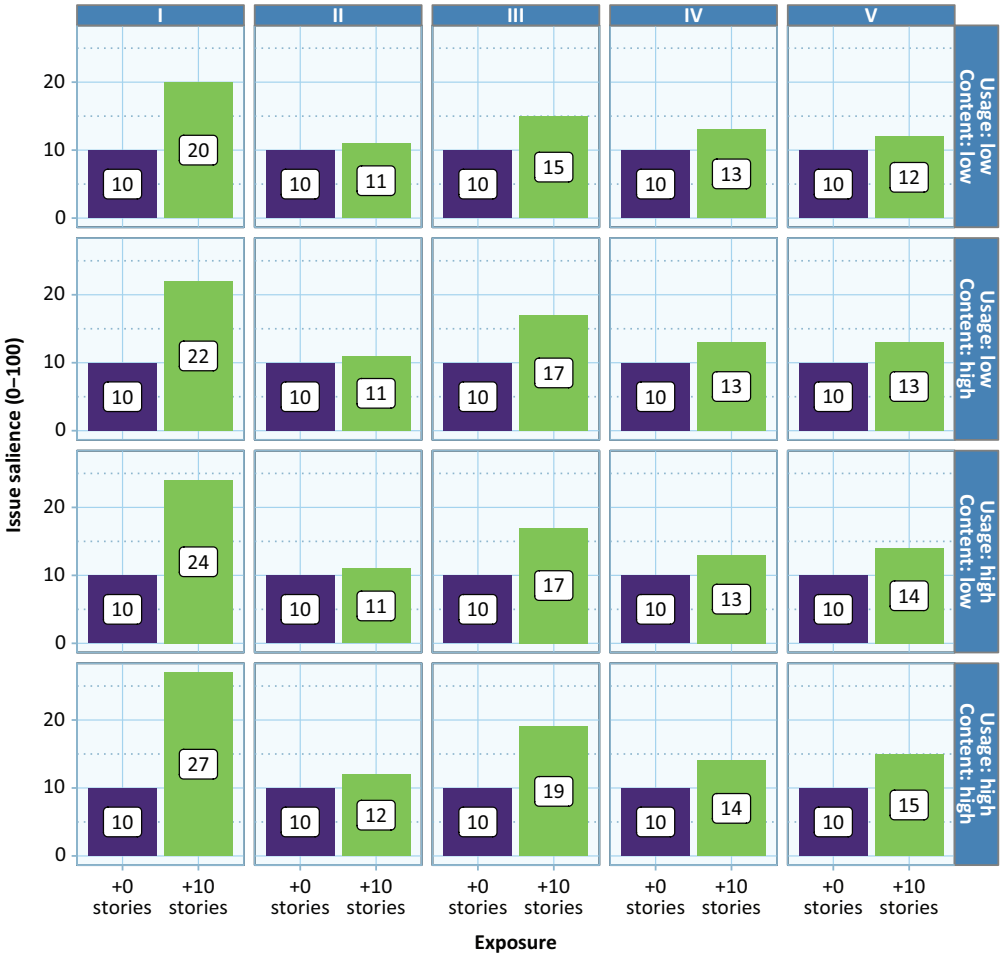

Figure 2. Predicted salience of issue if exposure to issue increases by 10 news stories.

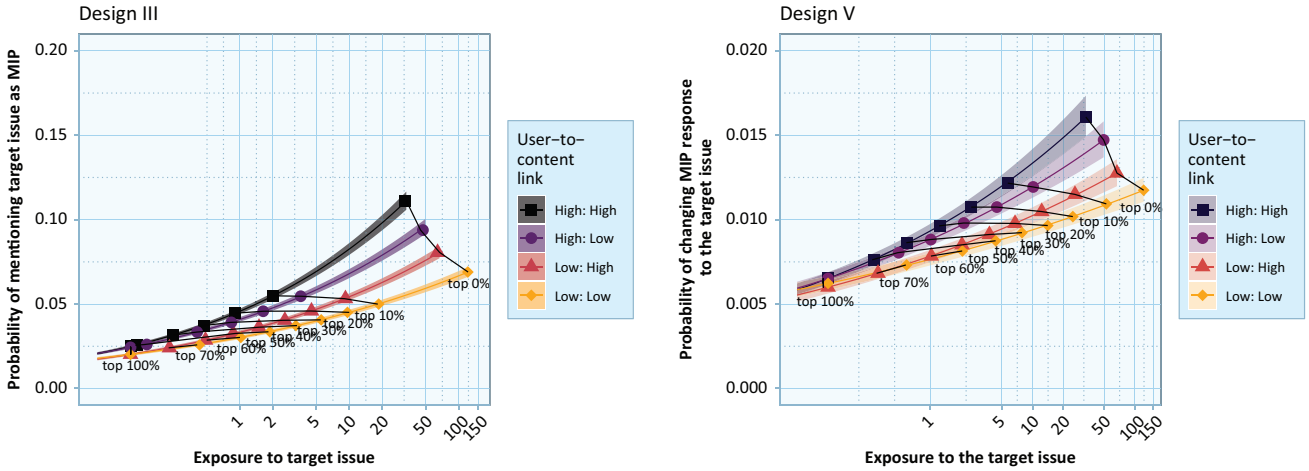

Figure 3. Issue exposure effects on individual probability of mentioning the issue as MIP.

aggregate-level (I, II, and IV) than for individual-level (III and V) studies and is greater for static/cross-sectional (I and III) than for their dynamic/longitudinal (II, IV, and V) counterparts (Figure 4, absolute values). While the aggregate/between design explains up to 27.6% of the variation in public salience of issues, the individual/within design explains only up to 0.9% of the variation in individual salience change of issues. In the longitudinal design (II) the explanatory power is even lower. However, it is a special case, as the inclusion of a lagged dependent variable eats up a lot of the variation, leaving little unexplained variation that news exposure could help explain (Figure A5 in the Supplementary File, Conditional R^2).

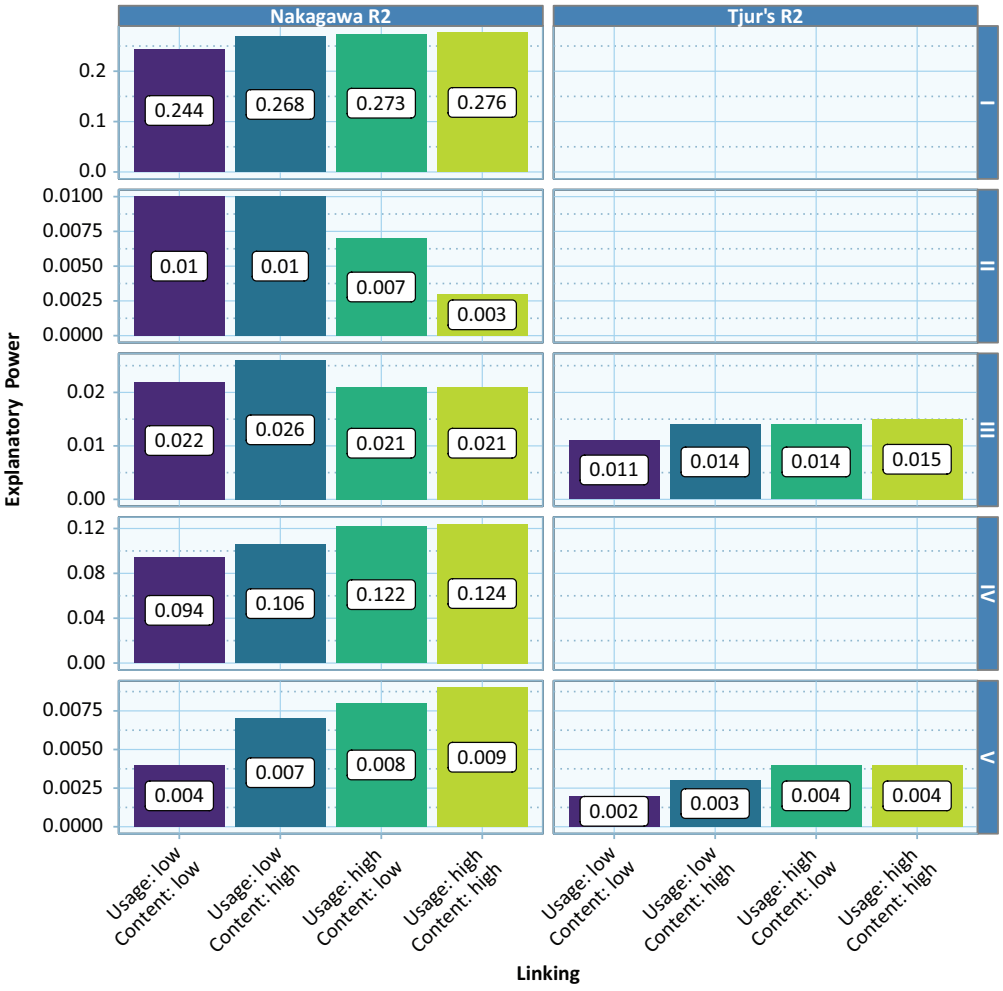

Figure 4. Change in explanatory power when adding media salience to explain issue salience.

The precision of the data linking leads to improvements in explanatory power in most (I, IV, and V) but not all designs. In Design II, the pattern is reversed, and design III shows no consistent pattern. However, design III shows the predicted pattern if we look at Tjur's R^2 (Figure 4, right panel) or at conditional R^2, i.e., the overall predictive capacity of random and fixed effects together (Figure A5 in the Supplementary File). I interpret this as showing that the *overall* prediction improves if the more precise measures are used, but less of the explained variation is attributed to the news use measure and more is attributed to random intercepts of issues. Thus, greater precision in data linking is beneficial in all designs except for the longitudinal-between design (II).

6.4. Change in Agenda-Setting Effects 2009–2017 (RQ2)

The data cover three elections during a phase of fundamental change in the media system toward a high-choice media environment (2009–2017). This allows no conclusive test but some insights into whether an erosion of agenda-setting effects of mass media during this period has occurred. We will investigate this primarily based on individual-level data (Designs III and V) because the other three designs (I, II, and IV) do not have the statistical power to make an informative test. We always rely on the high precision linking (4), but other linking configurations (1–3) lead to equivalent results and the same conclusions.

I started with design III.4. First, I tested whether adding interactions between news exposure and election year (categorical variable with three levels: 2009, 2013, and 2017) leads to an improvement of explanatory power. This is the case ($\chi^2(4) = 356.2$; $p < 0.001$). Agenda-setting effects differed in strength between the three elections. But has this been a consistent downward trend? To test this, I explored the interaction terms between elections and news exposure. 2009 has in fact been the year where agenda-setting effects had been the strongest: The probability of mentioning an issue increased with increasing issue exposure at the highest rate in 2009. However, agenda-setting effects were markedly stronger in 2017 compared to 2013. This does not rule out a downward trend. However, a linear trend does not offer the best explanation (Figure 5).

I repeated the analysis logic with design V.4. The findings are essentially the same: Adding the interactions leads to better models ($\chi^2(2) = 356.2$; $p < 0.001$), with 2009 as the year with the strongest agenda-setting effects, and agenda-setting effects in 2013 were weaker than in 2017 (Figure 5).

Only observing more elections can provide some more closure regarding a possible downward trend. What we can conclude is that if there is a downward trend, then it is not strong enough to overshadow all more situational influences on specific elections, as showcased by the weak agenda-setting effects in 2013.

7. Discussion and Conclusion

7.1. Results and Their Implications

The results offer some straightforward conclusions:

Robust agenda-setting effects: First, the data supported the predictions of the agenda-setting hypothesis in all 20 analysis configurations. This attests to a very robust phenomenon and provides strong support for the agenda-setting hypothesis across a wide range of issues. This does not mean that the effect is unconditional, but that it is observable in a broad set of cases across different conditions.

Precise user-to-content linking pays off: Second, user-to-content linking that was more precise benefitted the model specification and mostly led to greater explanatory power. This coincided with higher coefficients, which, however, must be interpreted with care (Section 6.2). All these differences were relatively small but suggest that more precise user-to-content linkage produces richer models of agenda-setting effects. The only is the longitudinal Design II, where more precise

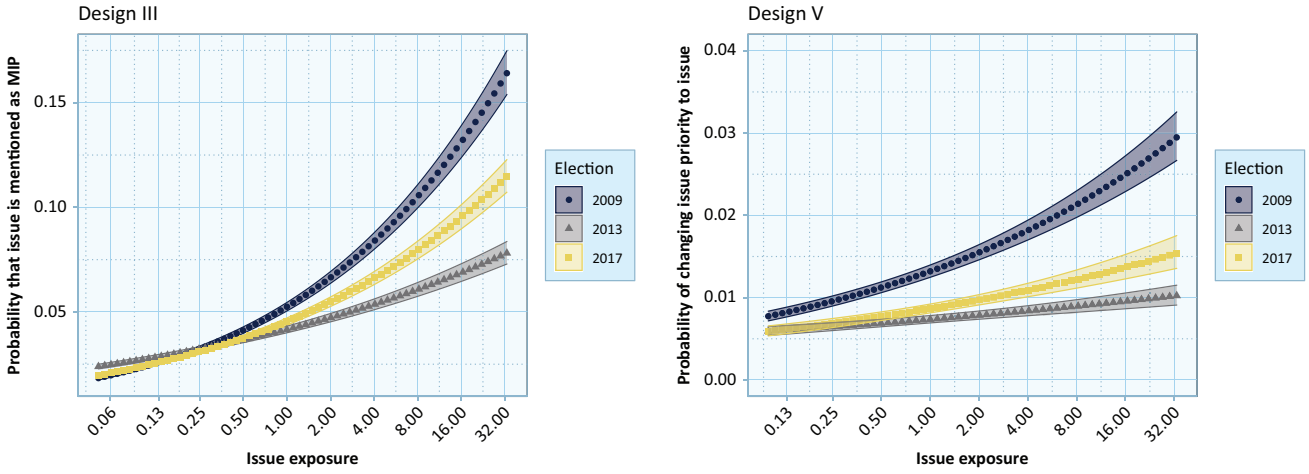

Figure 5. How agenda-setting effects differ between elections (Designs III and V).

linking was ineffective or even detrimental. User-to-content linkage may become even more important the less plausible it is to assume a monolithic media agenda.

Statistical power advantages in individual-level analyses: Third, individual-level analyses have the greatest statistical power. Individual-level analyses will become even more important as the media agenda may become more fractured and there may emerge several distinct media agendas.

First signs of a downward trend in strength of agenda-setting effects? Fourth, agenda-setting effects may have lost strength since 2009, at least the data from 2013 and 2017 show a lower strength of agenda-setting effects compared to 2009. However, one must consider that effect strength can vary substantially from election to election due to their idiosyncrasies (candidate constellation, parties' strategies, issue dynamics). If there is a downward trend, it is not linear: The effect strength in 2017 was greater than in 2013. This possible erosion of agenda-setting effects at the individual level (Designs III and V) may reflect changing patterns of media use in hybrid information environments. The GLES measurements presuppose users habitually use a handful of outlets. But nowadays, more scattered exposure to single news stories from a wide range of outlets is possible (e.g., in social media) has become widespread and may become even more widespread in the future.

For the choice of research designs in agenda-setting, I can conclude that:

(1) We need methodological diversity in agenda-setting. Changes in information environments can challenge presumptions in both individual-level (e.g., the concentration on a few habitually used outlets per person) and aggregate-level studies (e.g., the existence of a monolithic media agenda) making it even more important to triangulate agenda-setting phenomena from several angles.

(2) Aggregating data (from Design III to Design I or from Design V to Design IV) was the design decision that had the greatest impact on analysis results regarding explanatory power, coefficients, and statistical power. The impact of analyzing within variance (designs IV and V) rather than between variance (designs I, II, and III) was moderate. Finally, user-to-content linking choices (1–4) had a small, gradual impact within each design type (I–V).

(3) While panel studies are often preferable epistemologically (Design V), the analysis suggests that studies without repeated individual-level measurements (Design III) allow substantial analyses of agenda-setting processes as well.

(4) We need to find ways to secure that even in hybrid information environments, exposure to issues in the news can be estimated with decent precision. The more diverse and unpredictable media use becomes the more challenging and the more work-intensive it will be to measure media use and media content appropriately. If such data are obtained, picking an appropriate content-to-user linking procedure is of great importance.

(5) R-squares from different design types are not comparable. Here, the exact same data led to an estimated marginal R^2 of 0.24–0.28 at the aggregate level (Design I; linear model) and only 0.02–0.03 at the individual level (Design III; binary-logistic model). This also signals that relatively modest percentages of explained variance at the individual level can entail impressive aggregate-level consequences.

At the same time, there are some more complicated discussions that are raised by the findings.

Precise content-to-user linkage leads to lower estimates of exposure: The greater coefficients as data linking gets more precise should be interpreted with care. The distribution of the independent variable changes in a way that greater exposure values tend to occur in the less precise data linking condition relative to the high precision condition. This means that the lower regression coefficients in the low-precision conditions will be combined with higher input values while the higher regression coefficients in the high-precision conditions tend to be combined with lower input values. Figure 3 shows this for Designs III and V.

More precise user-to-content linking leads to lower explanatory power in Design II: Why does precision harm predictions in Design II rather than improving them? One possibility is that the media sample in the analysis is far from complete, e.g., omitting regional newspapers. This raises the question of why the other aggregate-level analyses are not affected in the same way, however. What should be noted is that in Design II, marginal R^2 but not conditional R^2 is reduced as content-user-linking precision increases.

Explanatory power is systematically lower for individual-level data: The lower explanatory power when using individual-level data (or the higher ΔR^2s in models I and IV) could reflect an ecological correlation (Robinson, 1950) that occurs only in the aggregate-level models, but that is at best part of the story. Another crucial factor is that the noise in individual-level salience is much greater (measurement errors, situational effects). By aggregation to the issue-level, we smooth out a lot of this hard-to-explain (and probably less meaningful) variation through averaging.

We should expect a generally lower level of explanatory power in agenda-setting studies with individual-level data (compared to a situation where we aggregate the data) if individual-level effects across individuals point in the same direction and cumulate systematically (rather than cancelling out each other). That overall news emphasis on issues (still) has substantial predictive power, which in turn indicates that there is still a *big message* that most citizens in a country will be exposed to through most of the variety of channels despite all the differences between the channels—They would still recognize which issues are "on." However, changes in the information environment may increase strain on the assumption that most individuals will change their issue priorities in the direction of the

media tenor, up to the point where that assumption becomes untenable.

The conservative nature of longitudinal designs: The depressing effect of longitudinal designs (IV compared to I, V compared to III, II compared to I) on explanatory power corresponds to the expectation that change is more difficult to explain than the current level, probably because it controls for the initial level and thereby eliminates all kinds of stable third variables that affect both media salience and public salience of an issue. We should generally expect lower explanatory power in longitudinal designs.

7.2. Limitations and Next Steps

This study relies on a high-quality data set that only enables the comparison of the different analytical configurations based on the exact same data set. However, the data stem from only a single country and the patterns observed there may be far from generalizable. In particular, the focus on elections in a politically highly stable phase of German federal politics (with Angela Merkel's government continuing after each of the analyzed elections) may limit generalizability. However, this would probably rather work towards underestimating rather than overestimating the importance of agenda-setting effects. Anyway, adding other countries and overcoming the focus on election periods would be desirable. On a generally high level of data quality, the GLES is not a dedicated study on agenda-setting effects, such that operationalizations of some concepts could be improved upon, as could be the sample of media. Particularly, capturing "alternative media" will be necessary for the future. An even more precise measurement of media use could be used in a study dedicated to studying agenda-setting effects. Finally, for studying the change in the strength of agenda-setting effects over time, three-time points are still too few. The GLES results for the 2021 election (while the survey data are already published, the content analysis data are not yet publicly available) can be used in the future to extend this analysis. The impact of design and data linking choices is conditional on whether individual-level effects tend to accumulate or cancel out when aggregating them. This, again, is dependent on the structure of the information environment ("how consonant is media coverage across outlets?") and individuals' selection behaviour (e.g., "how much do individuals seek out attitude-consistent content?").

Methodological diversity will shape agenda-setting research also in the next decades, and seemingly conflicting results should reveal new insights rather than create confusion. Therefore, the current study can help uncover the systematic impact of design choice on hypothesis test outcomes of the agenda-setting hypothesis, while being aware of the conceptual differences the different designs entail and the theoretical insights they might reveal.

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Photograph taken by Thor Nielsen for NTNU.

Conflict of Interests

The author declares no conflict of interests.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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Article

Information Patterns and News Bubbles in Hungary

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Abstract
The study is based on data from a representative survey conducted in Hungary in 2020, which examined the public's consumption of political and public information. Using the survey data, the authors attempt to map the consumption patterns of the Hungarian audience, with a special focus on the relationship between party preferences and the consumption of the various news sources with different ideological backgrounds. The research aims to better understand the phenomenon of polarisation, which is increasingly observed on both the supply and demand sides of the Hungarian news media. The focus of the study is to examine news consumption patterns in Hungary and the relationship between political polarisation and news consumption. The authors analysed the prevalence of information bubbles in the Hungarian public sphere, where consumers are only exposed to the views of one political side without being confronted with information or opinions that differ. Particular attention is paid to a special category of the Hungarian media system, the grey-zone media; they might seem to contribute greatly to the pluralism of the media system, but they are, in fact, strongly politically dependent. In addition to the identified news consumption patterns, the study aims to shed light on the importance and problematic nature of this grey-zone media category and to reveal how deeply the Hungarian public is actually dependent on the government.

Keywords
Hungarian media; information bubble; media classification; news consumption; polarisation

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1. Introduction

Media diversity is not just about the quantity and quality of media content available on the media market. Diversity pluralism has ultimately become one of the most important guiding principles for thinking about the media because behind this thinking lies a vision of an informed citizen, aware of the facts of public life, able to weigh up different points of view, and involved in democratic dialogue and decision-making. Obviously, without a diversity of offerings, this vision cannot be achieved, but a diversity of offerings alone does not make an informed citizen. This is why research on the audience's news consumption habits is becoming increasingly important in the study of pluralism.

Thinking about the media, especially the normative approach to media, often starts from the assumption that there is a direct link between the structure of the media and the supply of media (Barendt, 2007). In media regulation, ownership restrictions and conflicts of interest, the regulation of various aspects of media concentration, and expectations of transparency in media ownership all start from the assumption that media structure can shape the diverse content it offers. Although analyses have emerged which have sought to refute or at least nuance this link (Ariño, 2004), media law in Europe and

even in the Euro-Atlantic countries continues to be based on the close and direct link between media structure and media content.

In Hungary, the dominant instrument of this media policy is the structural transformation of the media, which has been accompanied by the unilateral and, at the same time, intensive use of community resources (public money, radio broadcasting frequency, public information) in favour of the pro-government media. This makes the Hungarian media system a mature example of a media structure in which the news consumer has access to many media products and services, behind which there is an extremely concentrated media market and an even more concentrated information centre.

It is a peculiarity of the Hungarian media that strong political influence is not typically built up through administrative decisions such as censorship. Section 3 gives a brief overview of the developments in the media market over the last decade. In the case of the Hungarian media policy, structural changes have been specifically designed to provide the government and governing parties with the infrastructure to disseminate political messages effectively and to reach as many target groups of voters as possible.

The distorted Hungarian media system is clearly visible in news consumption habits (Section 4). We analyse the size and demographic characteristics of the audience reached by media classified as pro-government and non-pro-government along objective, structural lines. Particular attention is paid to the so-called grey-zone media, which are at the mercy of the government and play an important role in spreading an alternative narrative to that of the government. However, due to their ownership and funding, they may be closed down or have their content completely restructured overnight by the government or ruling parties.

In this article, we examine the research question of whether a polarised media system also creates a polarised audience. Using data from a representative survey in 2020, we analyse the role of pro-government, non-government, and grey-zone media in news consumption, and we determine which sociodemographic variables influence the choice of news sources. We will also examine how news consumers relate to media outlets categorised as being on the other political side, and how they evaluate the credibility of the information sources.

2. Distorted Market Structure and Polarised News Consumption: Literature Review

The structure-conduct-performance model (SCP model) used in economics, on the one hand, and the political parallelism that nowadays characterises the relations between media market players and political actors, on the other, provide a useful theoretical framework for understanding the media policy and media consumption situation in Hungary. Complementing these theoretical frameworks with the cognitive bias theories explaining news consumers' behaviour, we provide a comprehensive theoretical explanation of the relationship between the biased media system and polarised news consumption, which is the focus of this article.

2.1. Applying the SCP Model to the Media System

The SCP model describes the relationship between the market environment and the structural conditions of the market. These directly affect the behaviour of market participants, which in turn determine the market's overall performance. The model was first described by Chamberlin (1933) and Robinson (1934) and was further developed by Mason (1939) and Bain (1959). The model describes the market structure by indicators such as the number of sellers, degree of product differentiation, cost structure, and degree of vertical integration. The behaviour of market participants is embodied in their business decisions and strategies, as indicated by factors such as price, quality, research and development, investment, and advertising.

McQuail (2003) applied the model to the media system, aiming to show at which points the state can intervene in the functioning of the media system to achieve its media policy objectives. In McQuail's (2003, p. 100) analysis, "structure refers to the media system, conduct to what media organisations do, and performance to content and consequences." It follows from the SCP model that public interventions that distort the structure of the market (such as measures to support media concentration, decisions to make entry more difficult, or the use of public financial support to increase the market power of certain actors) have conduct-related consequences, including the loss of editorial independence, unequal access to information, and the subordination of ethical standards to political standards. All this leads to poorer media performance, with information being less diverse and less comprehensive, as well as a failure in its role as a check on power.

The SCP model does not, of course, provide a mechanical explanation for the consequences of individual state interventions: It cannot be applied to all market players and media consumers, and it does not deny that the behaviour of media system actors can have an impact on the structure of the market, or that the performance of the media system can also impact the behaviour of actors. At the same time, it sheds light on the possible consequences of public measures that distort the structure of the market.

2.2. Political Parallelism

In their comparative analysis, Hallin and Mancini (2004) identified political parallelism as a fundamental characteristic of media systems. Political parallelism describes relations between the political system and the media system, their intertwinements, and the former's degree of influence over the latter. Political parallelism is basically

a consequence of structural coupling, whilst the phenomenon of procedural coupling is related to journalistic professionalism and the self-censorship problem, analysed in the next point. Hallin and Mancini use the term instrumentalisation to describe cases where the political parallelism is so strong that political actors effectively eliminate the autonomy of the actors in the media system and use the media crudely as a tool to achieve their own political ends.

"Decoupling" from the political decision-makers is the main driver of the media transition for Töpfl (2011), as well. Töpfl (2011, p. 142) defines structural coupling as "all forms of influence potentiality of the political decision-makers on the media system that concern the media system at the structural level, thus at the level of media organisation." Coupling, which can be carried out, e.g., by state or politically affiliated ownership of media outlets, unfair sharing of radio and television frequencies, or biased decision-making in the public service media organisations, results in political decision-makers being able to determine who takes leadership positions within media organisations, and so opening up media content to their control.

2.3. Cognitive Bias and Media Polarisation

The cognitive characteristics that shape individual news consumption are already well understood from research in the 1940s and 1950s. As early as the 1940s, Lazarsfeld et al. (1944) demonstrated that a strong motivation for news selection is the reinforcement of one's own views and beliefs. Festinger (1957) published his theory of cognitive dissonance in 1957. According to this theory, people try to find a balance between their opinions, knowledge, values, and attitudes, while also trying to avoid situations and information that are likely to increase their sense of dissonance.

In the 1960s, Berelson and Steiner (1964) also wrote about the tendency of individuals to read, watch, and listen to media content that they like, or that corresponds to their prior knowledge, value judgments, and assumptions as a characteristic of human behaviour. The increasing range of content also inevitably led to a strong fragmentation of audiences from the 1970s onwards (Neuman, 1991).

The current media environment, even if we consider only traditional media based on editorial responsibility, makes a huge variety of content available through the expansion of channels and diversification of content. This makes it easier for individuals to be exposed to like-minded channels such as different cable channels or ideological newspapers (Prior, 2007; Stroud, 2011) and allows diverse groups within society to personalise their own news (Sunstein, 2007). These phenomena can lead to attitudinal polarisation by reinforcing individual priorities (Levendusky, 2009), social polarisation, and the drift away from different political sides (Abramowitz & Saunders, 2008; Garrett et al., 2014).

However, the spread of network communication has intensified the academic discourse on selective news consumption. In the first half of the 1990s, Nicolas Negroponte (1995) wrote about the potential for personalisation of the digital news stream, which he aptly summarised in his metaphorical newspaper headline, "The Daily Me." Chaffee and Metzger (2001) have already pointed out that personalised news gathering can easily trap users in a cocoon of self-reinforcing media. Sunstein (2001) described the same phenomenon with the metaphors of the information cocoon and the echo chamber. Empirical research in the early 2000s further refuted the assumption that the internet reinforces personalised news consumption and social polarisation (Garrett, 2009; Gentzkow & Shapiro, 2011; Purcell et al., 2010).

A personalised information ecosystem is hardly compatible with the principles of democratic openness. Comprehensive and diverse information and social dialogue face serious difficulties in an information environment from which algorithms have banished opposing views and contradictory information. The search and ranking algorithms are thus moving ever further from the ideal of a pluralist and, above all, integrated representation of the opinion scene, even if there is no clear and imminent danger of this scene disappearing.

3. Overview of the Hungarian Media Market

After 2010, the dominant instruments of Hungarian media policy were the structural state interventions aimed at permanently instrumentalising a significant part of the media system for the ruling parties.

During the 2010s, the Hungarian media landscape underwent a dramatic transformation. Several foreign investors left the market, and Hungarian investors took over their stakes. These Hungarian investors typically were businesspeople with strong ties to Fidesz, the ruling party in Hungary. Well-known media brands either disappeared completely from the market or morphed into propaganda outlets without professional credibility. In the meantime, the state has become the largest advertiser; its advertising campaigns are disseminated almost exclusively through media companies with ties to the governing party (Bátorfy & Urbán, 2020).

In the 2010s, several professional investors left the Hungarian market. Among others, the Finnish Sanoma, the German ProSiebenSat1, and the Funke Gruppe sold their Hungarian affiliations. The German telecommunications giant Deutsche Telekom sold the prestigious online news portal *Origo* (one of the top two online news sites at the time), which has since been turned into a government propaganda machine. The Swedish Metro International SA sold its free daily newspaper (*Metropol*), which became a pro-government newspaper, as did the portfolio sold by the Swiss Ringier and the German Axel Springer publishers following their merger.

The most significant development in the Hungarian media market in the last decade was the establishment of the Central and Eastern European Media Foundation (KESMA in Hungarian). In November 2018, almost all Fidesz-friendly media owners transferred the ownership rights of their media holdings to KESMA. Their companies joined the foundation, none of whom were given any compensation for doing so. The foundation's board was made up of Fidesz MPs and the CEO of a Fidesz-friendly think-tank. A total of 476 media brands were merged into KESMA; its creation has significantly increased the media ownership concentration in Hungary (Bátorfy, 2019). Analysing the Hungarian media landscape, Szeidl and Szűcs (2021) found that state advertising can influence owner ideology by making media ownership more profitable to pro-government-connected investors.

The transformation of ownership rights is just one element of the restructuring of the media landscape. The underlying transformation of the entire media ecosystem is similarly important. By media ecosystem, we refer to those enterprises and sectors that, although not focused on content production, nevertheless have a major impact on the operation of media companies, just like the advertising market or the content distribution companies. The case of *Index*, the market-leading news portal, was a good example of that. By the summer of 2020, without any change in its ownership structure, the formerly independent newsroom had become entrapped due to changes in its ecosystem. The Indamedia Network holding, which plays a major role in operating *Index*, was acquired by a pro-government businessman, and it subsequently emerged that this holding performed services that were essential to operating the news site, such as, for instance, ad sales and the operation of the newsroom's IT system. Pro-government players thus managed to wrest control of the leading media outlet in its market segment and effectively force the newsroom into resigning collectively while there was no change in the publisher's ownership (Mertek Media Monitor, 2021).

The increasing political influence in the media market resulted in decreasing media freedom. International media freedom organisations have since downgraded the status of media freedom in Hungary. Freedom House has listed Hungary among the "partly free" countries since 2019, and, according to Reporters Without Borders, the country has moved from position 25 in 2009 to position 85 in 2022 on the global list of media freedom (Freedom House, 2019; Reporters Without Borders, 2009, 2022). Bajomi-Lázár (2022) found clear similarities between the Hungarian and the Russian media systems in that the scope of independent outlets critical of the government has gradually declined.

There is increasing polarisation in journalism, and two kinds of journalistic practices prevail simultaneously. In 2019, a total of 245 cases were filed against media outlets, 158 against pro-government media, and 87 against independent outlets. The court ruled that the law was breached 65 times and 61 cases involved pro-government outlets. It suggests that professional and ethical journalistic guidelines are followed at independent media outlets. In the pro-government newsrooms, the level of professionalism is less respected; those who work there often use double standards, disseminate fake news, and blacklist critical intellectuals (Bajomi-Lázár, 2021).

The political capture of the Hungarian media market is not a random act but the result of a very deliberate and well-designed process. The Orbán government's success is well illustrated by the fact that it has also started to expand internationally. In addition to the property acquisitions in the Western Balkans, a businessman linked to the government bought controlling stakes in the pan-European broadcaster Euronews (International Press Institute, 2022).

4. News Consumption Analysis: The Various Consumption Patterns

4.1. The Objective of the Research

The main objective of our research was to examine the media diet of Hungarian news consumers in this polarised media landscape; thus, we formulated the following research question:

> RQ1: How is this media structure, polarised by its relationship with the government, reflected in the news consumption of the adult Hungarian population?

To answer this question, we built a model using data from a representative survey carried out in 2020, which allows us to reconstruct the consumers' media repertory, namely which media products they regularly use to inform themselves about politics/public affairs. Together with a classification of these individual media outlets based on their political/ideological outlook, we get an overview of the nature of the information, opinions, and viewpoints that the consumers encounter in their news consumption.

4.2. The Survey

Mertek Media Monitor has been conducting surveys on the Hungarian public's media consumption and political/public affairs information patterns since 2013. The surveys were conducted with the help of the Medián Public Opinion and Market Research Institute (Hann et al., 2020; Mertek Media Monitor, 2013, 2016, 2018).

In 2020, the survey was performed on a sample of 2,179 people. The sample was hybrid: 53% was surveyed by CAWI and 47% by CATI methodology. The distortions of the random sample were ironed out by a multivariate weighting procedure based on the official census data; the details are presented in the Supplementary File (see

Table A1). The online survey response rate was approximately 10%, and the phone survey was 14%, both slightly under the long-term average. The length of the interview explains the low numbers. The survey reviewed the news consumption patterns of Hungarians based on over 156 variables, with a special focus on the relationship between the respondents' interest in political/public affairs and the sources of their information: the role of individual news sources, the political assessment, and their trust in different news sources. By asking about the consumption of almost every major media product in the Hungarian media market, the Mertek-Medián survey is well suited for learning about individual consumers' media repertory in detail.

4.3. Media Categorisation

The questionnaire included 54 specifically mentioned media products: seven television channels, six radio stations, 22 online news sites, eight dailies, and 11 weeklies. As a first step, we categorised these media outlets based on their relationship with the government to represent the supply side of the media in our model. We set non-government media and pro-government media as the two counter-poles, and we introduced a so-called grey-zone media, which is a kind of transitional category between the previously mentioned two categories. Grey-zone media are not yet pro-government but depend on the government/the state.

We defined certain objective criteria that helped us decide how to classify individual media products. Pro-government media are demonstrably in the hands of owners with close ties to the government. The political affiliation of the owners of pro-government media is not simply an assumption; they often stand up for the ruling party and participate in the party's events. State advertising revenue also proves pro-government affiliation, with more than half of the advertising revenue often coming from state advertisers. We have classified media products as pro-government where we found a link between ownership and a high proportion of state advertising revenue, so a clear pro-government categorisation is acceptable. This approach is quite similar to Bátorfy's (2020) analysis.

Non-government media outlets are highly varied in terms of their owners and their ideological outlook (Polyák et al., 2019). Non-government media are owned by foreign or Hungarian owners that are unequivocally independent of the government, and their funding does not depend on significant amounts of state advertising.

Grey-zone media do not openly profess their ties to the government, but some connection prevails nevertheless, or, despite the absence of such a connection, the media outlets in question are dependent on the government. We assigned media products into this category based on the government ties of the owner or the high share of state advertising revenues. Further details about the categorisation and the list of the assigned media outlets are available in the Supplementary File (Table A2).

4.4. Media Repertoires

The questionnaire asked about the consumption of each of the 54 media individually, so the database captures consumption data along 54 variables. The survey methodology was very similar to that used in Ofcom's news consumption surveys (Jigsaw Research, 2021), which also include a variable measuring the frequency of use of certain TV channels with the following question: "And typically how often do you watch the news on [channel]?" The Reuters Digital News Report methodology (Newman et al., 2021) also assesses the frequency of general news consumption with the question: "Typically, how often do you access news?" The Mertek-Medián survey also asked respondents (in the same way) about how often they consumed each of the media products. Based on the answers (respondents could choose between every day, weekly, at least once a week, at least once a month, or never), we only included those media products in the respondent's consumer basket if they indicated using them at least once a week (or at least once a month in the case of weeklies).

That way, our model deals only with the regular consumers of the different media outlets. Figure 1 shows the proportion of regular consumers of the top 20 media. The dominant presence of pro-government and grey-zone media in the media market is also reflected in consumption: nine are pro-government, five are grey-zone, and six are non-government. The most regularly consumed medium is the non-government TV channel RTL Klub, the only one regularly consumed by more than half of the Hungarian voting age population. This provides some counterweight to the pro-government and grey-zone media that dominate the top 20.

As a next step in building the model, we looked at each consumer's media repertoire to see the extent to which they use the different outlets of the three categories. By identifying the regularly consumed media products for the individual consumers, we can calculate a ratio that reflects the weight of the three categories in their regular media consumption. For example, if a consumer regularly uses two pro-government, two non-government, and one grey-zone media outlet, their ratio will be 40:40:20. This allows us to sketch various consumption groups based on the following conditions:

- Those who are in a bubble and consume media of only one category: "only" pro-government/non-government/grey-zone media;
- Those who predominantly consume media of one category and whose consumption of the given category exceeds a two-thirds share of their total media consumption: "mainly" pro-government/non-government/grey-zone media;

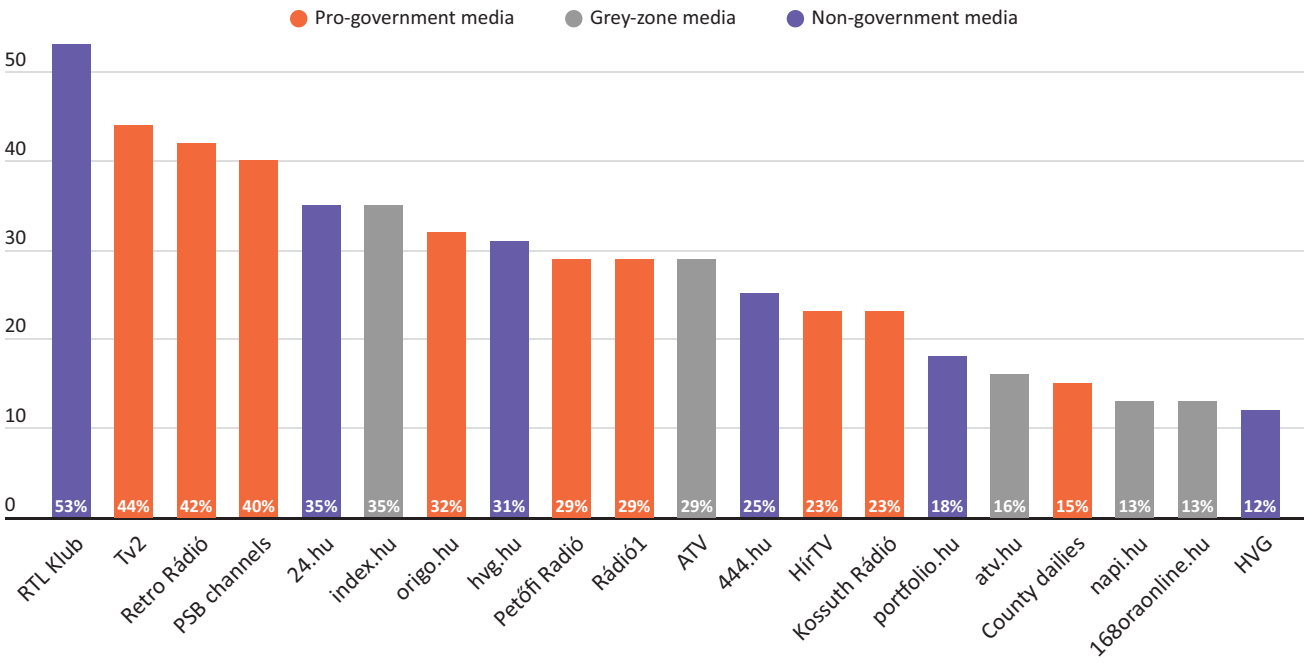

Figure 1. Percentage of regular consumers of the top 20 most regularly consumed media in the total sample (N = 2,179).

- Those with a diverse media consumption, in other words, the respondents for whom neither category exceeds two-thirds of their total consumption: diverse consumption.

Figure 2 presents eight different consumer groups. The analysis of the representative sample of 2,179 people showed that 5% of the Hungarian population does not regularly consume media. The largest group of consumers were those with a diverse media consumption, who comprise 52.9% of the population. Their media consumption basket is characterised by the presence of media products from different categories, the share of neither of the broader media categories exceeding two-thirds of their total consumption. Since this is a fairly broad group in the sense that the share of each of the three types of media we identified can make up anything between 0% and a maximum of 66.7% of the given individuals' total news consumption, we also took a more detailed look at this group in the figure, breaking them down into smaller clusters. In the case of the total segment of media consumers with a diverse media consumption (1,154 people), setting the threshold value separating balanced/diverse consumption from a heavy tilt in either direction at 50% produces interesting results. Doing so allows us to consider whether any of the three categories has a share of over 50% in the individual's media consumption; this step then reveals that an additional 26.2% of the cluster of consumers with a diverse media consumption prefer pro-government media, 9.4% prefer non-government media, and 0.7% predominantly consume grey-zone media.

The share of consumers caught up in a pro-government news bubble is 11.7%; these are the consumers who typically only consume pro-government media products. And although the present analysis only considers regular consumption, we are confident in asserting that the members of this group either exclusively or almost exclusively encounter only the government's narrative and information they ideologically prefer. In practice, this means that roughly every ninth citizen in Hungary does not learn about the viewpoints of any other party than Fidesz–KDNP. The share of those who predominantly (but not exclusively) consume pro-government media is 21.6%. The share of pro-government media in their overall media consumption exceeds the two-thirds threshold. Although government-friendly media dominate their media consumption, everyone in the segment also regularly consumes at least one media product that is not pro-government; that is, they presumably encounter alternative viewpoints to that of the government.

Looking at the other end of the pole, we found only a much smaller bubble of consumers (2.9% of the entire sample) whose total media consumption consists of non-government media. Another small but slightly larger segment at 4.9% were those whose media consumption was overwhelmingly (a share of least two-thirds) but not exclusively made up of non-government media. Their media consumption basket, too, included at least one other type of media product, thus ensuring that they were not insulated in a news bubble.

A mere 0.6% of the population consumes nothing but grey-zone media, and those whose media consumption consists predominantly but not exclusively of grey-zone media make up 0.4% of the total sample. Although the number of people belonging to these groups is very low, grey-zone media outlets are also heavily represented in the consumption of the other groups, accounting for

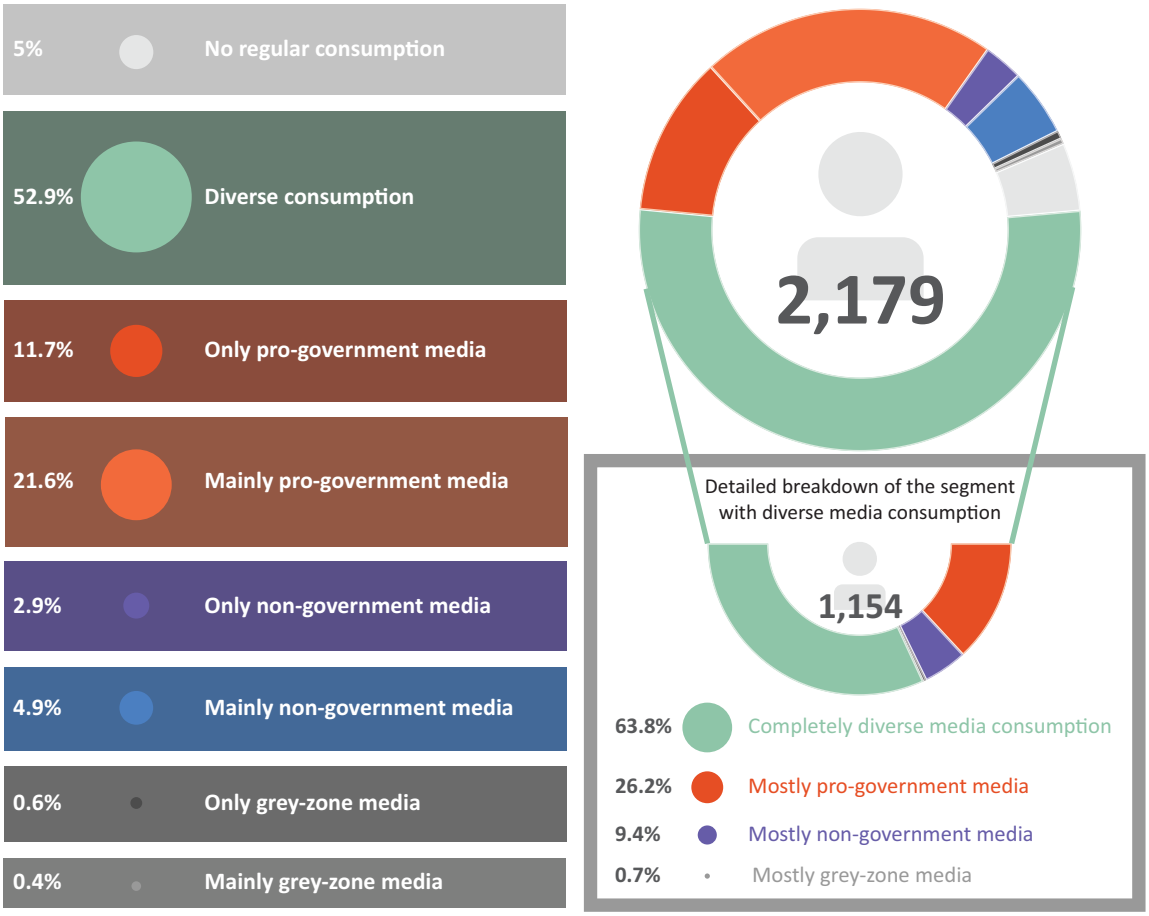

Figure 2. Consumption patterns in the three-tier classification scheme.

20% of the total sample's regular news consumption. The importance of this fact will also be discussed in the next section.

4.5. Exploring the Different Patterns

To better understand the reasons behind different consumption patterns, we formulated the following research questions:

> RQ2: What sociodemographic variables make a lean in a certain direction more probable?
>
> RQ3: What is the role of grey-zone media in news consumption? What variables make the consumption of these media products more likely?

Two models were used to analyse how the social, demographic, and party affiliation of media consumers in Hungary determines their news consumption patterns, i.e., which of the previously presented patterns they follow.

In the first model, we analyse what determines whether people are only/mainly exposed to pro-government and non-government media news instead of diverse news. This analysis excludes the 5% of the sample who are not regularly informed by any news source, and we had to exclude those who only or mainly consumed grey-zone media. The group of uninformed people was excluded because we found that the information vs. non-information is a completely separate dimension from the evolution of consumption patterns and would therefore divert the analysis from its original purpose. In addition, consumption of grey-zone media products was excluded from the first model because of the low number of cases.

To capture the role of grey-zone media, in the second model, we analyse the variables that determine their consumption in order to understand the role of this important category in news consumption patterns. The low number of cases is eliminated by capturing this consumption pattern through those who consume at least two of the grey-zone media, whether or not it dominates their consumption.

In both models, we analyse the determinants of media consumption, including gender, age, education, settlement type, household income, and activity. In addition, we include the respondents' party of choice in the model, specifically their affiliation to the two major political blocs. All variables except age are categorical; the table of the distributions can be found in the Supplementary File (Table A3).

4.5.1. Sociodemographic Variables Behind the Leaned Media Diets

In the first model, we examine pro-government and non-government media consumption using multinomial logistic regression with diverse consumption as the reference. So, we analyse the prevalence of the two types of consumption in different social groups relative to the diverse consumption (see Table A4 in the Supplementary File for the sample composition). The Nagelkerke *R*-square indicated that 21% of the total variation in media consumption occurred due to the variation among the seven predictor variables. The news consumption characteristics captured by the model are primarily determined by party preference in Hungary. The explained variance excluding this variable is only 9%. In the following, we will consider the model that includes party preference.

The analysis shows significant independent effects of education level, type of settlement, activity, and party preference on the news consumption patterns examined. As presented in Table 1, age, gender, and household income do not show significant associations with news consumption patterns. In the case of party preference, it is more appropriate to speak of a relationship rather than an effect since we cannot establish the direction of causality in the relationship between news consumption and party preference, but it can be assumed that there is a feedback effect. The significance level is set at $p < 0.05$.

We analysed pro-government news consumption relative to diverse consumption. We found several significant independent correlations when filtering out the effects of other variables. Pro-government voters are significantly more likely to be informed by pro-government media, and opposition voters are significantly less likely to be so than non-party voters. The result is not surprising, but it is important for us because it is the strongest correlation, compared to which all other effects are not outstanding. The effect size was calculated by decomposing our original model into two logistic regression models. For party preference, the Partial *R*-value is 0.229, which is far above the values of 0.043 for education and 0.076 for activity. We compared the effect size using two logistic regression models with Partial *R*-values calculated from the results (see Table A5 in the Supplementary File).

All categories of education level are significantly different from the university graduate group, and the relationship is linear: The lower the level of education, the more likely it is that news consumption will be pro-government. The reference category for the type of settlement is the village. Only the capital differs from this in a significantly negative direction, i.e., living in the capital significantly reduces the probability of being informed by pro-government media. The correlation here is much weaker and was not even found to be significant in the logistic regression model. The reference category of activity is the other inactive. In comparison, the active and retired are significantly more likely to be informed by pro-government media and not to have diverse consumption.

Some correlations were identified based on a model comparing the likelihood of non-government news consumption with diverse consumption. As before, party preference is strongly related to non-government news consumption patterns. Ruling party voters are significantly less likely, while opposition voters are significantly more likely to be informed in this way. The Partial *R*-value of the effect size is 0.159; this exceeds the value of 0.111 for education level. For education, the likelihood of consuming non-government news increases with increasing education level. The pattern of non-government news consumption is more pronounced for those with higher education. Those living in county towns are less likely to be non-government news consumers compared to those living in the capital, but the correlation here is weak, and even the binary logistic regression model does not show a significant correlation. The non-government consumption pattern is not explained by activity, in contrast to the previously presented pro-government news consumption. However, in this part of the model, a significant correlation appears for household income: The lower the income, the less likely it is that news consumption will be non-government rather than diverse.

To assess the results, it is worth noting that diverse news consumption describes an information consumption pattern that allows for exposure to both pro- and non-government information but does not necessarily

Table 1. Effect of the variables.

	−2 Log Likelihood of Reduced Model	Chi-Square	*Df*	*p*-value
Intercept	2,963.960	0.000	0	
Age	2,965.792	1.832	2	0.400
Gender	2,969.788	5.828	2	0.054
Education*	2,998.546	34.586	6	0.000
Settlement type*	2,977.270	13.310	6	0.038
Employment status (activity)*	2,982.469	18.509	4	0.001
Household income	2,967.839	3.878	4	0.423
Party preference*	3,171.547	207.587	4	0.000

Note: * = Variables have a significant independent effect on the consumption patterns examined.

imply awareness of diverse news consumption. A significant proportion of the group comprises those who typically get their information from television, including the high-reach non-government commercial channel, RTL Klub, a style of information that is more typical of those of lower social status. This explains the dominance of non-government media and why those with higher incomes and the more educated tend to be more oriented toward one-sided information.

4.5.2. The Role of Grey-Zone Media

In the second model, because of the importance of the topic, we analysed the variables associated with obtaining information from so-called grey-zone media that are in some way dependent on the government. We analysed the phenomenon through respondents who regularly receive information from at least two of the grey-zone media, regardless of their other media consumption. As we saw earlier, these news sources do not play a particularly large independent role, with 1% of the adult population being primarily informed by one or more of these media. However, they are important because a large proportion of the population is reached by one of these news sources. Among the adult population, 61% are informed by at least one of these media; among opposition voters, 72%. It is precisely because of this high proportion that those who regularly follow at least two of these media were chosen for the study, as we were looking for a group that was more characteristically linked to this consumption pattern.

In addition to party preference and the social and demographic variables previously examined, we have added to this model the question of pro-government and non-government media consumption. As with the grey-zone media, we have redefined these: Regardless of other consumption, we consider consumers of pro-government or non-government media to be those who regularly obtain information from at least two of these media products, and we present this in two variables. Therefore, we examine how gender, age, education, activity, household income, type of settlement, party preference, and pro- or non-government media consumption individually are independently associated (filtering out other effects) with grey-zone media. In this study, we contrast those who are informed by at least two grey-zone media with those who follow at most one regularly. One grey-zone media product can be consumed randomly, but the consumption of two of these media products implies some conscious preference. The method used is binary logistic regression.

The resulting proportion of those who are informed by grey-zone news sources is 31% of the total sample and 33% of those who are regularly informed. The explained variance is relatively high, 26%.

The logistic regression analysis results (Table 2) show that age, gender, party preference, and information from pro- and non-pro-government news sources are significantly independently correlated with the consumption of grey-zone media. Thus, such consumption behaviour is not dependent on education, activity, household income, or settlement type. The significance level is set at $p < 0.05$.

The results show that the strongest correlation with the phenomenon, besides party preference (Partial R = 0.685), is positively related to information from non-government media (Partial R = 0.376). So, among those informed by at least two non-government media, the probability of consuming grey-zone media is also higher than among those not informed by non-government media. We also see that the consumption of grey-zone media also shows a positive correlation with information from pro-government media, although much weaker. This suggests that although grey-zone media is more likely to be consumed by opposition voters, it is also related to the intensity of media consumption because both types of consumption are positively correlated. In the highly polarised Hungarian media system, grey-zone media thus provide an opportunity for government communication to reach consumers who reject pro-government media. In addition to its high audience reach, this is the real importance of the grey-zone media in Hungary.

Table 2. Effect of the variables on the grey-zone media consumption (only significant correlations shown).

	B	Standard Error	Wald statistics	Significance associated with Wald statistics	Exp(*B*)	Partial *R*
Intercept	−4.573	0.375	148.973	0.000	0.010	
Gender (male)	0.299	0.005	5.948	0.000	1.349	0.040
Age	0.028	0.123	26.850	0.015	1.028	0.101
Party preference			15.823	0.000		0.685
Pro-government (compared to no party preference)	−0.379	0.160	5.631	0.018	0.685	
Opposition (compared to no party preference)	0.272	0.137	3.911	0.048	1.312	
Consuming pro-government media	0.727	0.144	25.460	0.000	2.069	0.098
Consuming non-government media	2.810	0.152	343.977	0.000	16.608	0.376

4.6. Composition of Regular Consumers of Different Media by Party Preference

The model of news consumption patterns shows that more than half of Hungarians (52.9%) are balanced in their sources of information, but almost half of the voting age population is skewed in one direction or another—with a significant proportion having a completely one-sided orientation. To understand the connections between party preferences and the consumption of media with different ideological backgrounds, it is worth looking at the audience composition of each media in terms of partisan preferences.

Figure 3 presents the composition of the 20 most regularly consumed media outlets by their audience with a party preference. The proportion of government and opposition voters is represented by the position of the bubbles on the axis: The further an outlet is from the centre in any direction, the higher the proportion of its consumers with a political preference for one side or another. The bubbles' size is related to the number of regular consumers of the particular media. These results confirm that opposition voters consume mostly non-government and grey-zone media, while pro-government voters stick to pro-government news sources. Influencing grey-zone media is thus a good tool for the government to get its message across to those who are critical of it.

This kind of polarisation can also be captured by looking at respondents' trust in certain media (Figure 4). The most important evidence of the effect of cognitive bias is that party preferences are a crucial determinant of media credibility. A media system based on partisan preferences is well suited to serve the needs of a polarised audience. However, such a divergence in the perception of the credibility of the different media makes it very difficult for society to engage in constructive dialogue, at least on fundamental social issues.

In Hungary, according to the *Reuters Institute Digital News Report 2021*, the number of people who trust the news, in general, is one of the lowest at 30%. Of the 46 countries surveyed, only in the US was people's trust in the news measured lower, at 29%. According to both Reuters and Mertek-Medián, RTL Klub and HVG are the most credible news sources among the population in Hungary. The Mertek-Medián survey asked the respondents to rate the credibility of 12 popular media. When looking at the perception of each media outlet by party preference, it can be seen that voters from the governing and opposition parties rate very different media outlets as credible and untrustworthy. Figure 4 shows that, for example, for the six media in our sample that we have classified as pro-government, their credibility by party preference is almost a mirror image of each other: Pro-government voters trust these media the most, while opposition voters trust them the least. For non-government and grey zone media, those with a pro-government preference also rated their credibility higher, but unlike opposition voters, they are still the least credible news sources for them.

5. Conclusions

The analysis introduces polarisation in the Hungarian media environment, showing that a sizable segment of media consumers consume media according to their political preferences. In the long term, this has a devastating effect on the functioning of democracy and could contribute greatly to the freezing of Orbán's illiberal regime.

Viktor Orbán has described his way of exercising power as an "illiberal" democracy (Puddington, 2017). For Orbán, liberal democracies are obstacles to a nation's success, while illiberal democracies such as China, Russia, and Turkey are the "winners" of the last decades. However, the illiberal democracy is not a settled political or governmental concept for Orbán; rather, it is, in fact, the opposite of Hungary's political system, which was built up after political change in 1989. Its strong elements are national sovereignty, an effective government, unhindered by liberal counterbalances (such as the separation of powers or the strong defence of human rights), a politically controlled economy with strong national players, and its non-competitive elections with weak opposition. Illiberal democracy is not an unknown model in restricted democracies; the concept was formed by

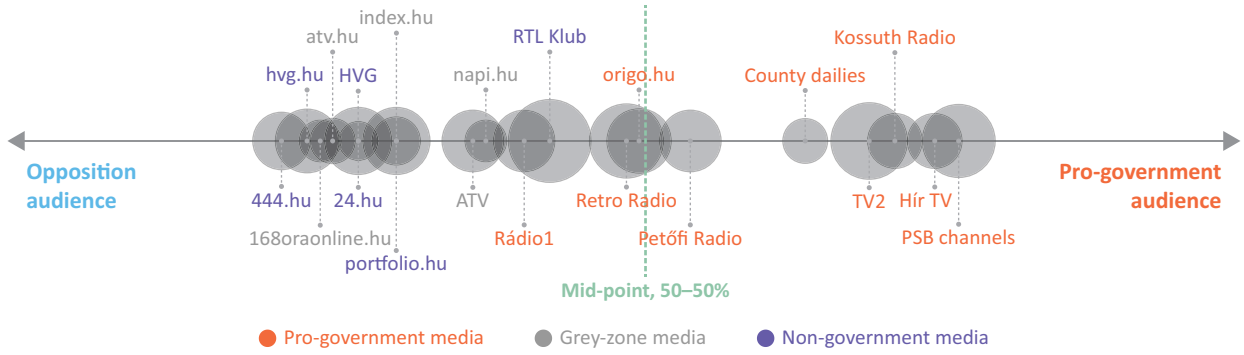

Figure 3. Audience composition by party preference of the top 20 most regularly consumed media. Notes: The position on the axis shows the proportion of the given media's audience that is pro-government or opposition; the size of the bubble depends on the number of its regular consumers.

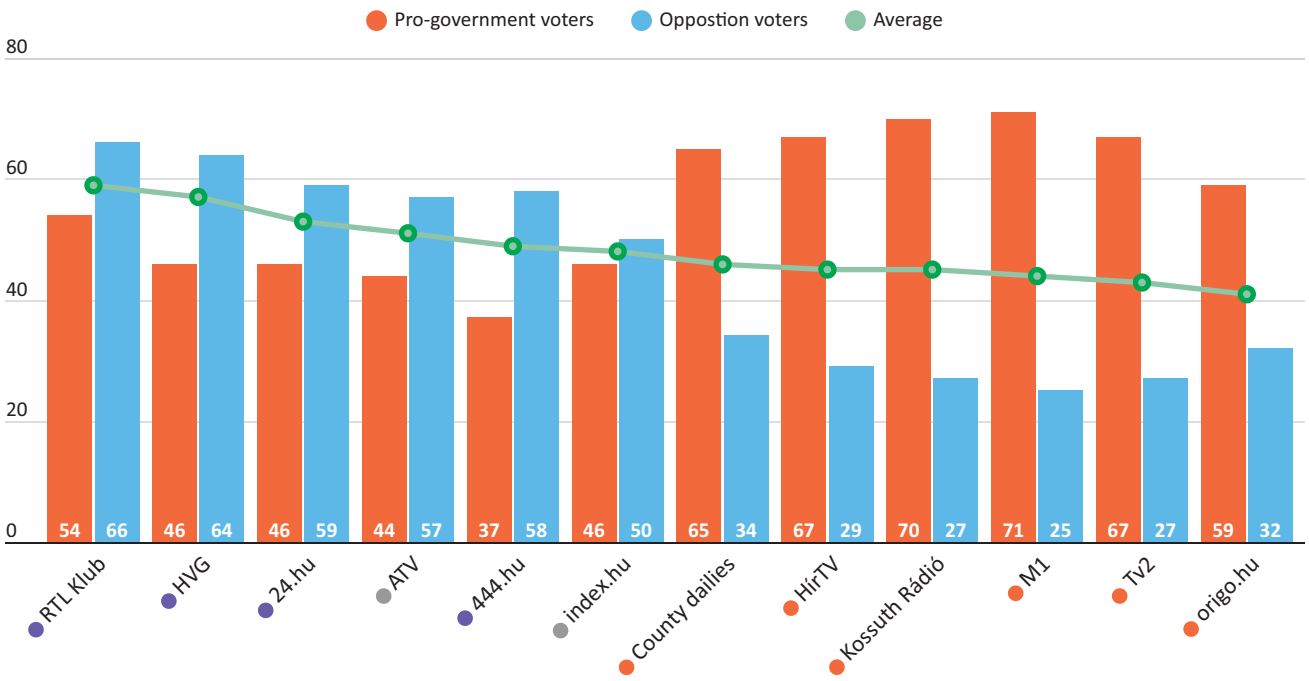

Figure 4. Perception of credibility of news sources by party preference (2020). Note: Averages on a scale of 0 to 100.

Zakaria (1997, p. 22), who distinguished "democracy" from "constitutional liberalism." Democracy can be narrowly defined as no more than "competitive, multiparty elections" (Zakaria, 1997, p. 43); constitutional liberalism, however, was developed "as a defence of the individual's right to life and property, and freedom of religion and speech" (Zakaria, 1997, p. 26).

The analysis sheds light on the fact that, if politics were to find a way to exercise control, the Hungarian media arena would be upended even more dramatically than it has been thus far. Currently, the share of those who completely or overwhelmingly inform themselves from media that are under government party control is 33%. This means that the ruling party's influence on the media is already extraordinarily strong, but the situation could deteriorate rapidly.

It is particularly worrying that RTL Klub is the only high-reach non-government voice able to reach those who are informed by traditional media. All the other major non-government media are online news portals, so the divide in society is also spectacular in this respect. Internet users with high awareness can find pluralistic media content, while non-internet users, typically the elderly who live in rural areas, are largely exposed to a one-sided pro-government narrative.

It is also remarkable how slowly news consumers recognise when the editorial practices of a news source change dramatically. A good example is the news portal *Origo*, which used to be a flagship of quality journalism, winning several awards for its factual reporting. However, following a change of ownership in 2014, *Origo* started on the slippery slope and has since become a tool for producing defamatory articles and character assassination. Despite this, it is still the source of much of people's information, a sign that a well-established brand is much slower to erode than we might think.

What is particularly dangerous in the Hungarian media system is not merely the presence of the pro-government and non-government segments of the media, but the striking role of the third category. It can confuse consumers because, based on their content, the majority of the so-called grey-zone media cannot be assigned to the pro-government category, and they clearly help disseminate information that helps the public stay informed. At the same time, their dependence on the governing party is well-documented. These media are all susceptible to pressure from those who wield governmental power, and thus the relatively balanced coverage that they may currently provide could well be replaced by propaganda at any time. Over the past few years, ever more non-government media have entered the grey-zone media category and, over time, have moved toward the pro-government side. There is no reason to think that this process has stopped, and it will likely continue.

The practice that has emerged in Hungary is dangerous on two grounds. For one, we can be sure that the significant political pressure impacts editorial practices, and the share of content critical of the government is declining while important issues are being dropped. There are innumerable signs of this in the media products that we have assigned to the grey-zone category. On the other hand, one can never know when the governing party might decide to assert its influence over these media fully or when it might choose to transform the current balance in their news coverage, which could happen rapidly. As such, the Hungarian media system is especially vulnerable.

The Hungarian case study is also very important for the wider academic community in communication science. It helps us understand how media freedom can be violated in a European Union member state with a seemingly large number of market players, a high internet usage rate, and a generally developed technological and economic environment. However, this is only an illusion; in reality, the political structure is very monolithic, and at the same time, media pluralism is spectacularly reduced, and the public is polarised. The Hungarian case is also instructive in demonstrating how to avoid this pattern from becoming toxic in the democratic world.

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Conflict of Interests

The authors declare no conflict of interests.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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Article

Media Use and Societal Perceptions: The Dual Role of Media Trust

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Abstract
How citizens' perceptions of societal problems are shaped by media use has been a critical question in media effects research for decades. This study addresses a specific puzzle concerning media effects in contemporary fragmented media environments: the dual role of media trust as both (a) an antecedent variable guiding news selection and (b) a moderator variable conditioning the effects of news use on perceptions of societal problems. Building upon the differential susceptibility to media effects model, we analyze the role of media trust for citizens' orientation towards mainstream and alternative news media—and how such usage influences perceptions of two major societal issues: health care and school. Findings from a four-wave panel survey conducted in Sweden suggest that public service and alternative news use matter for citizens' perceptions of societal problems and that media trust influences news choices and may, partly, condition media effects.

Keywords
alternative media; media effects; media trust; media use; societal perceptions

Issue
This article is part of the issue "Enlightening Confusion: How Contradictory Findings Help Mitigate Problematic Trends in Digital Democracies" edited by Cornelia Mothes (Macromedia University of Applied Sciences) and Jakob Ohme (University of Amsterdam).

1. Introduction

Over the last decades, two closely intertwined changes affecting democracies worldwide are digitalization and the transformation from low- to high-choice media environments. Among other things, these changes have resulted in a greater abundance of information and different types of media than ever, including political alternative media, and increasing selectivity in citizens' media use (Van Aelst et al., 2017).

Two potential outcomes of these processes are an increasing divergence in worldviews and societal perceptions as well as a growing prevalence of misperceptions (O'Connor & Weatherall, 2019; Strömbäck et al., 2022; Vosoughi et al., 2018). Numerous studies also show that societal perceptions partly can be explained by citizens' media use and thus should be conceptualized as a media effect (Damstra et al., 2021; Meltzer & Schemer, 2021; Ridout et al., 2008). Societal (mis)perceptions have furthermore been linked to the use of political alternative media (Garrett et al., 2016; Hmielowski et al., 2014; Hmielowski et al., 2020). This suggests that the use of political alternative media may influence societal perceptions more broadly, but also that the differential use of mainstream and political alternative media may lead to increasing perception gaps.

At the same time, the effects of political alternative media versus mainstream media use on societal perceptions should depend on both context and individual-level factors. One potentially important individual-level factor is trust in mainstream news media (which we will refer to as general media trust). To begin with, the greater media choice there is, the more selective people have to be, and the more selective people have to be, the more important media trust should become. Previous research has also found that there is a relationship between media

trust and selective media use (Fletcher & Park, 2017; Kalogeropoulos et al., 2019; Strömbäck et al., 2020; Tsfati & Cappella, 2003). Beyond influencing media use, media trust may also moderate the impact of media use on societal perceptions, as credible sources are generally more persuasive than less credible ones (Eagly & Chaiken, 1993; Pornpitakpan, 2004) and as studies have found media trust to moderate other media effects (Damstra et al., 2021; Miller & Krosnick, 2000).

That said, there is still confusion surrounding the role of general media trust as a factor in the media effects process: Is media trust operating as a predictor of media use, as a moderator of media effects—or both? In addition, most research has been done in the US, which is an atypical case considering its media and political system, high degree of political polarization, and low level of media trust (e.g., Hallin & Mancini, 2004; Hanitzsch et al., 2018; Hopkins & Sides, 2015). The generalizability of findings is thus unclear. Furthermore, there is only scant research on media trust using longitudinal data and on whether general media trust influences the effects of media use on societal perceptions.

Against this background, the purpose of this article is to investigate the dual role of general media trust when explaining the use of mainstream and political alternative media and the effects thereof on societal perceptions. Theoretically, we will depart from the differential susceptibility to media effects model (DSMM; Valkenburg & Peter, 2013) and conceptualize media trust as both a predictor of media use and a moderator conditioning the effects of media use on societal perceptions. Empirically, we study citizens' perceptions regarding two issues—health care and school—using a multi-wave panel survey collected in Sweden.

2. Theoretical Review

Over the last decades, it has become increasingly established that there are no such things as universal media effects (Slater, 2015; Valkenburg & Peter, 2013). Instead, all types of media effects should be understood as conditional, meaning that they depend on both systemic factors, such as the media system and the supply and character of media content (Castro et al., 2021; Shehata & Strömbäck, 2011), and individual-level differences such as gender or political interest (Shehata et al., 2021; Slater, 2015). With respect to individual-level factors, they may influence not only people's selective media use, but also the direction and/or strength of media effects (*moderators*) and provide the causal link explaining media effects (*mediators*; Baron & Kenny, 1986).

One model taking this into account is the DSMM (Valkenburg & Peter, 2013). According to this model, differential susceptibility variables usually function as both predictors and moderators. These variables can in turn be dispositional (i.e., they predispose the selective use of and responsiveness to media), developmental (i.e., the selective use of and responsiveness to media are due to cognitive, emotional, and social development), or social (i.e., social context-factors that influence the selective use of and responsiveness to media). In line with the reinforcing spirals model (Slater, 2015; Slater et al., 2020), it also proposes that media effects are transactional in the sense that media might have an effect on certain attitudes, beliefs, or behaviors, which in turn might have effects on subsequent media use. This may hold true in particular in high-choice media environments, as these provide greater opportunity structures for selective exposure (Prior, 2007; Skovsgaard et al., 2016).

2.1. The Transformation of Media Environments and Rise of Political Alternative Media

A key aspect of digitalization and the transformation from low-choice to high-choice media environments is the increasing prevalence of what is variously called political alternative media, partisan media, or ideological media, although the supply and prominence of such media vary across countries (Heft et al., 2020). What these terms have in common is that they refer to media that are guided by political rather than journalistic values and norms (Benkler et al., 2018; Holt et al., 2019), which sets them apart from mainstream media. According to Holt (2018, p. 51), political alternative media are typically "created and run in opposition to what is perceived as a dominant discourse in traditional media." In contrast to mainstream news media, which display great similarities across media in terms of how they operate and their routines, norms, and values (Cook, 2005), there are great differences across political alternative media in terms of, among other things, their political leaning, their degree of alternativeness, how closely linked they are to political parties or other movements, and ultimately their content (Benkler et al., 2018; Holt et al., 2019; Müller & Freudenthaler, 2022).

Since a common denominator of political alternative media is that they are guided by political values and norms, their coverage can be expected to differ from that of mainstream news media in terms of what issues they cover and how they frame issues or events (Benkler et al., 2018; Holt, 2018; Müller & Freudenthaler, 2022). More specifically, research suggests that political alternative media compete by seeking to provide information that confirms the worldviews and attitudes of their targeted audiences. That may hold in particular for right-wing alternative media, where research suggests they display a greater degree of alternativeness and hostility toward mainstream media than left-wing alternative media (Benkler et al., 2018; Figenschou & Ihlebaek, 2019; Ihlebaek & Nygaard, 2021). This implies that the main effect of political alternative media might not be that they influence people's attitudes as much as their perceptions of different issues and events—including their societal perceptions. However, it could also depend on levels of media trust among different groups.

2.2. Media Trust as a Predictor of Media Use

Following the DSMM, there are theoretical reasons to assume that general media trust is one key dispositional differential susceptibility variable that influences media use. This holds in particular in high-choice media environments where people are not constrained to using mainstream media and have greater opportunities than ever to seek out political alternative media with content that is attitude-congruent (Strömbäck et al., 2022).

Conceptually, media trust broadly refers to a relationship where people expect that interaction with the media will lead to gains rather than losses and that media will perform in a satisfactory manner (Fawzi et al., 2021; Strömbäck et al., 2020). While media trust can be located at different levels of analysis, in this study we are focusing on general trust in mainstream news media.

Since media trust involves a relationship where people expect some kind of gain, one reason why media trust should function as a predictor of media use is simply that it is most rational for people to select media that they trust (Tsfati & Cappella, 2003), although their media use is also constrained by structural, habitual, and situational factors (Webster, 2014). A second reason is that general media trust may function as a heuristic when people face a choice between using different media (Webster, 2014). In addition, a key motivation for media use is to get informed and satisfy one's cognitive needs (Rubin, 2009; Ruggiero, 2000), and that presumes that people trust the media. Consequently, a number of studies have shown that there is a link between media trust and media use (Fletcher & Park, 2017; Kalogeropoulos et al., 2019; Ladd, 2012; Tsfati & Cappella, 2003).

More specifically, in contexts where people can choose between mainstream and political alternative media, a key reason why people replace or complement the use of mainstream news media with political alternative media may be that they do not trust mainstream news media or perceive these as hostile (Ladd, 2012; Perloff, 2015; Tsfati & Cappella, 2003). This, in turn, might be explained by the fact that people tend to prefer information and information sources that confirm their already held beliefs and attitudes (Kunda, 1990). Studies also show that counter-attitudinal news reporting is likely to induce hostile media perceptions (Arceneaux et al., 2012), and such reporting is more likely in mainstream media than in political alternative media that compete by reaffirming their audiences' political beliefs and attitudes (Benkler et al., 2018). Numerous studies, albeit predominantly from the US, have also found evidence for political selective exposure, meaning that people seek out media that can be expected to provide attitude-congruent information (Arceneaux & Johnson, 2013; Dahlgren et al., 2019; Garrett et al., 2013; Stroud, 2011). This may hold in particular for those leaning to the right ideologically or sympathizing with right-wing populist parties, as they generally trust mainstream media less than others (Andersson, 2021; Fawzi, 2019; Gottfried et al., 2019; Strömbäck & Karlsson, 2017). This may in turn moderate the effects of media use.

2.3. Media Trust as Moderator of Media Effects

In line with the DSMM, differential susceptibility variables such as general media trust can be expected to function not only as predictors but also as moderators. Most importantly, how people interpret and process whatever information they are exposed to depends on the extent to which they find the source trustworthy and credible (Eagly & Chaiken, 1993; Ladd, 2012; Pornpitakpan, 2004). Furthermore, both trustworthiness and credibility are closely intertwined with trust (Kohring & Matthes, 2007; Metzger et al., 2003; Strömbäck et al., 2020). Thus, whereas those who trust a certain media type are likely to accept the information provided, those who distrust them are more likely to engage in counter-arguing or discount the information altogether (Kunda, 1990; Ladd, 2012; Lodge & Taber, 2013).

The motivations for taking part in different types of media are thus likely to differ depending on whether people trust them or not (Ladd, 2012). Whereas those who trust mainstream news media are likely to use them to get informed and satisfy their surveillance needs (Rubin, 2009), those who distrust them are more likely to use them out of curiosity, to find counterarguments, or because they do not feel they have a choice. For example, before the rise of political alternative media, those who distrusted mainstream news media did not have much of a choice if they wanted to know what was going on in society, but in contemporary media environments, they can find political alternative media that they may trust more. That said, those with a high need for cognition have however been found to consume media even if they distrust them (Tsfati & Cappella, 2005). In contrast, those who use political alternative media are more likely to do it not only to get informed, but because they anticipate that they will get their worldviews and attitudes confirmed (Benkler et al., 2018).

In line with this, previous research has found that "those who distrust the media update their beliefs [about societal conditions] less in response to events, instead relying more on their partisanship," and that "(t)hose who distrust the institutional media resist new information from the mainstream media [and are] more likely to utilize alternative, partisan media outlets" (Ladd, 2012, pp. 149, 195). Following Hall (1980), the moderating role of media trust may thus be described as a matter of how those who trust versus distrust the media *decode* the media content, where those who distrust mainstream media are more likely to engage in a negotiated or oppositional interpretations of the media content. Through this vein, trust in mainstream media may moderate the effects of media use on societal perceptions.

2.4. Media Effects on Societal Perceptions

Broadly, societal perceptions can be defined as beliefs about the current state or development of societal affairs, for example, the state or the development of the national economy or crime. Perceptions thus involve (more or less correct) knowledge and refer to how things are rather than how they ought to be (Ajzen, 2005; Eagly & Chaiken, 1993). This separates perceptions from attitudes, that per definition involve an evaluative component.

Although societal perceptions and attitudes are conceptually distinct, they are closely intertwined. Consequently, research has shown that societal perceptions matter greatly to people's attitudes and behaviors. For example, studies show that perceptions of the national economy influence voting (Lewis-Beck & Stegmaier, 2007), that perceptions of the size of the immigrant population influence opposition to immigration (Sides & Citrin, 2007), and that perceptions of crime influence feelings of fear (Ambrey et al., 2014). The underlying reason can be traced back to Lippman (1997), who argued that "the pictures in our heads" may matter more than reality per se, since the "pictures in our heads" are what we ultimately have access to.

Problematic in this context are signs that misperceptions have become more common and that there is an increasing divergence in societal perceptions (Kavanagh & Rich, 2018; O'Connor & Weatherall, 2019). For example, clear differences in perceptions have been found with respect to issues such as whether there is a process of anthropogenic global warming (Krosnick & MacInnis, 2020), whether there were weapons of mass destruction in Iraq before the invasion in 2003 (Gaines et al., 2007), and the origins of the Coronavirus (Douglas, 2021).

Such perception gaps are problematic not only because they run counter to the notion that a well-functioning democracy requires reasonably informed citizens (Dahl, 1998). They may also cripple meaningful political debates, as such require common ground and a large body of shared facts. As noted by Rosenfeld (2019, pp. 173–174), "democratic debate is premised from the start on every opinion being informed by some shared body of facts.''

As noted above, a significant body of research simultaneously suggests that (mis)perceptions and perception gaps at least partly can be explained by media use, and that political alternative media often trade in politically framed (mis)information (Benkler et al., 2018; Garrett et al., 2016; Glogger & Shehata, 2022; Hmielowski et al., 2014). Most research has however been done in the US, implying that the generalizability of findings is unclear. The same holds for the mechanisms by which the effects occur and the role of media trust.

2.5. Hypotheses

Based on the review above and the DSMM in particular, our general expectation is that general media trust will both predict and moderate the effects of using mainstream news media versus political alternative media on societal perceptions. Thus, while we expect that the use of mainstream and alternative media has effects on perceptions of societal problems, general media trust is likely to both *guide news choices* and *condition* the relationship between these news choices and societal perceptions over time. Hence, our hypotheses are:

> H1: General media trust both predicts use of mainstream news and political alternative media (H1a) and moderates the effects of these news sources on perceptions of societal problems (H1b).

> H2: Use of mainstream news (H2a), left-wing (H2b), and right-wing (H2c) political alternative media have differential effects on citizens' perceptions of societal problems.

In addition, it might be the case that general media trust is associated with citizens' perceptions of societal problems. To explore this, we ask:

> RQ: What is the relationship between general trust and citizens' perceptions of societal problems?

3. The Case, Data, and Methodology

To investigate the hypotheses, this study focuses on citizens' perceptions concerning two societal issues: health care and school. These issues represent two critical areas of the welfare state which almost every citizen has personal experience of. At the same time, they are both contested politically and generally salient on the political, media, and public agendas, with ongoing framing battles over how to perceive current conditions and trends. Thus, we regard these as two similar cases in terms of their basic issue characteristics. The key question then is how the use of mainstream news media on the one hand, and political alternative media on the other, is related to such perceptions.

To explore the dual role of general media trust in media effects on societal perceptions, we use data from a four-wave panel survey conducted in Sweden during 2020–2021. The data collection was administered by the Laboratory of Opinion Research (LORE) at the University of Gothenburg. A probability-recruited sample of 3,327 web survey participants aged 18–80 was invited to take part in the study. The sample was pre-stratified on gender, age, and education. The first wave was fielded on March 17, 2020, the second on October 26, 2020, the third on April 19, 2021, and the fourth on October 25, 2021. The net participation rate was 65% (W1), 57.6% (W2), 55.3% (W3), and 53.9% (W4). The sample is broadly representative in term of gender (50% female), age (13% < 30 years, 15% 30–39, 18% 40–49, 17% 50–59, 20% 60–69, and 17% > 70), and education (23% with more than three years at university).

3.1. Measures

3.1.1. Societal Perceptions

This study focuses on perceptions of societal conditions relating to Swedish health care and schools. For both issue domains, we use a battery of three items following the survey question: "In the public debate, there are various claims about the situation in [Swedish health care/Swedish schools]. To what extent do you agree with the following statements?" The statements were: (a) [Swedish health care/Swedish schools] have improved in recent years; (b) [Swedish health care/Swedish schools] are worse than in most other EU countries; and (c) there are very large problems in [Swedish health care/Swedish schools] today. The response scale ranged from 1 (*not true at all*) to 7 (*completely true*). The three items were averaged into one index for health care perceptions (W1 Cronbach's α = 0.71, M = 3.75, SD = 1.30; W2 α = 0.72, M = 3.97, SD = 1.27; W3 α = 0.71, M = 4.02, SD = 1.23; W4 α = 0.70, M = 3.84, SD = 1.25) and one for school perceptions (W1 Cronbach's α = 0.75, M = 3.62, SD = 1.27; W2 α = 0.73, M = 3.43, SD = 1.24; W3 α = 0.74, M = 3.42, SD = 1.20; W4 α = 0.75, M = 3.30, SD = 1.21), with high values representing a more positive view of current societal conditions.

3.1.2. General Trust in Mainstream News Media (General Media Trust)

Four items were used to tap general trust in mainstream news media following the survey question "There are different views in society on news coverage in Swedish media. To what extent do you agree with the following statements? The traditional news media in Sweden…." The statements were: (a) Don't tell the truth about important societal issues; (b) let all important voices be heard in the discussion; (c) provide a one-sided perspective on important issues; and (d) provide the best and most reliable information about politics and society. Response scales ranged from 1 (*completely disagree*) to 7 (*completely agree*), and items (a) and (c) were reversed before averaged into a media trust index (W1 Cronbach's α = 0.85, M = 4.32, SD = 1.52). We acknowledge that this measure of media trust deviates from more common operationalizations (see Strömbäck et al., 2020, for a review), but it has previously been found appropriate (Andersen et al., 2021) and was the measure that the panel survey included.

3.1.3. News Media Use

The study distinguishes between three types of news use: mainstream news media, left-wing alternative media, and right-wing alternative media. With respect to mainstream news media, we focus on public service media. The rationale is that public service media can be described as both the most mainstream and most salient of mainstream news media. Public service news consumption was measured as the number of days in the past month the respondents had followed news on *Sveriges Radio Ekot* (SR), *Aktuellt* (SVT) and *Rapport* (SVT)—which correspond to the main public service radio and television news programs in Sweden (W1 Cronbach's α = 0.71, M = 3.66, SD = 1.48; W2 α = 0.68, M = 3.48, SD = 1.45; W3 α = 0.66, M = 3.47, SD = 1.43; W4 α = 0.67, M = 3.47, SD = 1.44). The use of alternative left-wing and right-wing media was measured similarly using a list of 13 online outlets (seven left-wing and six right-wing sources). Given the relatively low frequency of use of these outlets, our final measures are based on the one outlet that a respondent used most frequently. Response categories ranged from 1 (*daily*) to 6 (*never*) but were reversed before combined into indices.

3.2. Data Analysis and Control Variables

To address our hypotheses, we estimate structural equation models (SEM) where general media trust predicts our three forms of news media use, which, in turn, predict societal perceptions. To capture change over time, we estimate three models per issue with perceptions at W2, W3, and W4 serving as the final outcome variable, controlling for lagged perceptions from the previous panel wave (W1, W2, and W3). Since the survey items for news use are retrospective (usage in the past month), the models include news use measures from the same panel wave as the outcome variable (instantaneous effects). Media trust from W1 is used in all models. While the perceptions equations control for the lagged dependent variables (t_{-1}), all news use equations control for gender, age, political interest, and ideology. To test the moderating role of media trust, we furthermore use multiple group comparison of coefficients across three levels of media trust—low, medium, and high—by dividing the sample into three approximately equally sized groups using the media trust scale. This approach allows us to simultaneously test the conditional effects of three forms of news use across levels of media trust. The analysis thus addresses media trust as an antecedent (H1a) and as a moderator (H1b) variable. Bivariate correlations between all key variables are available in Table A1 in the Supplementary Material.

4. Findings

Before testing our hypotheses, we will address our research question about the relationship between general media trust and citizens' perceptions of societal problems (RQ). Towards that end, Figure 1 presents descriptive trends regarding citizens' perceptions of health care and school, for three levels of general media trust. Higher values represent a more positive perception of current conditions and developments.

A few things are worth noting. First, Swedish citizens appear to have a more negative view of the performance

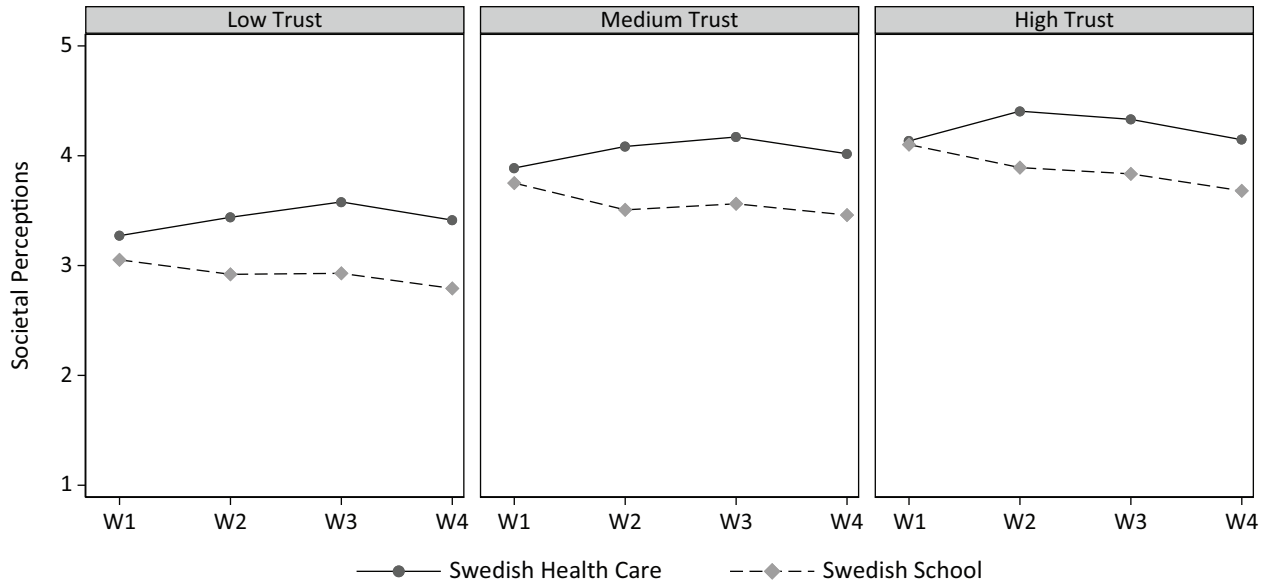

Figure 1. Development of Swedish health care and school perceptions over time (mean values). Notes: Mean values of Swedish health care (1–7) and school perceptions (1–7) over time; minimum number of respondents at each wave (W1: N = 2,065; W2: N = 1,719; W3: N = 1,056; W4: N = 1,498); general media trust is divided into three approximately equally sized groups of low trust (N = 748), medium trust (N = 632), and high trust (N = 679).

of the school system than the health care system. This difference is evident already in W1 but the "gap" remains and even increases over time. Second, media trust is related to perceptions. Citizens with higher trust in the media tend to see societal conditions in a more positive light. This is the case for both health care and school perceptions. This is also captured by the cross-sectional correlations between general media trust and health care perceptions across the waves (W1: *Pearson's r* = 0.33, $p < 0.001$; W2: $r = 0.36$, $p < 0.001$; W3: $r = 0.33$, $p < 0.001$; W4: $r = 0.30$, $p < 0.001$) on the one hand, and school perceptions (W1: *Pearson's r* = 0.40, $p < 0.001$; W2: $r = 0.39$, $p < 0.001$; W3: $r = 0.40$, $p < 0.001$; W4: $r = 0.37$, $p < 0.001$) on the other. Third, although perceptions appear rather stable over time, there are some changes as well. While perceptions of Swedish health care become somewhat more positive following W1—increasing from a mean value of 3.75 in W1, through 3.97 in W2, to 4.02 in W3, before becoming more negative again—an opposite trend emerges for school perceptions, displaying a gradual increase in negative perceptions from 3.62 in W1 to 3.30 in W4. Both these general trends are also statistically significant compared to baseline values from W1 (the time trends were tested using wave dummy variables in a random effects panel model, with W1 operating as the category of reference).

Next, we address our hypotheses concerning the dual role of media trust as (a) an antecedent factor explaining news media use and (b) a moderator variable conditioning the relationship between news media use and societal perceptions. Structural equation models and multiple group comparisons are used to test these hypotheses.

Figure 2 presents results from the first unconditional model focusing on health care perceptions and provides an overall picture of the key relationships of interest. Each arrow shows the estimated effects at three occasions separately—W2, W3, and W4. For instance, general media trust has a positive effect on use of public service news in W2 ($b = 0.11$, $p < 0.001$), W3 ($b = 0.09$, $p < 0.001$), and W4 ($b = 0.07$, $p < 0.01$), controlling for gender, age, political interest, and ideology. Thus, citizens with higher general media trust are more likely to use public service media. The opposite is true for right-wing alternative media, which displays a consistent negative effect (W2: $b = -0.24$, $p < 0.001$; W3: $b = -0.25$, $p < 0.001$; W4: $b = -0.23$, $p < 0.001$). There are however no relationships between media trust and the use of left-wing alternative media. These findings lend support to H1a.

Turning to the relationship between news media use and health care perceptions, we see that use of public service has a positive effect (W2: $b = 0.10$, $p < 0.001$; W3: $b = 0.09$, $p < 0.001$; W4: $b = 0.02$, $p > 0.05$), controlling for lagged health care perceptions (not illustrated in Figure 2). This means that higher use of public service news is related to an *increase* in positive health care perceptions over time. Use of right-wing alternative media, however, increases negative perceptions (W2: $b = -0.05$, $p < 0.05$; W3: $b = -0.08$, $p < 0.001$; W4: $b = -0.06$, $p < 0.01$). Use of left-wing alternative media displays no relationship with health care perceptions (see Figure A1 in Supplementary Material for graphical display of these unconditional effects based on OLS models).

While the findings in Figure 2 suggest general effects of some forms of news media use on health care perceptions, they do not address H1b concerning the

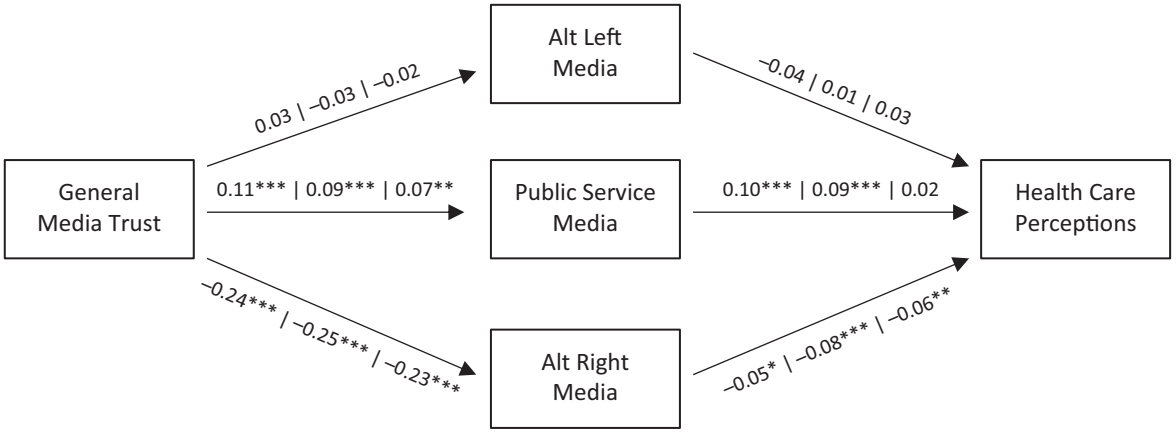

Figure 2. Path model predicting perceptions of Swedish health care. Notes: Path estimates are unstandardized coefficients from three separate SEM models (W2, W3, and W4); each media use equation controls for gender, age, political interest, and ideology; the health care equation controls for the lagged dependent variable (t_{-1}); W2 Model—N = 2,279, $\chi^2(5) = 61.247$, $p = 0.000$, RMSEA = 0.07, CFI = 0.976; W3 Model—N = 2,326, $\chi^2(5) = 19.341$, $p = 0.000$, RMSEA = 0.035, CFI = 0.993; W4 Model—N = 2,316, $\chi^2(5) = 50.306$, $p = 0.000$, RMSEA = 0.063, CFI = 0.976; * = $p < 0.05$, ** = $p < 0.01$, *** = $p < 0.001$.

moderating role of media trust. Therefore, Table 1 presents findings from a multiple group comparison of the models illustrated in Figure 2. Again, three models were estimated to represent the different time points. Table 1 displays coefficients across three levels of media trust—low, medium, and high. Bolded coefficients highlight effects that are statistically different between the three groups. The only difference found here relates to W1–W2 estimates for use of right-wing alternative media. These findings suggest that the effect is significantly stronger among citizens with medium-level trust in traditional news media (see Figure A2 in the Supplementary Material for graphical display of the conditional marginal effects across different levels of media trust).

Figure 3 presents results relating to school perceptions. The main findings concerning general media trust as an antecedent of news media use are no different from the previous model: Trust is positively related to the use of public service news, but negatively related to right-wing alternative media (H1a) and unrelated to left-wing alternative media—controlling for gender, age, political interest, and ideology. With respect to school perceptions, the use of right-wing alternative media is the only consistent predictor of changes in school perceptions. More specifically, the results show that more frequent use of these is related to more negative perceptions over time (W2: $b = -0.10$, $p < 0.001$; W3: $b = -0.08$, $p < 0.001$; W4: $b = -0.08$, $p < 0.001$). These results lend partial support for H1b and support H2c.

Table 2 presents findings from the corresponding multiple group analyses focusing on H1b and the conditional relationship between news media use and school perceptions. Although use of right-wing alternative media appears to significantly increase negative school perceptions only among the low-trusting group ($b = -0.09$, $p < 0.01$; $b = -0.10$, $p < 0.001$; $b = -0.06$, $p < 0.05$), the differences across groups are not significant. The only significant group difference relates to public service news, which displays a stronger negative impact among medium-level trustors in wave 3 ($b = -0.08$, $p < 0.01$). (See Figure A3 in supplementary

Table 1. Multiple group comparison across levels of media trust (unstandardized coefficients).

	W1–W2			W2–W3			W3–W4		
	Low	Med	High	Low	Med	High	Low	Med	High
Health perceptions									
Alternative left	−0.14**	−0.01	−0.02	−0.04	0.06	0.02	−0.04	0.05	0.03
Public service	0.08**	0.08**	0.12***	0.11***	0.08*	0.05	0.00	−0.02	0.04
Alternative right	**0.04**	**−0.11***	**0.04**	−0.05	−0.11*	−0.07	−0.05	0.03	−0.01
N	748	632	679	748	632	679	748	632	679

Notes: Media trust is divided into three approximately equally sized groups of low trust (N = 748), medium trust (N = 632), and high trust (N = 679); bolded coefficients represent effects that are statistically significant across trust groups; * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$.

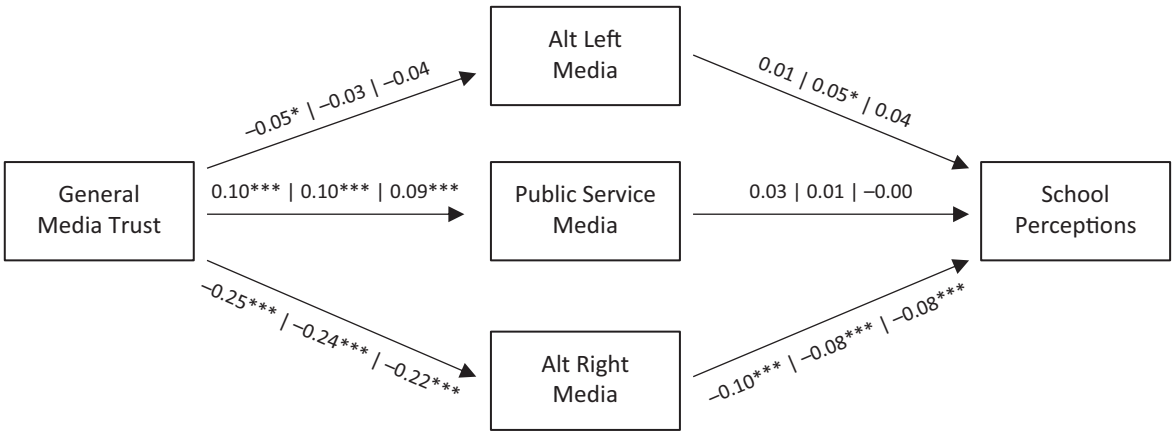

Figure 3. Path model predicting perceptions of Swedish school. Notes: Path estimates are unstandardized coefficients from three separate SEM models (W2, W3, and W4); each media use equation controls for gender, age, political interest, and ideology; school equation controls for the lagged dependent variable (t_{-1}); W2 Model—N = 2,279, $\chi^2(5) = 39.203$, $p = 0.000$, RMSEA = 0.055, CFI = 0.985; W3 Model—N = 2,325, $\chi^2(5) = 38.246$, $p = 0.000$, RMSEA = 0.053, CFI = 0.984; W4 Model—N = 2,316; $\chi^2(5) = 28.135$, $p = 0.000$; RMSEA = 0.045; CFI = 0.988; * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$.

Table 2. Multiple group comparison across levels of media trust (unstandardized coefficients).

	W1–W2			W2–W3			W3–W4		
	Low	Med	High	Low	Med	High	Low	Med	High
School perceptions									
Alternative left	−0.01	−0.04	0.02	0.07	0.09	−0.01	0.03	0.06	−0.00
Public service	0.02	0.03	−0.01	**0.05**	**−0.08****	**0.00**	−0.01	0.00	−0.02
Alternative right	−0.09**	−0.07	−0.03	−0.10***	−0.00	0.01	−0.06*	−0.08	0.04
N	748	632	679	748	632	679	748	632	679

Notes: Bolded coefficients represent effects that are statistically significant across trust groups; * = $p < 0.05$; ** = $p < 0.01$; *** = $p < 0.001$.

material for graphical display of the conditional marginal effects across different levels of media trust).

5. Conclusion

The purpose of this study was to investigate the dual role of general media trust when explaining the use of mainstream versus political alternative media and the effects on perceptions of the development of Swedish health care and Swedish schools. Summing up, one key takeaway is that media trust clearly predicts the use of mainstream versus right-wing—but not left-wing—alternative media. Importantly, this holds even when controlling for ideology. Across waves, general media trust positively predicts the use of public service media and negatively predicts the use of right-wing alternative media, while there are basically no relationships between media trust and the use of left-wing alternative media. These findings lend general support to H1a on the role of media trust as an antecedent variable explaining differential news use.

A second takeaway is that the use of mainstream versus right-wing—but again, not left-wing—alternative media have differential effects on societal perceptions, lending overall support to H2. More specifically, right-wing alternative media use is consistently related to more negative perceptions of Swedish health care and school, while the opposite holds true for use of public service media with respect to health care perceptions. Taken together, these findings suggest that right-wing alternative media display a greater alternativeness than left-wing alternative media, not only in the US as suggested by previous research (Benkler et al., 2018), but also in Sweden.

With respect to the potential dual role of media trust as a factor behind media effects, our findings suggest that trust may be more important as an antecedent guiding news choices than as a moderator of media effects on societal perceptions. Most findings supported universal, rather than conditional, effects across trust groups—lending limited support to H1b. This is a tentative conclusion, however. While the findings point in this direction our analyses cannot finally determine the precise causal relationships at work. The bivariate correlations between media trust and news use vary from weak (left-wing alternative media), to moderate (right-wing alternative media), which together with a lagged dependent variable

and relatively few users of alternative media, reduces the information available to fully test the conditional effect of media trust. More research is therefore needed, including experimental designs, to disentangle the dual role of media trust. Although the focus of this study has been on media trust as an antecedent and moderator variable, other aspects of the DSMM could also be addressed, such as exploring mediating and transactional effects of media trust in greater detail.

Over time, however, the end result is likely an increase in perception gaps across groups depending on their general media trust and their use of mainstream versus right-wing alternative media. In light of this, there are strong theoretical as well as societal reasons to further disentangle the dual role of general media trust when explaining media use and the effects thereof on societal perceptions. Future research is thus encouraged to investigate this dual role in the context of other issues and other contexts.

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Conflict of Interests

The author declares no conflict of interests.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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Article

"I Don't Believe Anything They Say Anymore!" Explaining Unanticipated Media Effects Among Distrusting Citizens

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Abstract
The erosion of political and societal trust, polarization, and the omnipresence of disinformation may undermine the perceived trustworthiness of established sources of information. Yet, many forced exposure media effect studies in the field of political communication studying polarizing issues such as disinformation and populism assume a baseline level of trust among participants exposed to seemingly neutral information. This neglects long-standing issues of distrust in the press and trends toward increasing distrust among growing segments of the population. Resistance toward established information presented as news may result in unanticipated findings, as a substantial part of the population may not accept these sources as trustworthy or neutral. To enlighten confusion, this article relies on two different experiments (*N* = 728 and *N* = 738) to explore how citizens with low levels of trust and high dissatisfaction with the established order respond to information from established information sources. Our main findings indicate that participants with higher levels of populist attitudes, media distrust, and fake news perceptions are more likely to find established information untrustworthy. They are also less likely to agree with the statements of such content. These findings indicate that media effect studies assuming univocal acceptance of seemingly neutral information may fall short in incorporating problematic trends toward factual relativism in their design.

Keywords
disinformation; distrust; factual relativism; media effects; media trust; post-truth politics

Issue
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1. Introduction

Issues related to distrust in the mass media, science, and other institutions have existed way before the advent of digital media. As illustrated by Bennett et al. (2007), the mass media does not always operate as an independent fourth estate, acting as a watchdog of powerful institutions and providing citizens with a critical outlook on socio-political issues. Yet, issues related to declining trust in the established order may have been accelerated and amplified by the affordances of social media. In digital information contexts, a plethora of alternative counter-factual narratives competes for the audience's attention and legitimacy (Waisbord, 2018). As a consequence, growing segments of the population may not know whom to trust or systematically circumvent elite sources altogether. At the same time, political movements that cultivate distrust in the established order—such as radical right-wing populists—mobilize and amplify sentiments of disenchantment among citizens (e.g., Hameleers, Bos, Fawzi, et al., 2018). Together, these developments coincide with an information era in which facts have become relative and subject to distrust and "fake news" accusations (Van Aelst et al., 2017). In this setting, the perception that fake news is everywhere may dramatically decline people's trust in authentic information. Against this backdrop, we argue that long-standing issues related to distrust in the media may have taken on

a different shape in the context of current developments toward mis- and disinformation and weaponized applications of these terms in a digital media landscape.

These trends are problematic for democracy, as a citizenry that disagrees on basic facts cannot make well-informed political decisions (e.g., Arendt, 1967). Distrust and disenchantment may also impact the conclusions we draw from empirical evidence on media effects, as the assumption that all people are equally willing and able to accept the information sources we (forcefully) expose them to may lead to inconsistent conclusions. In this setting, we need to resolve confusion about contradictory media effects in a communication setting of polarization, distrust, and factual relativism. The question central in this article is therefore whether citizens' disenchantment and distrust result in disagreement with and the reduced credibility of information that is presented as authentic, neutral, and factually correct. Here, we specifically focus on the field of political communication that has dealt with issues related to declining trust in (established) information sources (e.g., Fawzi, 2019; Schulz et al., 2020) or scientific elites (e.g., Mede & Schäfer, 2020), especially among citizens with more pronounced populist attitudes (e.g., Schulz et al., 2020).

Against this backdrop, this article uses insights from two different experiments to explore how citizens with low levels of trust and high dissatisfaction with the established order respond to information coming from established information sources. Hence, most media effect studies in political communication research rely on forced exposure designs that may not sufficiently take into account some people's experienced distrust in elite information. Research on the effects of disinformation and corrections, for example, mostly used a forced exposure design to present people with fact-checks from allegedly neutral sources (e.g., Nyhan & Reifler, 2010). In a similar vein, most research on the effects of populist communication used a forced exposure design in which populist messages are presented as seemingly neutral news messages (e.g., Bos et al., 2019; see also Müller et al., 2018). If we take into account that citizens supporting a populist ideology would normally selectively avoid or severely distrust the sources referred to in such experiments (Schulz et al., 2020), how can we validly assess the effect of such polarizing content among disenchanted segments of the audience?

Considering the findings of the *Reuters Institute Digital News Report 2021* (Newman et al., 2021) that only 44% of people trust the news most of the time, this has far-reaching consequences for the conclusions we draw about media effects. For example, null effects or contradictory findings in experimental research on populism or disinformation (e.g., Hameleers et al., 2020) may partially be driven by distrust in information sources presented to participants, rather than the actual failure of the stimulus to activate attitudes in line with the predictions. As a main contribution, this article explores the impact of distrust and dissatisfaction with the established order on media effects surrounding polarizing issues in political communication by relying on two different experimental studies using different samples, designs, and issues. It herewith aims to enlighten the confusion of unanticipated findings in media effect studies that either find null effects or contradictory patterns for some segments of the population.

2. Theoretical Framework

2.1. Truthfulness in an Era of Post-Factual Relativism

Although mis- and disinformation are by no means novel phenomena, the affordances of digital information ecologies have been associated with the amplification and acceleration of disinformation (e.g., Van Aelst et al., 2017; Waisbord, 2018; Zhang et al., 2021). The digital information environment hosts many nonprofessional communicators who can communicate with audiences directly and circumvent traditional journalistic routines and gatekeepers. This has arguably led to a fragmented information ecology where a plethora of alternative narratives compete for legitimacy and the audience's attention (Waisbord, 2018). In this setting, verified factual information may be dismissed as opinions or politicized as biased content, whereas conspiracy theories and disinformation are presented as truthful interpretations of reality. This can confuse news users about the epistemic status of factual knowledge and empirical evidence. In addition, many (political) actors use their direct communication channels to de-legitimize established facts, mainstream media, or expert sources, accusing them of spreading "fake news" (e.g., Egelhofer & Lecheler, 2019; Waisbord, 2018). The ongoing legitimization of alternative anti-establishment narratives may cause a downward spiral of distrust: The antagonistic construction of "the truth"—fueled by the delegitimizing discourse of radical right-wing populists—may amplify existing levels of distrust in the established political and media order (e.g., Van Aelst et al., 2017; Waisbord, 2018).

Disinformation—which we can define as fabricated, doctored, or manipulated information that is made and disseminated to achieve certain political goals (e.g., Freelon & Wells, 2020)—may be spread to raise cynicism in the established political order and fuel polarized divides in society (e.g., Bennett & Livingston, 2018). There is ample evidence that disinformation may succeed in this goal. Using an experimental study, Vaccari and Chadwick (2020), for example, found that deepfakes do not directly mislead recipients. Rather, its delegitimizing discourse resulted in lower trust in the (digital) news environment. If we consider the fact that disinformation is thriving around key events such as the Covid-19 pandemic, where uncertainty is remarkably high, the existence of many counterfactual narratives, disinformation, and conspiracy theories in people's newsfeeds may have cultivated existing levels of distrust in the established order. But what are the consequences of distrust in the

established order for mapping the effects of mainstream media coverage on citizens and public opinion?

2.2. The Consequences of Declining Trust and Increasing Dissatisfaction for Media Effect Studies

Increasing distrust and dissatisfaction with the established order may have severe ramifications for how we perceive and study media effects. Here, we define trust in the broadest sense of the concept: an individual's evaluation or judgment of the likelihood that a trustee (i.e., the media, the political establishment) can fulfill the expectations of a trusting actor (i.e., a news user or citizen; Baier, 1986). In a well-functioning democracy, news users should expect the media and political elites to inform them of key developments in an accurate, complete, honest, and transparent manner. People who distrust the media cast doubt on the extent to which the news media are capable of fulfilling these role perceptions (e.g., Brosius et al., 2021). In today's information setting, in which the aforementioned developments of post-factual relativism, fake news accusations and disinformation take center stage, these role expectations are under fierce attack (e.g., Tamul et al., 2020). Arguably, news users may not systematically hold the evaluation that the news media and political elites can fulfill their democratic roles, resulting in a lack of trust or distrust in the media and political institutions (Hameleers et al., 2020). This perception may either be experienced as skeptical attitudes (i.e., a critical attitude towards the established order and the media) or cynicism (i.e., a more systematic rejection of the established order or the media as an information source; see, e.g., Pinkleton et al., 2012).

Why is it relevant to consider these developments in media effects studies? Importantly, for people to be influenced by the media, they have to accept the message as truthful (see e.g., Schaewitz et al., 2020). High levels of distrust or existing disagreement with the foundations of a message can result in reactance, avoidance, or the rejection of a message's arguments. In line with this, the high levels of audience fragmentation in the digital age correspond with (partisan) selective exposure and minimal persuasive media effects (e.g., Bennett & Iyengar, 2008). Yet, this conceptualization of minimal media effects is not uncontested. In a response to Bennett and Iyengar, Holbert et al. (2010) argue that we need to regard persuasion as something more compelling than changes in attitudes. More specifically and related to the fragmented and high-choice information ecology, media effects should be understood as the formation and reinforcement of attitudes and beliefs too. Here, a reinforcing spiral model of media selection and effects is especially worthwhile to consider (Slater, 2007): Media effects can best be understood as the consequence of an over-time process in which selection and effects are entangled into a mutually reinforcing mechanism that leads to attitude reinforcement over time.

This understanding of media effects has probably increased in relevance amidst increasing concerns about the relative status of untruthfulness and post-factual relativism (Van Aelst et al., 2017; Waisbord, 2018). In digitized media environments, multiple alternative truth claims, conspiracies, and counterfactual narratives compete for the audience's attention (Waisbord, 2018). There is no singular truth that is accepted across audience segments, and the high-choice setting of social media allows citizens to select the version of reality that best fits their existing beliefs or (partisan) identities, a development that is further amplified by algorithms and the social embedding of disinformation (Lukito et al., 2020; Zhang et al., 2021). This setting of high choice and competing claims on truthfulness may not only promote the selection of attitude-reinforcing content but also engenders audience distrust in the establishment's version of the truth and factual reality (Van Aelst et al., 2017).

High levels of distrust are reflected in the increasing salience of disenchantment in the form of populist attitudes and political cynicism (Hameleers et al., 2020; Schulz et al., 2018), as well as overall low trust in the news and online media (Newman et al., 2021). Populist attitudes map the perceived divide between the ordinary people as an in-group and the allegedly corrupt elite as an out-group that fails to represent the common people (Akkerman et al., 2014; Schulz et al., 2018). Such attitudes may play a crucial role in how (mainstream) information is perceived. People with stronger populist attitudes tend to believe that the media disseminate fake news (e.g., Fawzi, 2019; Schulz et al., 2020) and that most news media spread disinformation (Hameleers et al., 2021). In addition, populist attitudes often have an anti-expert or anti-media dimension: Experts, established facts, and scientific knowledge are severely distrusted among populist segments of the audience (Mede & Schäfer, 2020). Thus, media distrust, populist attitudes, and perceptions of fake news may all correspond to growing levels of disenchantment with the established order and information.

Taken together, shifts in the audience's interpretation of (un)trustworthiness in a digital age of fragmentation have important implications for how we may understand media effects (see also Van Aelst et al., 2017). Citizens with stronger populist attitudes, fake news perceptions, or other distrusting and disenchanted views on media and society may systematically reject or counterargue information that comes from mainstream media or established information channels (Fawzi, 2019; Schulz et al., 2020). Taking into account that relatively high proportions of the audience hold (moderate) populist beliefs (e.g., Schulz et al., 2020) or fake news perceptions (Hameleers et al., 2021), we assume that such audience segments are also represented in public opinion research aiming to measure the impact of media content on society, potentially resulting in an unmeasured bias in the estimation of effect sizes.

We, therefore, argue that a failure to detect anticipated direct effects resulting from exposure to a media stimulus may in part be driven by distrust and cynicism toward such content among audience segments who no longer accept established information sources as trustworthy. People accepting the message and source (i.e., people who do believe that the mainstream media and established information sources are trustworthy and credible sources of information) may display anticipated effects, whereas reactance by distrusting segments may cancel out effects, leading to an underestimation of the potential effects of media content. As many media effect studies rely on source cues and stimuli reflecting everyday formats used by established information channels and news sources, we expect that disenchantment and distrust directed at such elite channels (i.e., fake news perceptions or populist attitudes) may play a key biasing role in the assessment of media effects.

Against this backdrop, we postulate the following central hypotheses:

H1: People with more pronounced populist attitudes are more likely to rate established information as uncredible or disagree with its arguments compared to people with less pronounced populist attitudes.

H2: Participants with more pronounced levels of media distrust are more likely to rate established information as uncredible or disagree with its arguments compared to more trusting participants.

H3: People with more pronounced fake news perceptions are more likely to rate established information as uncredible or disagree with its arguments compared to people with less pronounced fake news perceptions.

3. Methods

We rely on two different data collections that vary in terms of topical scope and panel composition. Specifically, we rely on one experiment measuring participants' responses to corrective information in the US and one experiment that looks at responses to episodic and thematic frames in the US. Altogether, we capture variety in panel compositions (samples were recruited via different means and panel companies) and topics (climate change and immigration). The consistent part across the data collections is that the stimuli are presented as neutral sources of information that were allegedly published in recent US news coverage, a scenario that is also used in many media effects studies in the field. This allows us to explore to what extent and how participants indicating to have lower media trust and higher levels of dissatisfaction with the establishment respond differently to dependent variables aiming to measure (a) the credibility of the stimuli and (b) agreement with the positions forwarded in it.

4. Study 1: Responses to Fact-Checked Misinformation in the US

4.1. Theory on Misinformation and Corrective Information

The first study focuses on misinformation and corrective information. For this study, we define misinformation as an umbrella term for information that is factually incorrect or not based on relevant expert knowledge and/or empirical evidence (e.g., Vraga & Bode, 2020). It may refer to both the dissemination of unintentionally false information and doctored, fabricated, or manipulated information disseminated with the intention to deceive or mislead—also known as disinformation (e.g., Freelon & Wells, 2020). In response to the alleged uncontrolled dissemination of misinformation, numerous interventions to pre- or de-bunk false information have been introduced. In this study, we specifically focus on corrective information presented *after* exposure to misinformation: fact-checks (see also Nyhan & Reifler, 2010; Wood & Porter, 2018). Fact-checks are typically short, factual messages that check the veracity of statements to arrive at a verdict of the (un)truthfulness of information. They may be effective as they rely on short, simple, and factual messages that forward an unequivocal conclusion about truthfulness (Lewandowsky et al., 2012). Although some studies have indicated that such messages can lead to reactance (e.g., Thorson, 2016), more recent and meta-analytic research has shown that fact-checks overall have a positive effect on correcting misinformation (e.g., Chan et al., 2017).

For the first study, we look at the effects of exposure to both misinformation and corrective information presented in response to false information. As citizens with more pronounced levels of distrust are more likely to accept misinformation (e.g., Zimmermann & Kohring, 2020) and in line with findings that citizens with populist attitudes are more likely to distrust established information (e.g., Schulz et al., 2020), we expect that misinformation forwarding an anti-establishment narrative has the strongest effects for distrusting and populist audience segments. Here, we look at the effects on both the credibility of and agreement with false statements. In line with Schaewitz et al. (2020), we understand credibility as the assessment of the "truth value" of a (news) item (see also Lewandowsky et al., 2012). Although the concept of credibility is multifaceted, as it may involve a complex interaction between evaluations of the source, recipient, and message characteristics (Wathen & Burkell, 2002), we aim to measure credibility as the overall evaluation of the credibility of the news item shown to participants. The level of agreement, the second dependent variable, was measured to map the effects of (un)corrected misinformation on message-congruent beliefs. In line with previous research, we expect that misinformation may mostly influence the beliefs of recipients with congruent prior perceptions (e.g., Schaewitz et al., 2020).

In this case, as the misinformation message used in this study forwards a populist anti-establishment narrative, higher levels of populist attitudes, fake news perceptions, and media distrust should make misinformation more persuasive. In line with research demonstrating that these audience segments are more likely to reject or counter-argue fact-checks (Nyhan & Reifler, 2010), the opposite may be expected for exposure to fact-checks. We specifically introduce the following hypotheses:

> H1: People with more pronounced levels of populist attitudes (a), media distrust (b), and fake news perceptions (c) are more likely to agree with misinformation than accurate information.

> H2: People with more pronounced levels of populist attitudes (a), media distrust (b), and fake news perceptions (c) are less likely to be affected by fact-checks in their credibility ratings and agreement with statements emphasized in misinformation than people with less pronounced populist attitudes, distrust, and fake news perceptions.

4.2. Data Collection

This study relies on a survey-embedded experiment in the US for which data collection was outsourced to an international research agency. The design can be summarized as a 2 (misinformation: present versus absent) × 2 (fact-checking: present versus absent) between-subjects factorial design. Participants were recruited by Kantar Lightspeed, an international research agency with a large and diverse global database of survey participants. A total of 728 participants completed the study. The composition of the sample closely reflects the US population in terms of age, gender, education, region, and political preferences (differences between sample and population composition fall within a 10% deviation).

First, all participants saw misinformation on crime rates and immigration (i.e., stating that crime rates were increasing due to rising immigration), and, depending on the condition they were randomly allocated to, saw a fact-check that corrected the misinformation (the fact-check came from an independent established source, PolitiFact). The misinformation connected immigrants to alleged rising crime rates (this was false information, as crime rates in the US were decreasing at the time of data collection) and stated that violent crimes increased rapidly due to the threat coming from immigrants. The misinformation condition falsely depicted this situation as a threat to the native population. The fact-check used factual evidence, objective knowledge, and expert analyses to refute this misinformation. Relevant to this study, the fact-check can be regarded as an established source of information: It comes from an independent source that is part of elite media. In this study, we thus contrasted alternative information (disinformation framed with a clear partisan de-legitimizing agenda) to established information (the fact-check). Item measures for the two dependent variables credibility and issue agreement are included in Section A of the Supplementary File. The conceptualization and measurement of the moderators are also described in the Supplementary File.

4.3. Findings of Study 1

We conducted OLS-regression models in which we assessed the direct and interaction effect of misinformation and exposure to the fact-check (versus unrefuted misinformation) and the three perceptions on (a) issue agreement with misinformation and (b) the credibility of misinformation. The central expectation is that people with more pronounced antagonist beliefs related to established information and elite sources would (a) perceive misinformation as relatively more credible and established (authentic) information as less credible whilst they (b) resist the corrective information coming from a fact-checking source.

For issue agreement, the findings indicate that people with higher levels of populist attitudes (B = 0.23, β = 0.22, SE = 0.04, p < 0.001), media distrust (B = 0.20, β = 0.21, SE = 0.06, p = 0.001), and fake news perceptions (B = 0.16, β = 0.17, SE = 0.06, p = 0.010) are significantly more likely to agree with misinformation compared to accurate information. This offers support for H1, H2, and H3: Disenchanted segments of the audience are more likely to disregard established information and turn to misinformation instead. However, these prior beliefs did not condition the effects of exposure to a corrective message. Issue agreement with false statement was lowered by fact-checks irrespective of populist attitudes (B = −0.02, β = −0.04, SE = 0.08, p = 0.777), media distrust (B = 0.15, β = 0.24, SE = 0.12, p = 0.209), and fake news perceptions (B = −0.15, β = −0.22, SE = 0.12, p = 0.234). This does not offer support for H1, H2, and H3. However, in line with the general thesis that disenchantment corresponds to a lower tendency to accept established information, we do find that these distrusting beliefs *increase* the credibility of false information compared to factually accurate information from established information sources.

Turning to our second dependent variable—the credibility of the misinformation article—we find exactly the same: Populist attitudes (B = 0.11, β = 0.12, SE = 0.04, p = 0.005), media distrust (B = 0.14, β = 0.17, SE = 0.06, p = 0.024), and fake news perceptions (B = 0.18, β = 0.21, SE = 0.06, p = 0.004) are all related to a higher credibility of misinformation compared to authentic information. Hence, in support of H1, H2, and H3, disenchanted citizens (i.e., those with populist attitudes or fake news perceptions) find established sources of information less credible. However, there are again no significant two-way interaction effects between exposure to fact-checks and populist attitudes (B = −0.12, β = −0.22, SE = 0.08, p = 0.128), media distrust (B = −0.01, β = −0.02,

SE = 0.13, *p* = 0.935), or fake news perceptions (*B* = 0.09, *β* = 0.15, *SE* = 0.13, *p* = 0.482).

4.4. Conclusion of Study 1

The central expectation of this study was that media effects and responses to stimuli coming from established sources of information are perceived differently by people who distrust or oppose established information compared to people with more trust in elite sources. We only find partial support for this expectation in the context of corrected misinformation on immigration and crime rates. Ceteris paribus, we found that higher levels of populist attitudes, media distrust, and fake news perceptions resulted in lower levels of credibility and issue agreement with authentic information presented as coming from an established source. Misinformation, however, was more credible for participants that distrusted the established political or media order.

Our findings do not support the expectation that fact-checking information responding to misinformation is rejected by citizens with higher levels of populist attitudes, media distrust, and fake news perceptions. This is in line with recent empirical evidence showing that corrective information can work across the board and even persuade strong partisans (e.g., Nyhan et al., 2019). Adding to this literature, we show that different indicators of disenchantment are not causing resistance to fact-checking information, revealing the potential of corrective information among different segments of the population.

Yet, these conclusions have to be interpreted with care. In an experimental and short-term set-up, fact-checks may simply be accepted as they give a direct indication and instruction to participants, who are asked to evaluate the information only minutes after reading a correction. In addition, this first study showcased a highly polarized topic—immigration and crime rates—for which people may already have formed strong opinions that are difficult to alter by exposing them to just one or two messages. It is interesting to assess to what extent the findings of this study are transferable to a "most different" topic. For this reason, we will focus on an issue owned by the left-wing in the second study: climate change. In addition, we will use a less strong manipulation of the independent variable. Rather than contrasting misinformation to authentic content and corrected to uncorrected falsehoods, we simply manipulate the type of generic news frame used to cover climate change: a thematic versus episodic frame.

5. Study 2: Responses to Thematic and Episodic Climate Change News

5.1. Framing Effects Theory

Just like misinformation is regarded as a problematic trend in society, climate change denialism and resistance toward interventions intended to fight global warming is an alarming development. The media play a role in cultivating support for or opposition to climate change interventions by the framing of these issues (e.g., Feldman & Hart, 2018). Here, we understand framing as patterns of interpretation or organizing ideas that guide recipients' interpretation of events by offering a specific framework for interpretation (e.g., de Vreese, 2005; Entman, 1993; Scheufele, 1999). The term "framing" can be used in two different ways: It can refer to the patterns of interpretation in texts (frames in communication) or individual frames held by recipients (frames in thought; see Chong & Druckman, 2007; Scheufele, 1999). Framing effects can generally be understood as the influence of frames in communication on frames in thought (Chong & Druckman, 2007). Hence, when exposure to patterns of interpretation in a communication text influences people's understanding of a given situation and their attitudes toward the situation, we can speak of *framing effects* (Druckman, 2001). For this study, we specifically focus on the effects of two generic frames: episodic versus thematic framing. Such frames differ in the emphasis on individual-level cases versus more generic information (Iyengar, 1991). Specifically, episodic frames may focus more on exemplars, individual cases, or personal stories that would exemplify broader issues. Thematic frames, on the other hand, offer more abstract background information and give insights into wider trends and the overall socio-political embedding of issues (e.g., Gross, 2008; Iyengar, 1991). Both of these frames are commonly used in the news reporting of established outlets, which makes it a relevant case to consider in light of this article: Would people who oppose or distrust established media and institutions also be more likely to reject the different emphasis made in these frames, which may explain contradictory findings based on these different treatments found in extant research?

Extant literature suggests that thematic frames promote more society-level responsibility attributions because of their emphasis on society-wide implications and embeddings of issues, whereas episodic frames that showcase individuals and exemplars promote responsibility attributions on the individual level (Iyengar, 1991). However, it should be regarded that the evidence supporting this thesis is not convincing (see also e.g., Springer & Harwood, 2015). A lack of support for differential framing effects in replications of Iyengar's original experiments may be due to confounding factors in the experimental design or the conditionality of effects (Springer & Harwood, 2015). In line with this latter explanation, this study aims to establish whether inconsistent effects of thematic versus episodic framing effects can be explained by people's overall levels of distrust and cynicism toward the established media and climate change. Similar to the first study, we aim to explore whether individual-level indicators of disenchantment and distrust toward the source and content of the message may explain inconsistent effects resulting from experimental

research that exposes participants to seemingly authentic news messages. In line with framing effects literature, we generally expect that framing effects are strongest when the frame in communication is more mentally accessible, relevant, and applicable for certain individuals (Chong & Druckman, 2007). Extending this argument, climate change communication focusing on individual cases or statistical information promoting a pro-climate change narrative may be less relevant and mentally accessible for recipients with skeptical beliefs. Hence, such communication does not resonate with their prior beliefs. Skeptical and distrusting participants should therefore be less likely to believe frames emphasizing that climate change is an urgent threat. To measure this mechanism, we focus on two different outcome variables of framing effects: credibility and issue agreement. We specifically expect that conspiracist thinking, distrust, and skepticism related to the issue of climate change make frames on this issue less personally relevant. This consequentially should result in a weaker affinity between frames in communication and frames in mind, which we operationalize as the agreement with the presented frame and the credibility of the communication text. Using slightly different indicators of disenchantment and distrust related to the topic of the second study—climate change communication—we expect that participants with more pronounced levels of conspiracy beliefs (H1), media distrust (H2), and climate skeptic beliefs (H3) report lower levels of credibility and are less likely to agree with media content presented as established information than people with less pronounced cynical or distrusting beliefs.

5.2. Data Collection

We rely on an experimental dataset based on an online survey experiment among US participants (N = 738). Data were collected by the international research agency Dynata. As part of the experiment, participants were randomly exposed to either an episodic frame of climate change developments (i.e., focusing on exemplars and individual cases of a community severely hit by the consequences of global warming) or a thematic frame (i.e., focusing on statistics and contextual base rate information to depict the problematic trend of global warming's consequences). The different conditions were kept as similar as possible regarding all other factors. The two dependent variables and moderators of Study 2 are included and explained in Section B of the Supplementary File.

5.3. Results of Study 2

First of all, we assessed whether the effects of thematic versus episodic frames on agreement with the news media's message would be contingent upon conspiracy beliefs (H1) or climate change denialism (H3) and media distrust (H2). We expected weaker effects and a lower credibility rating among participants with more cynical or distrusting views, which we measured as lower levels of agreement and perceived accuracy/trustworthiness. In line with our expectations, we found that the more participants supported denialism and conspiracies related to climate change the more they rejected the arguments of the news message by indicating lower levels of agreement with the core statements made in the message (B = −0.21, β = −0.21, SE = 0.03, p < 0.001). This is in line with H1 and H3. In addition, higher levels of mainstream media trust corresponded to more acceptance of the message (B = 0.42, β = 0.47, SE = 0.03, p < 0.001). In support of H2, the more people distrusted the established media the more they rejected the arguments of the message. Contradicting the tentative expectation that this pattern would be reversed for alternative media trust, we find similar results for alternative media distrust, albeit with smaller effect sizes (B = 0.15, β = 0.16, SE = 0.04, p < 0.001).

If we focus on the interaction effect between exposure to a thematic (versus episodic) frame and climate change denialism and conspiracies, we do not find a significant effect (B = 0.13, β = 0.13, SE = 0.07, p = 0.073). Yet, we do see that higher levels of distrust in established information channels correspond to higher levels of message rejection than lower levels of distrust (B = −0.14, β = −0.17, SE = 0.07, p = 0.047). This supports H2. Although the effects are reversed for trust in alternative media, the interaction effect between trust in alternative media and exposure to thematic frames is not significant (B = 0.14, β = 0.15, SE = 0.09, p = 0.106).

Turning to our second dependent variable—perceived credibility of the news item/trustworthiness—we see a strong relationship between support for conspiracies/denialism and the perceived trustworthiness/credibility of the news item (B = −0.30, β = −0.37, SE = 0.03, p < 0.001). This means that, in support of H1 and H3, the more participants perceive that climate change is a hoax or non-issue the more likely they perceive the news message as inaccurate, deceptive, or even fake news. We also find support for H2: The more participants distrust the mainstream media as a source of information, the less they perceive the news message as authentic or accurate (B = −0.33, β = −0.45, SE = 0.03, p < 0.001). We do not find such a relationship for trust in alternative sources of information (B = 0.06, β = 0.08, SE = 0.03, p = 0.057).

The findings do not offer support for significant interaction effects between exposure to thematic versus episodic frames and climate change denialism/conspiracies (B = 0.05, β = 0.07, SE = 0.06, p = 0.354) or media (dis)trust (B = 0.09, β = 0.13, SE = 0.06, p = 0.111). Contrary to our expectations, existing levels of cynicism related to the content (denialism/conspiracies) or source of the message (trust in established media) did not moderate the effects of differential framing conditions on the perceived accuracy or trustworthiness of the message.

5.4. Conclusion of Study 2

We found support for this article's thesis that existing levels of distrust and cynicism related to the source and the content of information corresponds to lower levels of perceived credibility and agreement. This means that stimuli presented as mainstream or established news may be rejected by participants who do not support the perspective of the message or distrust the source of information it allegedly comes from.

These patterns are not consistently found when we also take the type of manipulation into account. In the context of this study, we do not find that the effects of exposure to thematic versus episodic framing are different for participants with a tendency to oppose the mainstream media or the dominant consensus framing of climate change communication. This suggests indifference among segments of the audience that do not support the message's arguments or source: They already show a stronger tendency to find the message incredible, inaccurate, and untrustworthy, which may also indicate that they are not sensitive to nuances in the message's framing.

6. Conclusions

The current information ecology has been connected to worrisome developments such as mis- and disinformation, polarization, and increasing distrust in established media and information sources (e.g., Bennett & Livingston, 2018; Van Aelst et al., 2017; Waisbord, 2018). Arguably, omnipresent concerns about false information and accusations of fake news in the political domain (e.g., Egelhofer & Lecheler, 2019) have contributed to eroding levels of trust in sources of information that are assumed to be impartial, neutral, and independent. Against this backdrop, media effect studies conducted in communication science and adjacent fields that expose people to (manipulated) information coming from allegedly neutral sources may face an important challenge: These sources may not be regarded as trustworthy by all participants, which may result in unanticipated findings and contradictory conclusions.

To better understand how increasing levels of distrust and disenchantment may explain unanticipated findings in media effect studies, we relied on two experimental studies in which we mapped the biasing impact of disenchantment on credibility and agreement with established information sources. Considering that populist attitudes have been associated with distrust and avoidance of established information (e.g., Fawzi, 2019; Müller & Schulz, 2021), and taking into account that fake news perceptions may lead to the rejection of established information (e.g., Hameleers et al., 2021), we zoomed in on (a) populist attitudes, (b) media distrust, and (c) fake news perceptions or related conspiracy beliefs as attitudinal filters that can lead to the rejection of established information.

Based on Study 1—an experiment investigating the effects of misinformation and fact-checking—we find mixed support for our general expectation. In line with previous findings, we show that false information is relatively more persuasive and credible for distrusting news users (Zimmermann & Kohring, 2020). Yet, we do not find that corrective information is processed differently by disenchanted segments of the audience: Fact-checks are equally effective for people with more or less pronounced populist attitudes, fake news perceptions, and media (dis)trust. This confirms extant literature demonstrating that fact-checks can correct misperceptions across the board (e.g., Nyhan et al., 2019) but contradicts research pointing to strong conditional effects of such corrections based on confirmation biases (e.g., Thorson, 2016). Based on these findings, we show that disenchanted segments of the population may not clearly distinguish between authentic and deceptive information and that they are less resilient to misinformation. However, they do not reject corrections coming from established sources of information and are thus open to communication that challenges their distrusting views on the media and society. This is in line with earlier research demonstrating that fact-checks have an effect in lowering misperceptions, even among partisan audiences (e.g., Wood & Porter, 2018).

In a different context of climate change information, Study 2 on the effects of thematic versus episodic framing confirms these findings: We find that conspiracy beliefs, climate change denialism, and media distrust correspond to lower levels of credibility and agreement with established information sources, which indicates that these indicators of disenchantment correspond to a higher likelihood for citizens to resist information presented as published by mainstream news sources. However, people supporting conspiracies or distrusting the media did not respond differently to the stimuli than more trusting news users, which indicates that disenchantment may not result in unanticipated findings in the context of an emphasis framing study.

How can these findings enlighten confusion about media effects in an era of factual relativism? First of all, we should not assume universal levels of credibility, trustworthiness, and message acceptance for media effect studies that use (representative) panels of respondents. When exposing people to seemingly neutral "news" stories or messages, it is important to consider that distrusting and disenchanted segments of the population may find them less trustworthy and neutral than others. Controlling for this factor or acknowledging these individual differences can help to explain why (mis)information is found credible by some news users but rejected or counter-argued by others. Disenchantment may especially be an important factor to consider when comparing information coming from different sources (i.e., a mainstream versus alternative news source), or when assessing differences between authentic and factually correct information versus inauthentic and incorrect information.

On a more optimistic note, varying the frame of communication does not result in backfire effects of communication among distrusting segments of the audience. Hence, although trends toward misinformation, fragmentation, and eroding trust in established information are problematic for society at large, these perceptions may not lead to strong reactance when it comes to framing effects. At the very least, null effects of framing manipulations found in this study were not driven by existing levels of disenchantment among participants. Although it reaches beyond the scope of the empirical data presented here, we can also interpret these findings in light of overall fatigue and lack of systematic processing in media effect studies: When participants are forcefully exposed to information that they may not consume in real life, we may fail to accurately simulate the conditions under which people process information in real life. Another way to enlighten confusion, then, is to conduct media effect studies in more realistic information settings, taking into account people's biases, motivation, and personalized selective exposure environments.

The current study and the cases explored here come with limitations. First, we only looked at two cases in partisan US settings, and it remains to be tested how these findings are transferable to other settings, such as multiparty systems in which partisan cleavages and media distrust are less prevalent. Second, we operationalized disenchantment mostly in the context of factual relativism and a right-wing populist way of rejecting information from established institutions (e.g., Fawzi, 2019; Müller & Schulz, 2021; Schulz et al., 2020). There may be different dimensions of disenchantment and distrust that we did not explore in this article, but which would also be relevant to consider when explaining unanticipated findings in media effect studies. Third, our studies did not explicate the source of (established) information, but only very generally mentioned that participants were shown information published recently in the news (the source was not mentioned). It may be the case that using more explicit source cues from actual news media channels may cause more resistance among disenchanted and distrusting audience segments. However, we did not find this for the fact-check manipulation, as distrusting and trusting participants were equally likely to accept corrective information. Despite these limitations, this study illustrates how problematic trends related to eroding trust and misinformation in digital democracies may spill over to media effect studies that may operate under an assumption that is no longer valid in a post-truth world: That all media users are equally likely to accept the authenticity and trustworthiness of seemingly neutral information.

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Conflict of Interests

The author declares no conflict of interests.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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Article

Complicating the Resilience Model: A Four-Country Study About Misinformation

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Abstract
The resilience model to disinformation (Humprecht et al., 2020, 2021) suggests that countries will differ in exposure and reactions to disinformation due to their distinct media, economic, and political environments. In this model, higher media trust and the use of public service broadcasters are expected to build resilience to disinformation, while social media use and political polarization undermine resilience. To further test and develop the resilience model, we draw on a four-country (the US, Canada, the UK, and France) survey conducted in February 2021. We focus on three individual-level indicators of a lack of resilience: awareness of, exposure to, and sharing of misinformation. We find that social media use is associated with higher levels of all three measures, which is consistent with the resilience model. Social media use decreases resilience to misinformation. Contrary to the expectations of the resilience model, trust in national news media does not build resilience. Finally, we consider the use of public broadcasting media (BBC, France Télévisions, and CBC). The use of these sources does not build resilience in the short term. Moving forward, we suggest that awareness of, exposure to, and reactions to misinformation are best understood in terms of social media use and left–right ideology. Furthermore, instead of focusing on the US as the exceptional case of low resilience, we should consider the UK as the exceptional case of high resilience to misinformation. Finally, we identify potential avenues to further develop frameworks to understand and measure resilience to misinformation.

Keywords
Canada; comparative politics; France; misinformation; news media; political ideology; social media; United Kingdom; United States

Issue
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1. Introduction

The malicious promotion of misinformation has become an international concern for researchers and citizens (Freelon & Wells, 2020; Guess & Lyons, 2020; Tenove, 2020), particularly in the 2016 US election and subsequent elections and referendums (Allcott & Gentzkow, 2017; Nisbet et al., 2021). Globally, citizens have expressed significant levels of concern about misinformation and its political and societal effects (Centre for International Governance Innovation & Ipsos, 2019; Newman et al., 2018). Governments have pursued a wide range of policies to address these risks (Barrett et al., 2021; Tenove, 2020; Yadav et al., 2021). Concerns further intensified with the World Health Organization and researchers identifying an “infodemic” of health misinformation during the global Covid-19 pandemic (Gallotti et al., 2020).

Misinformation is widely understood as “a claim that contradicts or distorts common understandings

of verifiable facts" (Guess & Lyons, 2020, p. 10). Misinformation is sometimes contrasted with disinformation, which refers to false or deceptive claims that are intended "to harm an individual, social group, country or organization" (Wardle & Derakhshan, 2017, p. 20). In this article, we will primarily use the term misinformation, as it is often difficult to know the intent of content disseminators and thus distinguish disinformation from misinformation, though we recognize intentional falsehoods and deception are particularly problematic (Freelon & Wells, 2020; McKay & Tenove, 2021).

Debates persist about when and how misinformation in media environments might be harmful to individuals and democratic societies. Focusing on individual susceptibilities to misinformation, researchers have examined factors that may increase exposure to misinformation, such as their political ideology or age (Guess et al., 2018; Jones-Jang et al., 2020; Ognyanova et al., 2020). They have also proposed factors that influence how people will respond when they do encounter misinformation, including whether they will believe it or further share it (Chadwick & Vaccari, 2019; Valenzuela et al., 2019, 2021; Wagner & Boczkowski, 2019). This research has largely focused on individuals in single countries or experimental settings, rather than comparing cross-national differences. This research also does not consider macro-level factors, such as differing political and media systems, and how they may impact experiences of misinformation.

Humprecht et al. (2020) introduced the resilience model to examine cross-national vulnerability to misinformation. The model draws on previous theoretical and empirical studies to propose a set of political, media, and economic factors that may predispose citizens of a given country to be more or less resilient to the problem of disinformation. They used self-reported exposure as the sole dependent variable and used macro-level factors as predictors. The survey question asked was as follows: "In the last week, which of the following have you personally come across? Stories that are completely made-up for political or commercial reasons?" (Humprecht et al., 2020, p. 511). The data were gathered as part of the *2018 Digital News Report* (Newman et al., 2018). In subsequent work, Humprecht et al. (2021) tested willingness to share, comment, and like false news stories as their dependent variable and used individual-level factors as predictors. The two studies offer discrepant findings regarding the cross-national applicability of the resilience model. For instance, while the 2020 study finds that trust in media increases resilience (lower exposure), the 2021 study partially rejects that hypothesis. We believe these discrepant findings can be partially attributed to the different measures of resilience they use.

We seek to extend this analysis by using four-country survey data and by testing resilience to misinformation using three measures. Scoring high on these three measures would be interpreted as low resilience to misinformation. Two measures are similar to those used by Humprecht et al. (self-assessed exposure to and sharing of misinformation), while a third measure reveals whether individuals have encountered (perhaps unknowingly) several prominent misinformation narratives. The third measure is important for moving scholarship beyond the subjectivity related to current survey-based measures of misinformation. The first and third measures are focused on Covid-19, whereas Humprecht et al.'s (2020, 2021) work assesses any type of misinformation. The focus on Covid-19 is important given that the 2022 *Digital News Report* establishes Covid-19 as the most popular topic for misinformation in Europe and North America (Newman et al., 2022). By comparing four countries, we can investigate whether individual-level factors (e.g., individual trust in news media) have different effects in the context of differing macro-level factors (e.g., the significant role of a public service broadcaster). Our aim was to resolve discrepant findings and distinguish elements of the resilience model that apply generally from elements that may need modification.

2. Literature Review

2.1. Defining Misinformation

Citizens' poor knowledge of political issues and institutions is a longstanding concern, particularly for democracies. An ignorant citizenry is more likely to vote and act counter to their interests, to be vulnerable to manipulation by powerful actors, and to allow their political norms and institutions to atrophy (Delli Carpini & Keeter, 1996). In recent years, concern has focused on misinformation, generating a vast literature discussing how to conceptualize and operationalize misinformation and its impacts (Ha et al., 2021).

Empirical research on misinformation has used different methods to measure its reach, including self-assessed exposure to misinformation (Chadwick & Vaccari, 2019; Jones-Jang et al., 2020; Koc-Michalska et al., 2020; Newman et al., 2018, 2022), social media user engagement with non-credible or "fake" news sources (Allcott et al., 2019; Guess et al., 2018; Ognyanova et al., 2020), and large-scale computational detection of false news items on social media (Jang et al., 2018). An analysis of US Twitter users found that approximately 1% of accounts are responsible for consuming about 80% of false news on that platform (Grinberg et al., 2019). Exposure to misinformation needs to be considered in conjunction with what people do when they encounter it, such as whether they believe false claims (Anspach & Carlson, 2020; Shin & Thorson, 2017; Valenzuela et al., 2019, 2021) and share them with others (Humprecht et al., 2021; Rossini, Baptista, et al., 2021; Rossini, Stromer-Galley, et al., 2021; Valenzuela et al., 2019, 2021).

2.2. Resilience to Misinformation

What makes some societies more vulnerable or resistant to misinformation? Researchers have identified several

macro-level variables of media systems that might increase susceptibility, including the absence of strong public service media (Aalberg & Cushion, 2016), high political polarization (Allcott & Gentzkow, 2017), low public trust in news media (Nielsen & Graves, 2017), heavy public reliance on social media for news (Shehata & Strömbäck, 2021), and highly fragmented media ecosystems (Shin & Thorson, 2017).

Building on this research, Humprecht et al. (2020) developed a robust framework for examining resilience to disinformation. Resilience to disinformation is defined as "a structural context in which disinformation does not reach a large number of citizens" and, when it does reach citizens, "people will be less inclined to support or further distribute such low-quality information, and in some cases, they will be more able to counter that information" (Humprecht et al., 2020, p. 498). They outline characteristics of the political, media, and economic environments that impact resilience. These structural variables have individual-level correlates, e.g., trust in media or consumption of public service broadcasting (PSB) can be assessed at country and individual levels. They further point out that:

> To understand when and why a person is willing to believe or share disinformation, we need to know more about how personal characteristics and attitudes interact with the structural context in which people receive and consume this kind of low-quality or even false information. (Humprecht et al., 2020, p. 511)

They have tested their model in two different datasets using two measures: They first analyzed self-assessed exposure of individuals aggregated to the country level, focusing on the macro-level analysis of national differences, such as the market share of public television in the country, Varieties of Democracy (V-Dem) scores on societal polarization, and World Bank estimates of the number of online users in a country (Humprecht et al., 2020). Their initial testing found that some hypothesized factors did not predict levels of self-reported misinformation at the country level, including populist communication and the strength of public service broadcasters. Table 1 summarizes their expectations as well as their findings. The second column is the expected relationship to measures of misinformation. All of the media environment factors are expected to build resilience, which means these items should be negatively related to measures of misinformation. For example, a country with high media trust will be resilient to misinformation and, thus, their citizens are less likely to report exposure and willingness to share misinformation. All of the political and economic environment factors are expected to decrease resilience,

Table 1. Summary of resilience model and findings.

	Expected correlations	Findings about resilience regarding exposure (Humprecht et al., 2020)	Findings about resilience regarding willingness to share, like, and comment (Humprecht et al., 2021, Model 3)
Political Environment			
Populist communication	Negative	Not significant	Negative and significant in Germany, Belgium, and the UK; not significant or not tested elsewhere
Societal polarization	Negative	Not significant	
Extreme ideology	Negative		Positive and significant in Belgium; negative and significant in France and Germany; not significant elsewhere
Media Environment			
Trust in news media	Positive	Negative and significant	Negative and significant in the UK; not significant elsewhere
Strength of PSB	Positive	Not significant	Positive and significant in France; not significant elsewhere
Shared media	Positive	Not significant	
Mainstream news media consumption	Positive		Positive and significant in Germany and the US; not significant elsewhere
Economic Environment			
Size of online media market	Negative	Negative and significant	
Social media news consumption	Negative	Negative and significant	Negative and significant in all models

Note: Blanks in the above table indicate the factor was not tested in the regression models.

which means these items should be positively related to measures of misinformation. For example, a country with high social media news consumption will be less resilient to misinformation and, thus, their citizens who use social media are more likely to report exposure and willingness to share misinformation.

To further probe the potential relationship between the individual-level correlates of these structural factors, their second study analyzed individuals' willingness not to like, share, and comment on fake news stories (Humprecht et al., 2021). In this study, the macro-level factors were changed to individual-level measures. For instance, the market share of public service media in a country may not accurately predict resilience, but the use of public service media at an individual level may do so. They found the direction of the relationships between hypothesized factors and measures of resilience differed across countries (Table 1).

While the findings differed depending on their measures and data source, one finding is clear and consistent: The use of social media for news increases exposure to and sharing of misinformation. In other words, social media use decreases resilience to misinformation. For other factors, the direction of the relationship depends on the country and the measure of exposure versus sharing. For example, in the UK, trust in mainstream news media decreased the willingness to share, like, or comment on misinformation, but the relationship was not significant in other countries. In France, the strength of public service media increased the willingness to share, like, or comment on misinformation, but the relationship was not significant in other countries. This finding is in contrast to their expectation that this relationship would be negative. In other words, they expected PSB would increase the resilience of a country, which would be supported by negative correlations between using PSB media and measures of misinformation. Instead, France shows a positive correlation; in other countries, the relationships are not statistically significant. Comparing exposure to and sharing of misinformation, trust in news media negatively relates to exposure but was not a significant factor for sharing misinformation (except in the UK, as noted above). Their research suggests the findings are country-specific (as noted above). As a further example of country-specific findings, ideological extreme is positive and significant in Belgium, negative and significant in France and Germany, and not statistically significant in Switzerland, the UK, and the US. The findings are discrepant with their theoretical model, which suggests the relationship should be positive, rather than negative. Given the discrepant findings between the two studies and discrepancies between their theory and findings (Table 1), we seek to offer some resolution by studying both measures with the same approach (individual-level characteristics) and same dataset, and testing country-specific models for the UK, the US, France, and Canada. We propose specific hypotheses when prior research establishes factors that may be significant.

2.3. Media Trust and Public Service Usage

Distrust in the news media will increase motivation to use alternative sources, which are more likely to publish misinformation, thus increasing people's exposure to misinformation and decreasing resilience (Humprecht et al., 2021). In contrast, trust in mainstream media would increase their use of this media and thus increase resilience to disinformation. We account for the level of trust in mainstream news media but, given the findings from prior research (Table 1; see also Valenzuela et al., 2019, 2021), we do not offer a specific hypothesis for this variable. We extend research by exploring the role of media trust in news media in awareness of false news stories about Covid-19.

Previous research also finds that exposure to misinformation varies with the quality of individuals' specific media diets (Benkler et al., 2018). Jamieson and Albarracin (2020), for instance, found that consumption of mainstream US media sources (e.g., NBC News, *The New York Times*) was more likely to be correlated with holding correct beliefs about Covid-19, while consumption of conservative partisan media such as Fox News was correlated with belief in misinformation about the spread and lethality of the virus. Similarly, Guess et al. (2019) find that Americans with the most conservative news diets were significantly more likely to visit fake news websites than those who relied on non-partisan or liberal news sources.

Humprecht et al. (2021) assess the role of country-specific media outlets in engagement with misinformation, dividing the list into public broadcasters, more established press, and alternative media outlets. We consider the use of public service media in the UK (BBC), France (France TV), and Canada (CBC). According to the *Digital News Report*, 36% of France respondents used France Télévisions (public broadcaster; Newman et al., 2022). In Canada, 31% of respondents used CBC (public broadcaster) and 23% used CBC news online (Newman et al., 2022). For the UK, 50% of respondents used BBC (TV and radio) and 43% used BBC News online. Humprecht et al. (2020, 2021) look at country-specific public broadcasting sources but, in their multivariate models, the use of these sources is not connected to exposure to and sharing of misinformation. Indeed, in France, the relationship was contrary to the expectations outlined in the resilience model. Given the null findings from prior research (Table 1), we do not offer a specific hypothesis for this variable.

Humprecht et al. (2020, 2021) find that reliance on social media for news consumption increases exposure to disinformation. This finding is consistent with the argument that social media is a major amplifier of misinformation (Shin & Thorson, 2017). According to Shehata and Strömbäck (2021, p. 140), while "following political news in traditional news media consistently has positive effects on political and current affairs learning," using social media for political news does not have the same

effect. Instead, social media represent a "qualitatively different type of news source—most likely promoting other forms of learning than traditional news media"; with news consumption on social media reflecting more "personalized, issue-specific, and attitude-consistent" learning patterns (Shehata & Strömbäck, 2021, p. 141). We extend their research by exploring awareness of false news stories about Covid-19.

H1: Using social media to follow news organizations will positively relate to (a) awareness of false news stories, (b) exposure to misinformation, and (c) sharing misinformation.

2.4. Political Ideology

Political polarization is an important driver of exposure to misinformation at both the country and individual levels (Allcott & Gentzkow, 2017; Humprecht et al., 2020). Ordinary users are a major source of the spread of misinformation, leading some to refer to their "participatory" role in disinformation campaigns (Starbird et al., 2019). Along these lines, misinformation is more likely to be distributed by people in an effort to signal their beliefs or group allegiance, rather than because they sincerely believe the claims to be true (Del Vicario et al., 2016; Marwick, 2018; Wardle & Derakhshan, 2017). Indeed, scholars have found that strong partisans are more likely to both selectively share and demand information that is congruent with their ideology (Jennings & Stroud, 2021; Osmundsen et al., 2021; Shin & Thorson, 2017). Guess and Lyons (2020, p. 20) note that while large-scale studies indicate that exposure to misinformation is limited, these findings may obscure "differences between subgroups; people with strongly partisan news consumption habits may be much more likely to encounter and consume pro-attitudinal misinformation." Sub-group polarization may not be symmetrical in its impacts on resilience. Studies suggest right-wing citizens are more likely to consume and deliberately share misinformation (Chadwick & Vaccari, 2019; Guess et al., 2019).

We consider ideology in terms of right-wing and left-wing, rather than exploring ideological extremes (Humprecht et al., 2021) or populist communication (Humprecht et al., 2020), which are complicated concepts to adapt to cross-national contexts. For example, as Humprecht et al. (2021) note, the US does not have a populist party and ideological polarization may be a greater issue with their two-party system, in contrast to other countries that have a populist party as well as multiple political parties (and citizens have more fluid party allegiances). Canada has a populist party (People's Party of Canada), but it has never won a seat in Parliament. Reflecting on this complicated phenomenon, Humprecht et al. (2021) find the relationship between misinformation and ideological extremism pulls in different directions in Belgium compared to France and Germany (Table 1). Other research found an extreme ideological viewpoint was not a significant predictor of sharing misinformation (Rossini, Stromer-Galley, et al., 2021). As such, we return to the left-right ideological framing (Valenzuela et al., 2019, 2021). Studies suggest right-wing citizens are more likely to consume and deliberately share misinformation in countries including the UK (Chadwick & Vaccari, 2019), the US (Guess et al., 2019), and Brazil (Rossini, Baptista, et al., 2021). We test these relationships in a multi-country sample and extend research by exploring awareness of false news stories.

H2: Right-wing ideological beliefs will be positively correlated to (a) awareness of false news stories, (b) exposure to misinformation, and (c) sharing misinformation.

2.5. Country Differences

Although more cross-national studies are needed, research suggests misinformation is a global problem (Newman et al., 2018, 2022). Nielsen et al. (2020) asked respondents in six countries (Argentina, Germany, South Korea, Spain, the UK, and the US) to report how much Covid-19 misinformation they have seen across different sources and platforms. A significant minority of respondents reported witnessing "a lot" or "a great deal" of Covid-related misinformation, and a third of respondents reported seeing large quantities of "bottom-up'' misinformation shared by ordinary users (Nielsen et al., 2020). In a cross-lingual analysis of false articles propagating Covid-19 misinformation in China, the US, India, Germany, and France, Zeng and Chan (2021, p. 14) found only Germany was "not dominated by politically-oriented misinformation during the study period." In the UK, survey research indicates approximately two-thirds of respondents reported sharing false or misleading information on social media (Chadwick & Vaccari, 2019). On the other hand, some research has found exposure to certain forms of misinformation is limited outside the US. As previously noted, Fletcher et al. (2018) found fake news sites in France and Italy reached less than 5% of the population, with most reaching just 1%.

The US is considered one of the worst countries in the world for misinformation (Benkler et al., 2018; Humprecht et al., 2020; Newman et al., 2018). Humprecht et al. (2020, p. 506) outline the case for the US being more vulnerable to disinformation due to "its large advertising market, its weak public service media, and its comparatively fragmented news consumption." Their follow-up study indeed finds Americans are more likely to react (like, share, and comment) to misinformation (see Humprecht et al., 2021, p. 8). They explain this finding in terms of greater social media use as well as stronger societal and political polarization. In terms of political polarization, the US is distinctive as a two-party system. As mentioned, existing scholarship establishes the importance of social media in exposure to and spreading of misinformation. Humprecht et al. (2021)

suggest the US is distinctive in terms of high social media consumption, but they did not include Canada in their study. According to the *Digital News Report* (Newman et al., 2022), Canadians have higher levels of adoption of many social media platforms including Facebook (US: 58%; UK: 62%; France: 61%; Canada: 68%) and YouTube (US: 58%; UK: 54%; France: 56%; Canada: 68%). As such, this would lead to Canadians, rather than Americans, being distinctive. The comparison of Canada and the US will help untangle the explanation of differences in terms of social media use versus political polarization.

Canada, France, and the UK are, when compared to the US, characterized by high levels of shared media use—that is, their media environments are comparatively unfragmented (Newman et al., 2021). These three countries are also characterized by relatively strong support for PSB, though France, similar to the US, has low levels of trust in news media (Newman et al., 2021). Finally, and crucially, France's media audiences are less culturally and politically polarized than those in the US (Humprecht et al., 2020; Newman et al., 2021). Following Humprecht et al. (2020), we expect these factors to strengthen resilience in these three countries (UK, France, and Canada), thereby establishing their classification as a distinct, high-resilience cluster, especially when compared to the US. In their clustering of countries, they are clear about the US distinctiveness but unclear about where France fits into their grouping.

> H3: Compared to other countries, the US respondents will report higher levels of (a) awareness of false news stories, (b) exposure to misinformation, and (c) sharing misinformation.

3. Methods

3.1. Sample

Our study draws on the results of a survey administered to an online panel by Lightspeed Kantar Group in February 2021. Our full sample includes 6,068 respondents from four countries: Canada (n = 1,568), the UK (n = 1,500), France (n = 1,500), and the US (n = 1,500). We employed quotas to ensure the composition of the online panel matched census data for each country. The survey matches the population characteristics of each country in terms of age, gender, and education. The survey was administered in both English and French. The project was approved (File No. 101856) in accordance with Canada's *Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans*.

3.2. Measures

To measure Awareness, we presented respondents with a set of summaries of false news stories. For each one, we asked respondents to indicate whether they were aware (1) or not aware (0). The news stories were identified as false by PolitiFact and the French organization AFP Fact Check. We focused on false news stories about Covid-19. The simultaneous global nature of the pandemic makes it an apt study for cross-national comparison. Of the three measures considered in this study (awareness of, exposure to, and sharing of misinformation), this is the strongest because it does not rely on respondents recognizing misinformation as false information. Our awareness measure instead assesses whether respondents encountered a misinformation narrative, regardless of whether they were aware it was misinformation. It is therefore not based on people's determination of the truth status of information they previously encountered. Of the three measures, this one does not rely on respondents' subjective diagnosis of information as being fake, false, or misleading. However, the other two measures are more closely related to Humprecht et al.'s (2020, 2021) measures. We asked:

> The following are stories circulated on social media over the past three months. For each story, please specify if you are aware of the story, whether or not you think it is true:
>
> - The Covid-19 vaccines contain toxic material.
> - The Covid-19 vaccine causes female sterilization.
> - The US Medical Association changed its views on hydroxychloroquine as a Covid-19 treatment.
> - Coca-Cola tested positive for Covid-19.
> - In December 2020, there was a major protest in Paris about the Covid-19 restrictions.

We added up the number of stories that respondents were aware of, creating a variable with a range of responses between 0 and 5 (α = 0.595). Figure 1 outlines the differences by country. The average for all respondents across all countries is 1.47 (*SD* = 1.36). For the US respondents, the average is 1.54 (*SD* = 1.45); for the UK, the average is 1.36 (*SD* = 1.38); for France, the average is 1.61 (*SD* = 1.28); and for Canada, the average is 1.37 (*SD* = 1.29). While we tried to choose stories that were relevant in all countries, the higher awareness in the US and France may relate to some of the false stories' geographic focus (Paris protests, US Medical Association).

To measure Exposure, we began the question series about misinformation with a definition: "The next questions will be about misinformation on social media. By misinformation, we mean false or misleading information." Then we asked, "In the past month, how often on social media have you seen someone share misinformation?" This measure assesses self-assessed exposure, rather than awareness of false stories about Covid-19. Finally, we asked whether the topic was the Covid-19 pandemic, US presidential election, another topic, or if they could not remember. Respondents could check all that applied. To complement the analysis of awareness

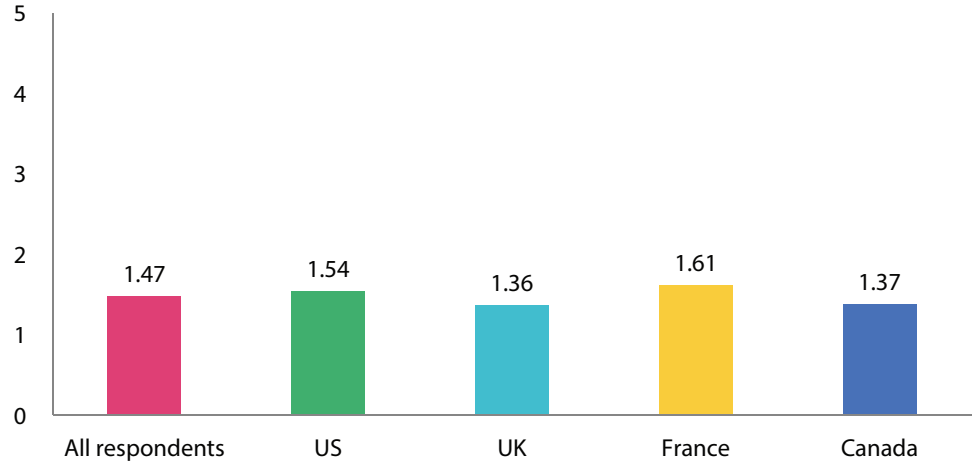

Figure 1. Awareness of false news stories about Covid-19.

of false news stories about Covid-19, we focus on respondents who identified the topic of misinformation as the Covid-19 pandemic. In terms of self-assessed exposure to misinformation about Covid-19, US respondents reported the lowest level of exposure (Figure 2); instead, they were far more likely to report misinformation about the US presidential election.

To measure Sharing, we asked respondents "Thinking about all the information that you have shared on social media, have you ever, even by accident, shared misinformation?" We changed the reference period to "ever" in this question because existing scholarship suggests this activity is very rare. Using the "past month" as a reference might lead to no reported cases. Furthermore, this longer time period enables a process in which people can share information but later, after weeks or months, realize the information was not correct. In other words, the information is vetted by credible news sources and later found to be false or misleading. Figure 3 outlines the differences in sharing of misinformation by country.

The measures of exposure and sharing are similar to Humprecht et al.'s (2020, 2021) measures. These types of measures have their limitations; in particular, they rely on respondents' ability to correctly identify misinformation as such. There is more subjectivity involved in this line of questioning. Furthermore, people who have higher media literacy may be more likely to identify misinformation as such, but this does not mean they are less resilient; instead, they have stronger skills at identifying false or misleading information. We offer these measures because they are closely related to Humprecht et al.'s (2020, 2021) work, thus enabling a direct comparison of results. As mentioned, they used a measure of exposure to "stories that are completely made-up for political or commercial reasons" (Humprecht et al., 2020, p. 511). These subjective measures are popular in this field of research. For example, in the 2022 *Digital News Report*, researchers used a (subjective) measure of exposure: "Have you seen false or misleading information about any of the following topics…Covid-19" (Newman et al., 2022, p. 26). Using similar subjective measures allows us to connect with existing scholarship in the field, but our third measure (awareness of false stories) provides an important supplement to move past the subjectivity related to prior measures.

Table 2 offers descriptive statistics and measurement details for predictor variables. The cross-national comparisons reveal significant differences in terms of political interest, identifying as right-wing, education, and confidence in national news media (media trust).

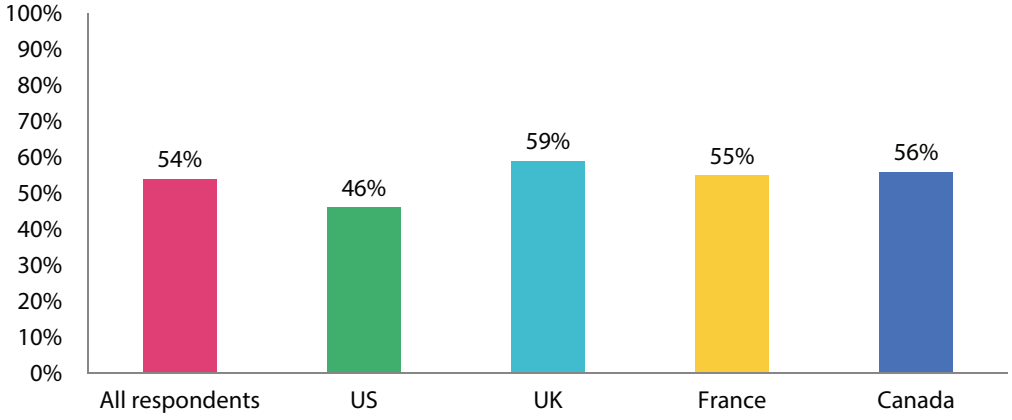

Figure 2. Self-assessed exposure to misinformation about Covid-19.

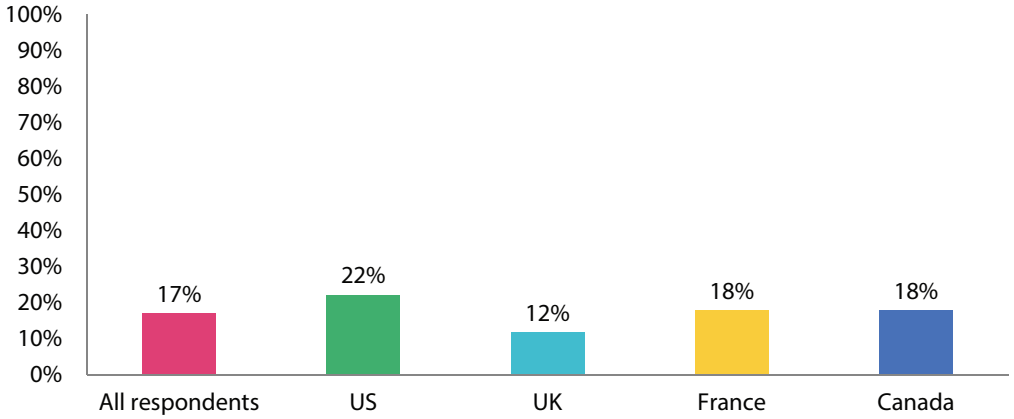

Figure 3. Sharing of misinformation (any topic).

4. Findings

Before discussing the results related to our hypotheses, we outline the results from other variables related to the resilience model. Trust in national news media is positively related to awareness of false news stories (Table 3). However, for self-assessed exposure to misinformation, trust in national news is only significant in the UK; trust in national news media decreases self-assessed exposure to misinformation, as predicted by the resilience model (Table 4). In terms of sharing misinformation, trust in national news media increases sharing of misinformation in all countries except Canada (Table 5).

Consuming news from a public service media has little influence on awareness of false news stories, self-assessed exposure to misinformation, or sharing of misinformation. However, there are exceptions. In Canada, the use of the CBC increases awareness of false news stories and self-assessed exposure to misinformation about Covid-19. In the UK, use of the BBC increases

Table 2. Descriptive statistics by country.

	Min–Max	All	US	UK	France	Canada
Education (*high school or less*, *some college*, *bachelor's*, *more than bachelor's*)	1–4	1.93 (1.04)	2.10 (1.09)	1.86 (1.06)	1.77 (0.99)	1.97 (0.99)
Females	0 or 1	51%	51%	49%	51%	52%
Age	18–97	48.33 (17.37)	48.36 (18.69)	48.11 (17.03)	48.50 (16.30)	48.37 (17.40)
In politics, people sometimes talk of left and right. Where would you place yourself on this scale?						
0 to 3 are left-wing	0 or 1	18%	17%	16%	19%	21%
7 to 10 are right-wing	0 or 1	26%	35%	25%	25%	19%
How interested would you say you are in politics? (*not at all*, *not very*, *fairly*, *very*)	1–4	2.52 (0.96)	2.73 (0.99)	2.51 (0.94)	2.29 (0.97)	2.54 (0.91)
Thinking about all the social media platforms that you use, do you follow news organizations?	0 or 1	21%	22%	18%	19%	25%
In the past year, how often did you use the following news sources, online or offline? (BBC in the UK, France Télévisions in France, CBC in Canada)	1–4	…	—	3.35 (0.91)	2.96 (0.99)	2.57 (1.07)
How much confidence, if any, do you have in [national news media] to act in the best interests of the public? (*not at all*, *a little*, *a moderate amount*, *a lot*, *a great deal*)	1–5	2.29 (1.14)	2.35 (1.26)	2.25 (1.10)	2.12 (1.06)	2.44 (1.12)

Table 3. Ordinary least squares (OLS) regression of awareness of fake news stories about Covid-19.

	All		US		UK		France		Canada	
	B	*p*	*B*	*p*	*B*	*p*	*B*	*p*	*B*	*p*
Trust in national news media	0.111	< 0.001	0.178	< 0.001	0.130	< 0.001	0.056	0.037	0.054	0.039
BBC News/France TV/ CBC	—		—		−0.037	0.167	0.032	0.244	0.090	0.001
Follow news organizations on social media	0.113	< 0.001	0.086	0.001	0.089	< 0.001	0.132	< 0.001	0.119	< 0.001
Political interest	0.202	< 0.001	0.196	< 0.001	0.248	< 0.001	0.147	< 0.001	0.197	< 0.001
Left-wing	−0.021	0.104	−0.073	0.005	−0.018	0.479	0.045	0.096	−0.031	0.233
Right-wing	0.103	< 0.001	0.170	< 0.001	0.048	0.068	0.084	0.002	0.102	< 0.001
Age	−0.049	< 0.001	−0.114	< 0.001	0.001	0.980	−0.054	0.050	−0.022	0.388
Females	0.023	0.068	−0.007	0.777	0.025	0.316	0.061	0.018	0.032	0.199
Education	0.028	0.024	0.037	0.123	0.058	0.022	0.001	0.979	0.009	0.729
UK	−0.018	0.236								
France	0.089	< 0.001								
Canada	−0.026	0.087								
R-square	*0.125*		*0.189*		*0.132*		*0.078*		*0.121*	
n	*6,035*		*1,491*		*1,490*		*1,494*		*1,557*	

Note: The reference groups are males, those in the centre or reporting no ideological leanings, and the US.

Table 4. Logistic regression of self-assessed exposure to misinformation about Covid-19.

	All		US		UK		France		Canada	
	Exp(*B*)	*p*	Exp(*B*)	*p*	Exp(*B*)	*p*	Exp(*B*)	*p*	Exp(*B*)	*p*
Trust in national news media	0.985	0.612	1.032	0.554	0.852	0.017	0.987	0.850	0.952	0.410
BBC News/France TV/ CBC	—		—		1.237	0.009	1.116	0.167	1.228	0.001
Follow news organizations on social media	1.655	< 0.001	1.679	< 0.001	1.494	0.017	1.706	0.002	1.705	< 0.001
Political interest	1.293	< 0.001	1.153	0.062	1.210	0.025	1.612	< 0.001	1.177	0.040
Left-wing	1.175	0.060	1.354	0.089	1.587	0.016	0.710	0.058	1.129	0.442
Right-wing	1.157	0.065	0.916	0.547	1.502	0.014	1.253	0.183	1.221	0.233
Age	0.990	< 0.001	0.982	< 0.001	0.998	0.603	0.990	0.025	0.989	0.002
Females	0.942	0.357	0.867	0.270	1.046	0.743	0.972	0.841	0.925	0.536
Education	1.073	0.026	1.068	0.271	1.227	0.002	1.030	0.670	0.978	0.724
UK	1.953	< 0.001								
France	1.794	< 0.001								
Canada	1.699	< 0.001								
Cox & Snell R-square	*0.055*		*0.061*		*0.058*		*0.086*		*0.049*	
n	*4,226*		*1,087*		*1,001*		*979*		*1,159*	

Notes: The reference groups are males, those in the centre or reporting no ideological leanings, and the US; the analysis only includes those who reported seeing any type of misinformation on social media during the past month.

Table 5. Logistic regression of sharing misinformation (any topic).

	All		US		UK		France		Canada	
	Exp(*B*)	*p*	Exp(*B*)	*p*	Exp(*B*)	*p*	Exp(*B*)	*p*	Exp(*B*)	*p*
Trust in national news media	1.178	< 0.001	1.236	< 0.001	1.257	0.004	1.248	0.001	0.983	0.800
BBC News/France TV/ CBC	—		—		0.977	0.819	1.047	0.561	0.945	0.429
Follow news organizations on social media	1.705	< 0.001	1.534	0.006	1.249	0.286	2.042	< 0.001	2.111	< 0.001
Political interest	1.165	< 0.001	1.142	0.096	1.241	0.051	1.109	0.211	1.228	0.023
Left-wing	1.035	0.731	1.082	0.686	1.026	0.923	1.085	0.677	0.954	0.790
Right-wing	1.588	< 0.001	1.919	< 0.001	2.361	< 0.001	1.484	0.018	0.901	0.577
Age	0.967	< 0.001	0.963	< 0.001	0.942	< 0.001	0.978	< 0.001	0.974	< 0.001
Females	1.123	0.112	1.005	0.972	0.876	0.463	1.219	0.171	1.370	0.028
Education	0.915	0.012	0.984	0.796	0.950	0.546	0.754	< 0.001	1.019	0.792
UK	0.515	< 0.001								
France	0.911	0.347								
Canada	0.825	0.048								
Cox & Snell R-square	*0.084*		*0.122*		*0.110*		*0.061*		*0.057*	
n	*6,038*		*1,491*		*1,491*		*1,495*		*1,561*	

Note: The reference groups are males, those in the centre or reporting no ideological leanings, and the US.

self-assessed exposure to misinformation. Public service media use does not build resilience to misinformation based on our three measures.

For the first set of hypotheses, we find following news organizations on social media increases awareness of false news stories (H1a), self-assessed exposure to misinformation (H1b), and sharing of misinformation (H1c). This relationship is tested in the four countries as well as the pooled sample. For one case, the UK, the positive relationship was not statistically significant (Table 5); the UK is also distinctive in a low incidence rate of following news organizations on social media (Table 2).

We also consider political ideology as a predictor. Regarding awareness of misinformation, right-wing ideology is associated with being more aware of false news stories about Covid-19 (H2a; Table 3). Right-wing ideology does not predict self-assessed exposure to misinformation related to Covid-19 except in the UK (H2b; Table 4). Right-wing ideology is associated with sharing misinformation on social media in the US, the UK, and France (H2c; Table 5), but this is not the case in Canada. Canada is distinctive in that right-wing status is only significant for one of the three measures of misinformation.

The US is expected to be distinctive in terms of misinformation. The US is the reference group for the regression analysis presented in Tables 3, 4, and 5 (see first models in all tables). After accounting for a variety of other predictors, no significant differences are found between the US, the UK, and Canada (H3a; Table 3) in terms of awareness of false news. However, France reports higher levels of awareness of false news stories compared to the US. As previously noted, these patterns may be explained by the choice of false stories. The US is distinctive in reporting lower levels of self-reported exposure to misinformation about Covid-19 (H3b; Table 4); as mentioned, this is related to the relative popularity of exposure to misinformation about the US presidential election. In relation to sharing misinformation, US respondents are more likely to share misinformation than respondents from the UK and Canada (H3c; Table 5). Results for France are similar to those for the US (H3c; Table 5).

Our models account for the role of age, gender, and education. Older people are less likely to be aware of fake news, report exposure to misinformation, and share misinformation. Being female is rarely significant as a factor in predicting awareness of, exposure to, and sharing of misinformation. Education has a small effect. Political interest is a significant predictor of awareness of fake news stories about Covid-19, self-assessed exposure to misinformation about Covid-19, and sharing of misinformation.

5. Conclusion

In summary, we studied key predictors of awareness of, exposure to, and sharing of misinformation as identified by the resilience model (Humprecht et al., 2020,

2021). Media trust increases awareness and sharing of misinformation, which is *contrary* to theoretical expectations from the resilience model. However, the empirical model matches the theoretical claims in the UK in relation to self-assessed exposure to misinformation about Covid-19. Trust in the UK media decreases self-assessed exposure to misinformation. Humprecht et al. (2020, 2021) also find this variable has contradictory effects when considering exposure to and sharing of misinformation.

Building on the theoretical framework of the resilience model, we examine the role of public service media. Use of the BBC does not significantly correlate with awareness of fake news stories and sharing of misinformation in the UK but does increase self-assessed exposure to misinformation. In France, watching France TV does not relate to awareness of, exposure to, or sharing of misinformation. In Canada, consuming CBC news increases awareness of fake news stories and self-assessed exposure to misinformation but does not influence the likelihood of sharing misinformation. While the resilience model suggests PSB contributes to resilience, we find it does not. Further research should examine the content of these public service media to try to understand their different relationships to misinformation. For instance, does the CBC cover misinformation on social media, leading to heightened awareness and exposure (see related discussion in Tsfati et al., 2020)?

We *replicate* findings about the role of social media news as a predictor of exposure to and sharing of misinformation (Humprecht et al., 2020, 2021). We extend research by pointing out the relevance of social media news on awareness of false news stories. Given our findings and those from Humprecht et al. (2020, 2021), we argue this variable is the most important factor in determining the resilience of societies to misinformation. Further research should consider which social media platforms have greater or less exposure as well as how the affordances of each platform enable or limit the sharing of misinformation.

While the resilience model points to societal polarization and populist discourses as macro predictors of cross-national differences, we focus on ideology as a personal attribute that could impact the role of macro factors on awareness of fake news stories and sharing of misinformation. We found right-wing ideology is associated with greater levels of awareness and sharing of misinformation in three of the four countries considered here. In terms of self-assessed exposure to misinformation about Covid-19, right-wing ideology was only significant in the UK. This factor of the resilience model should be retained but measured as an individual attribute with a left-right dimensionality.

Future cross-national work would benefit from more countries and multi-level modelling. This type of modelling could help understand macro-factors such as the measures used in Humprecht et al. (2020) alongside individual factors, such as political ideology. Four countries do not comprise a sufficiently large sample to complete this analysis. Also, we have used a theory about macro-level characteristics to study individuals, which runs the risk of ecological fallacy—assuming claims about the aggregate would apply to the individual. This is also an issue with Humprecht et al.'s work that focused on macro factors in the 2020 publication but assessed individual factors in the 2021 publication. Again, with a greater number of countries, we could examine a combination of macro-level indicators alongside individual-level factors.

The resilience model suggests the US would have higher levels of awareness of, exposure to, and sharing of misinformation due to greater societal polarization, the size of its online market, greater social media use, and fragmentation of the media system. We did not find this pattern; instead, we find the UK is a distinctive society compared to the other three countries. Respondents from the UK are far less likely to share misinformation than respondents from other countries (Table 5). The UK is the only country in which the use of social media for news did not increase the likelihood of sharing misinformation. Rather than focusing on the US as a case study of low resilience, comparative work should consider the UK as a case study of high resilience. The UK may offer a model for other countries to follow in building resilience to disinformation. In particular, the UK's strong public broadcasting system might explain its resilience. In addition, the UK distinctiveness might relate to lower social media use. As mentioned, the role of social media in sharing misinformation is different in the UK than in other countries. Yet, at the macro level, the UK does not differ much in terms of social media platform adoption (Newman et al., 2021, 2022). As such, a cultural, rather than structural, element may be at play. Sharing misinformation can be provocative and incite uncivil discussion among citizens. Perhaps UK respondents resist sharing this type of misinformation in part to avoid these provocative and uncivil discussions.

We also note that while limiting exposure to misinformation is important, exposure may also be something of a fait accompli. In other words, non-exposure to misinformation may no longer be a real-world scenario. Measuring resilience may therefore require a more nuanced examination of the relationship between exposure, awareness, and sharing than we have presented here. While high levels of exposure, awareness, and sharing can suggest reduced resilience, this is not necessarily the case. For example, individuals may report high levels of exposure to misinformation because they perceive legitimate news as false, but they may also report high levels of exposure because they have high-quality information diets and regularly encounter corrective reporting of misinformation. In some national contexts, large segments of the population may exhibit high levels of exposure *and* high levels of awareness. Rather than classifying these systems as low resilience, we may instead see frequently occurring conjunctions of high awareness

and high exposure as an indicator of high levels of digital media literacy. Examining how such individuals share misinformation, such as whether they do so accidentally or along with commentary to alert others to its falsity, would be revealing. In other words, studying how exposure, awareness, and sharing intersect is necessary to make sense of *how* individuals engage with misinformation when they encounter it. Future research could explore the relationships between awareness, exposure, and sharing, which may reveal mechanisms of resilience obscured by focusing on these variables in isolation.

We argue, therefore, that a richer conception of resilience requires additional theoretical work investigating the relationships (a) between macro-level covariates and micro-level indicators of resilience and (b) between variables within these analytic categories. This broader agenda can identify resilience with less focus on the overarching goal of preventing exposure to misinformation and more focus on a larger set of individual- and system-level capacities required for minimizing its impact. Such research could help policymakers determine the viability of different resilience strategies, such as efforts to minimize the spread of "bad information" or, alternately, to "equip citizens with critical literacy skills" they might need to address ubiquitous misinformation themselves (Barrett et al., 2021, p. 18).

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Conflict of Interests

The authors declare no conflict of interests.

Supplementary Material

Replication and data files are available at: https://doi.org/10.6084/m9.figshare.20324790.v1

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Article

Media Coverage as Mirror or Molder? An Inference-Based Framework

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Abstract
Many communication theories in the context of political communication are based on the premise that humans are social beings affected by their perception of what others think, do, or say. For example, the spiral of silence theory predicts that individuals publically speaking their mind on certain issues is dependent on whether they perceive their opinion to be that of the majority or minority, and that the media is a core source for gauging public opinion. Yet, communication research has produced contradictory findings regarding the relationship between media coverage, perceived public opinion, personal opinion, and behavior. We argue that these contradictory findings can be explained by different inference hypotheses that people apply when inferring the opinion and behaviors of others from media coverage. There are two competing inference hypotheses discussed in the literature: While the reflection hypothesis assumes that the audience sees media content as a mirror of what the public thinks, persuasive press inference postulates that individuals perceive media as an influence on public opinion. Drawing on different research strands such as the spiral of silence theory, hostile media, persuasive press inference, and corrective action, several propositions are put forward that link these inference hypotheses to the media coverage and its effects on individual outcomes, and potential drivers are discussed. The propositions are then put to an initial test using an existing data set.

Keywords
hostile media; inference; media effects; persuasion; persuasive press inference; public opinion; reflection; spiral of silence

Issue
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1. Introduction

A great deal of research in political communication is concerned with how political media coverage affects individual judgments and behaviors. Researchers are interested in whether news media shape political beliefs, TV debates change voting intentions, or the use of nonpartisan news hinders political participation. However, when it comes to media's influence on opinion formation and individual behavior, results have been contradictory and sometimes downright confusing. For instance, a meta-analysis on the relationship between cross-cutting exposure and political participation (Matthes et al., 2019) showed that individual studies had found cross-cutting exposure to be either a positive, negative, or an insignificant predictor, and overall, there was a null relationship that could not be explained by any moderating factors. In the same vein, Krämer and Peter (2020) found small to no overall effects of exemplars (portrayals of ordinary citizens) on personal opinion, although some studies have shown rather strong effects at least on perceptual judgments such as perceived public opinion (e.g., Brosius & Bathelt, 1994; Zerback & Peter, 2018).

This article argues that such findings might be due to the lack of consideration of two key factors that can be decisive when looking at the effects of media coverage on individual outcomes such as opinion formation and behaviors: (a) the dependence of individual opinions and behaviors on the perception of others' opinion and behaviors, and (b) the lay hypothesis that is applied when inferring the opinion and behaviors of others from the media. Based on existing research and especially the work by Gunther (1998; see also Gunther & Christen, 1999, 2002), two competing inference hypotheses are

proposed: *reflection inference* and *persuasion inference*. Although both inference hypotheses should elicit similar effects, for example, on public opinion perceptions (Gunther, 1998; Gunther & Christen, 2002), we argue that the distinction of these two processes is key to understanding when and how these perceptions affect opinion formation and individual behavior. Drawing on different research strands such as the spiral of silence theory, hostile media, persuasive press inference, and corrective action, we propose a theoretical framework that links different types of media content and individual predispositions to the inference hypotheses, and these hypotheses to perceptual judgments and subsequent individual outcomes.

2. How Media Coverage Affects our Perception of Others

So far, media effects research has looked at different types of individual outcomes that can be distinguished on three levels (e.g., Krämer & Peter, 2020): (a) reality perceptions, such as risk perceptions or perceived public opinion (first-level effects); (b) individual judgments, such as personal opinions, cognitions, or emotional reactions (second-level effects); and (c) behavioral consequences, such as speaking out, voting intentions, or political participation, or lifestyle changes (e.g., going vegan; third-level effects). Often, one of these judgments is the primary interest in research. Yet, even if different levels of judgments are investigated, they are frequently treated independently.

This article follows the notion that to understand media effects on outcomes such as personal opinions and behaviors, the perceptions of others' opinions and behaviors need to be considered. As social creatures, a great deal of what we think and how we behave is dependent on what (we believe) others think or do. The idea that individual outcomes may be dependent on mediated perceptions of others is well established in political communication research: Several communication theories argue that media leads people to make assumptions about how others think about a given issue and that these assumptions may influence subsequent judgments and behaviors. For example, the spiral of silence theory argues that the perception of the majority opinion on a topic (and whether this perceived majority is in line with one's own opinion) may be decisive for whether people speak out on the topic or not. Gunther and Storey's (2003) influence of presumed influence approach states that people's behavior is guided by their perception of media's influence on others. Importantly, research has looked at how these levels of judgments are causally linked to each other, with quite different results: For example, the looking glass effect assumes that personal opinion affects public opinion perception, while conformity approaches suggest that people adapt majority opinion as their own (e.g., Asch, 1956). Thus, to understand diverging effects of media on these judgments, we must acknowledge that there is a complex causal relationship between these judgments in the first place (Figure 1).

This article draws special attention to the relationship between media coverage and people's perception of others on the one hand and how this relationship influences subsequent second and third-level outcomes on the other. In particular, we argue that consumers' lay strategy that is applied in inferring the opinion of others from media coverage is key to understanding the effects on second and third-level outcomes and can shed light on prior divergent results when it comes to the effects of media coverage on people's opinions and behaviors. Thus, this article's goal is to integrate different strands

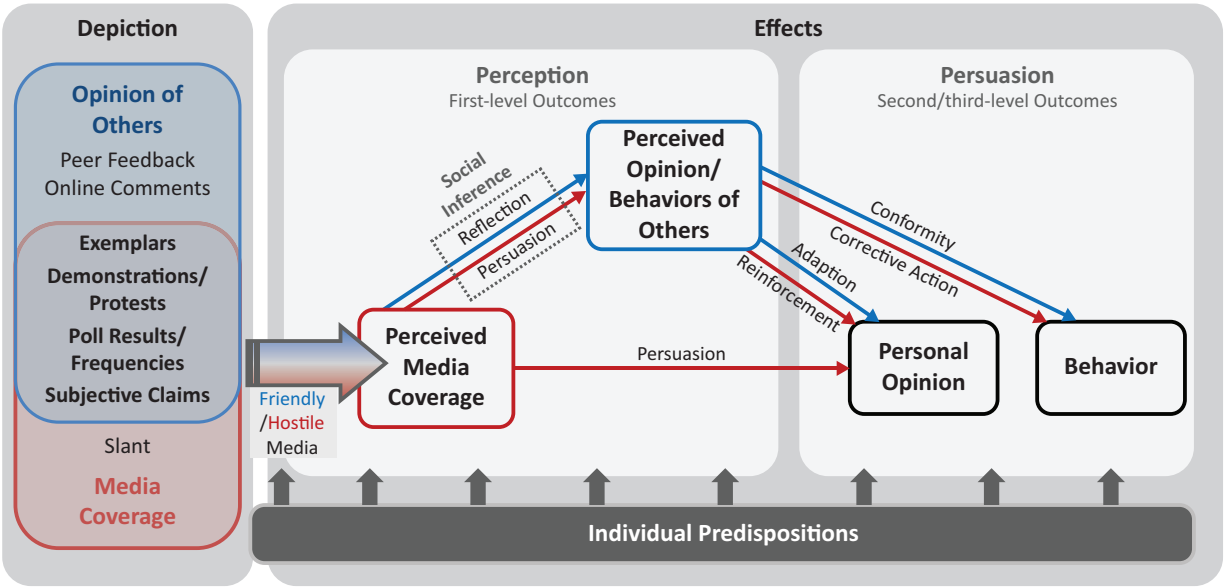

Figure 1. Proposed relationships between media coverage and different outcomes.

of research in the context of what we term ”social inference” (how people infer judgments about others’ opinions and behaviors from media coverage) and what Mutz coins “impersonal influence” (effects of these judgments on subsequent outcomes such as opinion and behaviors; Mutz, 1998). The objective of this integration is to create a coherent propositions capable of predicting effects in the context of political communication and beyond (see Figure 1 for an overview).

3. Mirror or Molder? How Inference Hypotheses Link Media Coverage to Individual Outcomes

When it comes to our perception of what others think or do, different sources inform individual judgments (e.g., Zerback, 2016). First and most obviously, our personal social network provides ample first-hand information about what others think about a given topic. In this context, social media has expanded our social network and our supposedly first-hand impressions when it comes to the opinion of others. In addition, research has shown that we use our own opinion as a proxy for the opinion of others, which has been coined as false consensus, looking glass, or simply projection effects in literature (e.g., Marks & Miller, 1987; for a thorough discussion see Christen & Gunther, 2003). Although we are aware of the importance of these sources for perceptual judgments about others, this model focuses solely on the role of media coverage as a source of information about the opinion and behavior of others.

In a first step, we simply argue that in many cases, people will infer the opinions and behaviors of others, e.g., public opinion, from media coverage to some extent—we term this phenomenon “social inference.” Most obviously, this happens when direct displays of public opinion or behavior of others are present in coverage, such as, for example, opinion polls, exemplars, or general statements about public opinion (for an overview, see Peter & Zerback, 2020). However, research has shown that even if no such direct portrayals of others are present in media coverage, people may still infer the opinions and behaviors of others from the mere (perceived) slant of that coverage (e.g., Gunther, 1998; Gunther & Storey, 2003; Zerback, 2016):

> Proposition 1a: People tend to infer the opinions and behaviors of others on a given issue from perceived media coverage on that issue (social inference).

However, effects on second and third-level judgments might depend on how judgments about others’ opinions and behaviors are formed based on media displays. Following the argumentation and research on the persuasive press inference by Gunther (1998; see also Gunther & Christen, 1999), we distinguish between two alternative ways how people infer the opinions and behaviors of others (e.g., public opinion) from media coverage: the reflection hypothesis, which suggests that people see media as a mirror of what others think or do; and the persuasion hypothesis, which suggests that people believe media to be a molder of the opinion/behaviors of others. There is ample empirical evidence for both inference strategies as drivers of the relationship between (perceived) media coverage and the perception of opinions and behaviors of others. For instance, several authors could show that people use media slant as a basis to predict both public opinion (e.g., Gunther et al., 2001; Gunther & Christen, 2002; Zerback, 2016) as well as the behavior of others (e.g., Gunther & Storey, 2003). In addition, Peter (2021) was able to show that media content containing subjective claims about public opinion affects both perceived reflection as well as perceived public opinion. In their examination of the persuasive press inference, Gunther and Christen (1999) conclude that regardless of whether “people believe the content to be a reflection of public opinion rather than a shaper of such opinion,…the effect…would be the same” (p. 288). Thus, a positive relationship between the perceived slant of media coverage and the perceived opinion of others should occur regardless of which of these two inference hypotheses is applied (Gunther, 1998; Gunther & Christen, 1999; Gunther et al., 2001):

> Proposition 1b: For inferring the opinions and behaviors of others from media coverage, two different inference hypotheses can be applied (reflection and persuasion hypothesis); the relationship between (perceived) media coverage and perceived opinion/behaviors of others will remain regardless of the inference hypothesis applied.

Importantly, we believe these inference hypotheses not to be more general beliefs or traits, and thus to be distinguishable from concepts such as, for example, media trust. Consequently, while we believe the inference hypotheses to be something that might very well be influenced to some extent by stable personality traits (see Section 3.3.2), we argue that it is also dependent upon situational factors such as, for example, concrete media content (e.g., direct public opinion displays, Section 3.3.1), the topic and individual’s attitude towards it, and attitude extremity (see Section 2.3).

3.1. The Reflection Inference: Media Coverage as a Mirror of Public Opinion

The spiral of silence theory is one of the most prominent theories regarding the relationship between media coverage, public opinion, and individual outcomes. It predicts, put shortly, that whether individuals publically speak their minds on a certain topic is dependent on whether they perceive their opinion to be that of the majority or the minority (Noelle-Neumann, 1974) and that the media is seen as a core source for gauging public opinion. In this regard, the theory assumes that people see the media as a reflection of what the public

thinks (media follows the public): "The media are not perceived as agents of direct influence, but rather as reporters of the distribution of "acceptable" opinion" (Katz, 1983, p. 89). We have coined a term for this hypothesis about how the media and the opinion of others are connected—*reflection inference*: people base perceptions about others, such as public opinion, on media coverage because they believe the media mirror public opinion.

We assume that this will be strengthened by the extent to which media coverage is perceived to be in line with one's opinion ("friendly media," Goldmann & Mutz, 2011). We base this assumption on two key findings from previous research: First, there is strong evidence for so-called projection effects (e.g., false consensus and looking glass effect, Marks & Miller, 1987; Christen & Gunther, 2003), meaning that people usually see public opinion to be in line with their own opinion. We hypothesize that this projection effect will spill over to media coverage, meaning that when they perceive media to be in line with their own opinion, they may (unconsciously) assume that it also represents the opinion of others (e.g., public opinion). Second, it is the logical inversion of an argument that we will elaborate on in detail in the following section: when media is seen as biased against one's own opinion ("hostile media"), this leads to the assumption that the media has a strong influence on others (Gunther & Chia, 2001; Hansen & Kim, 2011; Vallone et al., 1985). Using representative survey data, Gunther and Christen (2002) showed that projection effects (consonance between one's own opinion and perceived public opinion) increase when the similarity between one's own opinion and perceived media coverage increases. Thus, we propose:

> Proposition 2a: The more media coverage is judged to be in line with one's own opinion (friendly media), the more likely it is seen as a reflection of the opinion/behavior of others (reflection inference).

The spiral of silence theory proposes that perceived public opinion causally influences willingness to speak out, depending on whether people perceive their own opinion to be in line with that of the majority. Those who perceive consensus between their own opinion and the majority are more willing to speak out than those who perceive themselves as part of the minority opinion (Donsbach et al., 2014; Noelle-Neumann, 1974). Existing meta-analyses on the spiral of silence theory (Glynn et al., 1997; Glynn & Huge, 2014; Matthes et al., 2017) have confirmed this effect. In her original theory, Noelle-Neumann based this assumption on research regarding conformity effects (Asch, 1956; Cialdini & Goldstein, 2004) which has shown that people adapt their behaviors to those of the majority. Based on this, we argue that reflection inference and thus the belief that media coverage reflects what others think will more likely lead to conformity in second and third-level outcomes, so that opinion and behaviors will be adapted to the perceived majority opinion and behavior of others:

> Proposition 2b: The stronger the reflection inference, the more people will adapt their opinions and behaviors to the perceived opinion and behavior of others (conformity).

Proposition 2a applies to scenarios where people possess (strong) preconceptions about a topic. In this case, reflection inference will predict opinion reinforcement rather than opinion formation or change, and congruency between perceived public opinion, personal opinion, and subsequent behavior. When individuals hold no (strong) preconceptions, we believe other factors to be more important in triggering the reflection inference (e.g., direct displays of others, see Section 3.3) and assume a stronger conformity influence on personal opinion (i.e., change in the direction of perceived public opinion) when reflection inference is applied.

3.2. The Persuasion Inference: Media Coverage as a Molder of Public Opinion

The persuasion inference has already been intensively researched by Gunther and colleagues (e.g., Gunther & Christen, 1999; Gunther et al., 2001) and is based on Gunther's (1998) persuasive press inference where he challenged the idea that people infer public opinion from the media because they see the media as a reflection of public opinion. Gunther argued that people infer public opinion from media coverage even if it does not display explicit public opinion cues such as polling results, meaning from the mere slant of media coverage. He coined the persuasive press inference for this, which leads people to believe that "what mass media are saying today must be what the public will be thinking tomorrow" (Gunther, 1998, S. 487). Thus, he assumed that people infer public opinion from the media because they perceive it as not a mirror but a molder of it (the public follows the media). Gunther's persuasive press inference is based on a two-step process: First, people extrapolate the slant of a given news report to the overall media coverage on an issue, meaning that they assume that all media reports similarly on a topic, both across outlets and time (Gunther et al., 2001). Second, media is judged to be influential on the audience, a phenomenon that has already been well established by research on the third-person effect and influence of presumed influence (Davison, 1983; Gunther & Storey, 2003; Sun et al., 2008). Perceived media influence on others can also be tied back to hostile media perceptions, meaning that people perceive media coverage to be biased against their own beliefs (e.g., Gunther & Chia, 2001; Hansen & Kim, 2011; Vallone et al., 1985). As research on the hostile media phenomenon has shown, the perception of biased media and the associated mistrust results in the perception of

a stronger influence on others (e.g., Barnidge & Rojas, 2014; Tsfati, 2007). In this context, Wojcieszak and Rojas (2011) were able to show that perceiving media as dissimilar to one's personal opinion can lead to a hostile public effect. Based on this, we propose:

> Proposition 3a: The more media coverage is seen as biased against one's opinion (hostile media), the more likely media is seen as an influence on the opinion and behaviors of others (persuasion inference).

Following the above argumentation, we predict that under the application of the persuasion inference, public opinion perceptions will likely be in line with the perceived slant of media coverage—but not with one's own opinion. This could also explain effects on individual behaviors that deviate from what we predicted based on the reflection inference. Research on the corrective action hypothesis (Barnidge & Rojas, 2014; Rojas, 2010) has shown that hostile media perceptions can lead people to take action (e.g., speak out) to counteract the perceived illegitimate influence of biased media and that this effect is mediated by perceived influence on others. This idea is also supported by early research on the third-person effect that showed that individuals who perceived a stronger influence on others than on themselves are also more likely to act on this perceived influence, e.g., demand censorship for the respective media content (e.g., Gunther, 1995; Rojas et al., 1996). Consequently, in these scenarios, we predict no causal influence of media coverage on opinion formation, meaning that individuals' original opinions will either be unaffected or even reinforced. This notion is important as it may explain previous findings, e.g., from exemplification research, where researchers have demonstrated influences of exemplars on public opinion, but not on personal opinion. Consequently, we propose:

> Proposition 3b: The stronger the persuasion inference, the more likely people's opinions, and behaviors will deviate from the perceived opinion and behavior of others (corrective action).

3.3. Relationship Between Inference Hypotheses and Driving Factors

The above argumentation suggests that reflection and persuasion inference are distinct mechanisms that occur under different circumstances and affect individual outcomes differently. However, we do not think these inference hypotheses are mutually exclusive: One can very well believe that the media is representative of what the public thinks and, at the same time, assume some effect of such coverage on public opinion (e.g., Gunther & Christen, 2002; Gunther et al., 2001). In addition, one may believe that media coverage neither reflects nor influences public opinion. Nevertheless, we assume that both hypotheses are in a hydraulic relationship, meaning the more one sees the media as a molder of public opinion, the less one will judge it to reflect it and vice versa:

> Proposition 4: Both inference strategies can co-occur, but will be negatively correlated.

Furthermore, we assume that additional driving factors (other than personal opinion) are likely to trigger one of the inference hypotheses more than the other. We believe these factors to be especially important when people hold weak or no preconceptions on the given topic. Such driving factors can be (a) specifics of media coverage and (b) individual predispositions.

3.3.1. Specifics of Media Coverage

In journalistic media coverage, several information types can be used to depict the opinion and behavior of others (Peter & Zerback, 2020). For example, in their study, Lewis et al. (2005) distinguish between four major types of direct references to public opinion: opinion polls, general statements about public opinion, vox populi (interviews of ordinary citizens stating their opinion), and the display of demonstrations or protests. Peter and Zerback (2020) have extended this perspective and provide a comprehensive categorization of ordinary citizen displays in the media by matching single displays of others (so-called exemplars), especially their opinions (vox populi) and behaviors (e.g., case study exemplars) with their respective aggregated, more valid counterparts (opinion polls, frequency of events/behaviors).

There is ample evidence that both aggregated information about others (e.g., public opinion) and individual displays (exemplars) influence people's perception of others (for an overview, see Krämer & Peter, 2020). For aggregated information, the mechanism is quite straightforward: According to Zerback et al. (2015), a simple learning process occurs as people can directly infer their judgments from such information types (e.g., perceived public opinion from displayed public opinion), meaning that people can simply store and recall the information when in need of a respective judgment (Peter, 2021; Zerback et al., 2015). For the display of one or more single depictions of others (exemplars), the influence on the respective judgments is more complex and supposed to occur through heuristic processing (Kahneman & Tversky, 1972): people (unconsciously) judge these single cases to be representative for a large population and thus integrate them when forming a judgment about the respective population (Peter & Zerback, 2017).

Regardless of the different mechanisms, both aggregated and individual depictions of others are supposed to elicit effects because they are or at least are perceived as representative of others and thus integrated when forming judgments about them. Following this perspective, as well as the argumentation by Gunther (1998; see also Gunther & Christen, 2002), we predict that each cue that provides direct information about public opinion

(be it aggregated information about a given population [opinion polls, general statements] or the display of single opinions of individuals or a smaller group from the said population [vox populi, demonstrations/protests]) increases the likelihood that people will believe that media reflects others. Indeed, Peter (2021) has shown that the more direct public opinion cues were present in an interview, the more people judged the interview content to reflect the public's thoughts.

However, as elaborated extensively in Section 3.2, even if such direct cues are absent, research has shown that people infer the opinions and behaviors of others from the mere slant of media content. This is driven by the (unconscious) perceptions that the media content is representative of media coverage at large, which influences others in shaping their opinions and behaviors (e.g., Gunther, 1998; Gunther & Christen, 1999; Zerback, 2016). Taken together, we argue that direct cues are more likely to trigger reflection inference, whereas the absence of such cues is more likely to lead to persuasion inference:

> Proposition 5a: Direct opinion cues in media coverage are more likely to trigger reflection inference than persuasion inference, whereas the absence of direct cues will more likely trigger persuasion rather than reflection.

3.3.2. Individual Predispositions

However, media specifics alone cannot explain prior findings on the relationship between media coverage and opinion formation. We assume that, in addition, individual predispositions can drive inference hypotheses. One factor that has already been elaborated on is the congruence between one's opinion and the perceived slant of media coverage (hostile media perception), which is fueled by attitude extremity that can reduce projection effects and foster the perception of a hostile public (Wojcieszak & Rojas, 2011). However, other factors should become more important if people have no or weak preconceptions about an issue. In this regard, more stable personality traits could come into play. For instance, prior research has linked low trust in media and populist attitudes to hostile media perceptions and, consequently, perceived media influence on others (e.g., Schulz et al., 2020). In addition, studies by Peter (2019, 2021) have shown that populist attitudes can alter the effects of media coverage on public opinion perceptions, and the stronger the populist beliefs, the less reflective media coverage was seen, and the more reactance to it was triggered regardless of the specific content. In line with this, we believe that apart from situational factors such as specifics of media coverage, personal predispositions, especially those related to distrust in media coverage, are more likely to trigger the feeling that media coverage influences rather than mirrors people's opinions and behaviors:

> Proposition 5b: More stable personality factors associated with low trust in media (e.g., media skepticism, populist beliefs) are more likely to trigger persuasion inference than reflection inference.

4. Application: Case-Study "Perceived Media Coverage on Refugees in Germany"

4.1. Study Rationale

To see whether our propositions stand up to a first empirical test, we will test some of them using existing data from an online survey about perceived media coverage of refugees in Germany, conducted in 2017 (Peter & Zerback, 2018). This specific topic can be considered controversial and morally loaded, and at that time, it was highly present in the public discourse due to the so-called refugee crisis. Prior research on the specific topic has shown that media coverage regarding refugees in Germany was overly positive and welcoming (Maurer et al., 2022) and that the topic elicited strong hostile media perceptions in both partisan groups (in favor of and against welcoming refugees in Germany; Merten & Dohle, 2019).

A quota sample (gender, age, formal education) was employed, recruited from a German online access panel for social science research (SoSci Panel; Leiner, 2016). Although not representative of the German population, the sample is heterogeneous regarding gender (51.2% female), age (M = 45, SD = 15.9), and formal education (57.2% held a higher education entrance qualification). In addition, the opinion distribution regarding refugees in Germany closely mirrors those measured by representative surveys at the point of data collection (e.g., ZDF Politbarometer), showing that approximately two-thirds hold favorable opinions toward refugees. The panel was sent 5,908 invitations, which led to a total of 1,638 participants (response rate of 27.7%). For the present analysis, only complete data sets will be used (N = 1,302).

We will use this data set to illustrate how mediated social influence (effects of media coverage on individual outcomes via the perceived opinion of others) is dependent on how individuals infer public opinion from media coverage. This data set employed direct measurements of the inference hypotheses (see Section 4.2). As this is a topic where we assume that people have already formed strong personal opinions, we introduce personal opinion as an exogenous variable. It is important to note that the data set was not used to generate the propositions but to test some of the proposed assumptions. However, since the data was part of another project and not collected to test the above propositions specifically, we will not engage in classical null hypothesis testing (although we will report respective indicators) but rather check if we find empirical indications that our propositions are sound. In addition, due to the specifics of the data set, not all propositions can undergo testing, and although the theoretical framework applies to a larger

set of outcomes, only specific outcomes (e.g., willingness to speak out) can be tested in this first use case.

4.2. Measurements

Personal Opinion towards refugees was measured via five items on a five-point Likert scale (e.g., "Refugees enrich cultural life in Germany," M = 3.38, SD = 1.07, α = .89). Perceived Media Coverage was measured on a seven-point semantic differential ranging from 1 = *the media reports very negatively* to 7 = *the media reports very positively on refugees in Germany* (M = 4.16, SD = 1.65). Friendly/Hostile Media Perception was computed as the absolute difference between perceived media coverage and personal opinion (z-standardized). Values range from 0 (*perfect congruence, friendly media*) to 4.05 (*maximum difference, hostile media*; M = 1.41, SD = .99).

Reflection And Persuasion Inference were measured via three items each (reflection: e.g., "Media coverage of the issue reflects the opinion of the majority of the population," M = 2.56, SD = .80, α = .80; persuasion: e.g., "Many citizens adapt their opinions to the media coverage of the topic," M = 3.43, SD = .86, α = .82) on a five-point Likert scale (1 = *fully disagree* to 5 = *fully agree*). In addition, a bipolar measurement of inference hypotheses was applied (seven-point semantic differential ranging from 1 = *The media reflect public opinion* to 7 = *The media influences public opinion*, M = 5.23, SD = 1.07) that will be used to cross-validate the above measures.

Perception Of Public Opinion was measured on a slider ranging from 0 to 100% (estimated percentage of people holding a favorable opinion towards refugees in Germany, M = 43.1, SD = 16.8). Minority/Majority Perception was determined from the agreement between personal opinion and perceived public opinion and ranged from −3 (*extreme minority*) to 3 (*extreme majority*). For example, values of "−3'' meant that the participant held an extremely favorable opinion towards refugees (4 or higher) but estimated that 25% or less of the Germans also held favorable opinions. In contrast, a value of "3" meant that the participant held an extremely favorable opinion towards refugees and also estimated 75% or more to be of a favorable opinion. We used this way of computing minority/majority perception to provide a more fine-graded variable and thus account for the fact that it makes a difference whether one holds an extreme opinion (e.g., 1 on the seven-point scale) while believing that the vast majority think differently than when one holds a moderate opinion (e.g., 3.5 on the seven-point scale) and sees public opinion as pointing slightly in the opposite direction (a dichotomous variable would put both persons in the same category).

Willingness To Speak out was measured by asking participants about their likelihood to engage in different behaviors, both online (six items, e.g., "express my opinion on the subject in social media," M = 2.34, SD = 1.11, α = .90) and "offline" (four items, e.g., "express my opinion on the subject in public," M = 3.68, SD = 0.96, α = .83).

In addition, we assessed several additional concepts to control for in our analyses: Political Orientation (left–right, seven-point-semantic differential, M = 4.89, SD = 2.26), Political Interest (five-point-semantic differential, *not at all–very much interested in politics*, M = 3.93, SD = 1), Populist Attitudes (Schulz et al., 2018; nine items, M = 3.12, SD = .87; α = .85) and Media Skepticism (Tsfati, 2003; seven items, M = 3.09, SD = .74, α = .85).

4.3. Results

Before checking the data for consistency with our propositions, we looked at the mean values and performed zero-order correlations for our main variables (Table 1). This reveals some specifics of the data set that need to be taken into account. First, the majority of respondents seem to hold a rather favorable opinion towards refugees in Germany, while public opinion is perceived rather negatively on average. Second, we see a somewhat strong negative correlation between perceived media coverage and personal opinion that points to a hostile media effect regarding this topic. Third, perceived media coverage and perceived public opinion are significantly correlated, but the effect size is marginal. Fourth, and contrary to our assumption, persuasion and reflection inference are not negatively correlated. In contrast, both concepts have a significant positive correlation, although the effect size is rather small, $r(1{,}636)$ = .14, p < .001. Cross-validation with the bipolar measurement shows the assumed correlations in the expected direction (Table 1). Interestingly, the descriptives show that participants clearly see media more as a molder (persuasion inference, M = 3.43, SD = .86) than a mirror (reflection inference, M = 2.56, SD = .80) of public opinion (mean of bipolar measurement, M = 5.23, SD = 1.07).

To approach propositions 1a and 1b, we conducted a hierarchical regression analysis with perceived public opinion as the outcome variable, perceived media coverage as the predictor, and inference hypotheses as moderators (Table 2). All variables were mean-centered to allow for a meaningful interpretation of conditional main effects. In a first step, we controlled for gender, age, formal education, personal opinion, and political orientation. As predicted, perceived media coverage and perceived public opinion are related. Both inference strategies serve as moderators of this relationship in that the stronger one perceives the media to reflect/influence public opinion, the stronger the relationship between perceived media coverage and perceived public opinion. However, the effect is considerably stronger for the reflection inference than for the persuasion inference, challenging the assumption that both inference hypotheses would be equally meaningful for inferring public opinion from media coverage. Consequently, the more people believe that media is reflective of the public, the more they seem to use media coverage as a basis to estimate public opinion as predicted; however, the belief that the media influences

Table 1. Zero-order correlations.

	Zero-order correlations						
	Perceived media coverage	Perceived public opinion	Personal opinion	Reflection inference	Persuasion inference	Inference hypotheses (bipolar)	Willingness to speak out
1 Perceived media coverage	—						
2 Perceived public opinion	−.06*	—					
3 Personal opinion	−.46***	.26***	—				
4 Reflection inference	−.29***	.21***	.40***	—			
5 Persuasion inference	−.27***	−.01	.03	.14***	—		
6 Inference hypotheses (bipolar)	−.07*	−.15***	−.22***	−.26***	.50***	—	
7 Willingness to speak out	−.12***	.16***	.27***	.11***	.10***	.02	—

Note: *p < .05, **p < .01, ***p < .001.

public opinion does not drive this connection to the same extent.

To approach propositions 2b and 3b and test how inference hypotheses influence the relationship between perceived media coverage and willingness to speak out, we performed a regression analysis with willingness to speak out as the outcome variable, inference strategies as predictors, and minority/majority-perception as a moderator. All variables that define products were mean-centered before the analysis to allow for interpretation of conditional main effects. In a first step, we controlled for gender, age, formal education, personal opinion, and political orientation. Results confirm both hypotheses (Table 3). Reflection inference has no conditional effect on willingness to speak out but is moderated by minority/majority perception. In contrast, persuasion inference has a conditional effect on willingness to speak out that is not moderated by minority/majority perception. This means that the stronger people perceive media as a reflection of public opinion, the more likely they are to speak out, but only if they see their personal opinion in line with public opinion; however, the more they perceive media to influence public opinion, the more likely they are to speak regardless of whether they think their opinion is shared by the majority or not.

Lastly, we wanted to explore which individual factors explain whether people tend to infer public opinion through reflection or persuasion. With the present data set, we can test propositions 2a and 3a and check whether hostile media perceptions trigger persuasion rather than reflection and vice versa. Since we have a single variable that ranges from 0 = *friendly media perception* (perfect congruence between perceived media coverage and personal opinion) to 4.05 = *hostile media perception* (maximum difference), we would expect this variable to negatively predict reflection and positively predict persuasion inference. In addition, we checked

Table 2. Regression analysis predicting perceived public opinion.

	Perceived Public Opinion			
	B	*beta*	*t*	*p*
Model 1: Covariates[1]				
Gender	2.924	.087	3.190	.001
Age	−0.057	−.054	−1.900	.058
Formal education	1.883	.055	1.928	.054
Personal opinion	4.409	.281	8.441	<.001
Political orientation	0.434	.058	1.771	.077
Model 2: Conditional effects & moderations[2]				
Perceived media coverage	2.668	.262	8.429	<.001
Reflection inference	3.248	.154	5.487	<.001
Persuasion inference	0.596	.031	1.142	.254
Perceived media coverage x reflection inference	2.607	.227	8.421	<.001
Perceived media coverage x persuasion inference	0.590	.051	1.991	.047
Model Summary	[1] $F(5, 1{,}285) = 23.33$, $p < .001$, $R^2 = .08$ [2] $F(10, 1{,}285) = 33.63$, $p < .001$, $R^2 = .18$			

Notes: Values for each variable are taken from the model where the variable was first entered; to allow a meaningful interpretation of conditional effects, all variables that define products were mean-centered before analysis.

Table 3. Regression analysis predicting willingness to speak out.

	Willingness to Speak Out			
	B	*beta*	*t*	*p*
Model 1: Covariates[1]				
Gender	0.108	.060	2.197	.028
Age	−0.001	−.018	−0.650	.516
Formal education	−0.022	−.012	−0.425	.671
Personal opinion	0.189	.226	6.774	<.001
Political orientation	−0.034	−.084	−2.577	.010
Model 2: Conditional effects & moderations[2]				
Reflection inference	−0.036	−.032	−1.06	.289
Persuasion inference	0.098	.095	3.37	<.001
Minority/majority-perception	0.108	.087	2.96	.003
Reflection inference x Minority/majority-perception	−0.156	−.099	−3.58	<.001
Persuasion inference x Minority/majority-perception	0.38	.027	0.97	.331
Model Summary	[1]$F(5, 1{,}282) = 21.99$, $p < .001$, $R^2 = .08$ [2]$F(10, 1{,}282) = 14.33$, $p < .001$, $R^2 = .10$			

Notes: Values displayed for each variable are taken from the model where the variable was first entered; to allow a meaningful interpretation of conditional effects, all variables that define products were mean-centered before analysis.

for the influence of media skepticism and populist attitudes that should also increase persuasion inference and reduce reflection inference (proposition 5b). We conducted two hierarchical regression analyses with inference hypotheses as outcome variables and sociodemographics (Model 1) as well as several individual dispositions (Model 2) as predictors (see Table 4). Zero-order correlation analysis conducted before the regression models revealed expected low to moderate correlations between hostile media perception, populism, and media skepticism (*r*'s between .30 and .43), and between populism and formal education ($r = -.39$).

Table 4 summarizes the results of both regression analyses. In line with proposition 2a, friendly/hostile media perception negatively predicts reflection inference, meaning that the more one sees media coverage on refugees in line with one's own beliefs, the more one sees it as a reflection of public opinion. However, friendly/hostile media perceptions do not predict persuasion inference as proposed. The same holds true for the general trait of media skepticism, only that this also predicts persuasion inference (albeit to a weaker extent than reflection).

As an overall pattern, almost all individual factors under investigation are significant predictors for (a decrease in) reflection inference but do not predict (an increase in) persuasion inference to the same extent. As an exception, populist attitudes do predict both strategies to a similar extent, but the effect is very small. The same goes for formal education, with higher

Table 4. Regression analyses predicting inference hypotheses.

	Reflection Inference				Persuasion Inference			
	B	*beta*	*t*	*p*	*B*	*beta*	*t*	*p*
Model 1								
Gender (1 = *male*)	−0.136	−.085	−3.067	.002	−0.048	−.028	−.984	.325
Age	−0.004	−.074	−2.549	.011	−0.006	−.102	−3.482	<.001
Formal education (1 = *higher*)	0.136	.084	2.928	.003	−0.136	−.078	−2.696	.007
Model 2								
Friendly/hostile media perception	−0.179	−.223	−8.095	<.001	0.002	.003	.087	.931
Media skepticism	−0.280	−.260	−9.051	<.001	0.180	.154	4.744	<.001
Populist attitudes	−0.053	−.058	−1.955	.051	0.080	.081	2.408	.016
Political interest	−0.070	−.087	−3.242	.001	−0.033	−.038	−1.249	.212
Political orientation	−0.049	−.139	−5.467	<.001	−0.012	−.030	−1.059	.290
Model summary	[1]$F(3, 1{,}285) = 11.44$, $p < .001$, $R^2 = .03$ [2]$F(8, 1{,}280) = 55.85$, $p < .001$, $R^2 = .26$				[1]$F(3, 1{,}285) = 5.81$, $p < .001$, $R^2 = .01$ [2]$F(8, 1{,}280) = 8.97$, $p < .001$, $R^2 = .05$			

Notes: Values displayed for each variable are taken from the model where the variable was first entered.

formal education leading to a stronger reflection and a weaker persuasion inference. Interestingly, age is negatively related to both concepts, meaning that the older the participants, the less they judge media to be related to public opinion.

5. Discussion and Conclusion

So far, media effects research in political communication has produced diverging results regarding the relationships between media coverage, public opinion perception, and individual outcomes. Based on existing findings and prior work on social inference (e.g., Gunther, 1998; Gunther & Christen, 1999), the present manuscript proposes two different inference hypotheses that might be decisive for how (perceived) media coverage affects subsequent judgments and behaviors: reflection and persuasion inference. An existing data set on the refugee crisis in Germany in 2017 was used to test some of the propositions put forward.

Although the data set provides only one specific case study, it reveals some interesting findings regarding the proposed framework. First, it suggests that reflection and persuasion inference are two distinct, unrelated concepts. This is supported by the negligible correlation between both strategies, the very weak moderating effect of the persuasion inference, and the stronger effect of hostile media perceptions on reflection than persuasion. Thus, it can be stated that while hostile media perception leads people to believe that the media does not represent public opinion, it does not necessarily mean that they see media as a molder of it. Rather, it may be that people with hostile media perceptions see media coverage and public opinion as detached. Consequently, the data does not support proposition 4, that the inference strategies stand in a hydraulic relationship, which also suggests that when measured directly, two distinct scales should be used rather than a bipolar measurement. It also suggests that to trigger persuasion inference, more than just the perception that the media is biased against one's viewpoint is needed—drawing from research, it is plausible that attitude importance/strength could be a factor that tips the scale.

Second, although we found an overall higher manifestation of a persuasion inference than a reflection inference in the data, reflection inference was a better predictor for the proposed relationships. In particular, it was a more important moderator of the effect between perceived media coverage and perceived public opinion, meaning that inference of public opinion from (perceived) media coverage is stronger when seen as reflective than persuasive. Interestingly, one of the key drivers of perceived media influence on others, hostile media perceptions, did not predict an increase in persuasion inference in this data set, but a decrease in reflection. Certainly, this result from one specific study should not be seen as evidence against this proposition (especially with ample evidence from prior research in this area, e.g., Gunther & Chia, 2001; Hansen & Kim, 2011), but it again points to the fact that the feeling that media does not represent the public does not automatically result in the feeling that it influences it. The most important predictors for persuasion inference were more stable traits such as media skepticism and populist attitudes, pointing to the fact that it might not be as dependent on situational factors as reflection inference. Certainly, this assumption needs to be tested by additional studies, e.g., by experimentally varying specifics of media coverage.

Third, the data suggested that reflection and persuasion inference may have different consequences regarding third-level outcomes, in this case, willingness to speak out. In line with the spiral of silence assumptions, we saw that the more people saw the media as a mirror of public opinion on refugees, the more likely they were to speak out but only if they perceived themselves as part of the majority opinion. In contrast, and in line with research on corrective action (e.g., Barnidge & Rojas, 2014), the belief that media influences people's opinion on the topic leads to an increased willingness to speak out regardless of perceived minority/majority opinion.

Taken together, we see that the integration of several strands of research on perceived public opinion perceptions and their consequences can help to understand media influence processes from the perception of media coverage over the perceived opinion of others to respective consequences. An important finding is that reflection and persuasion inference seem not to be two ends of the same continuum but two different concepts with somewhat different drivers and outcomes. Importantly, this means that the factors that may lead to a decrease in reflection inference do not necessarily increase perceived persuasion. What adds to this is that these inference hypotheses also related differently to a subsequent outcome, willingness to speak out in this case: While this was dependent on public opinion perception in the case of reflection, it was not in the case of persuasion. Taken together, this points to the fact that persuasion inference is harder to trigger than (a decrease in) reflection inference, but once it is triggered, people seem inclined to act upon it regardless of whether the majority shares their opinion.

Importantly, to better understand the results, some specifics and limitations of the data set need to be noted. First and most importantly, we are looking at cross-sectional, non-experimental data, which means that we cannot empirically test the causal relationships that are put forward in the propositions. This becomes especially apparent for personal opinion, which was treated as an exogenous variable guiding perception, although this could very well be the other way around. In reality, one would assume reciprocal relationships between perception and personal opinion, which cannot be modeled with the current data set. Second, the data is focused on only one topic with specific characteristics (e.g., strong predispositions, controversial and morally

loaded, highly present in public discourse, strong hostile media perception). In addition, this data set provides a specific sample (non-representative, single country) and a specific topic (attitudes towards refugees), which may look different in other contexts. Thus, the present results should be viewed as the first evidence for or against some of the propositions that need replication.

In addition, not all propositions put forward in this article could be tested; for example, proposition 5a addresses the relevance of direct cues of the opinions and behaviors of others, such as exemplars and poll results, as drivers for reflection inference. However, this could be an important avenue for future research to help understand what leads people to engage in one inference hypothesis more than the other. In this vein, it would be interesting to examine whether the inclusion of ordinary citizens as exemplars could strengthen people's belief that the media is reflective of what the public thinks and, in turn, affect judgments such as trust in media coverage in the long run (Peter, 2019). Here, experimental designs can help to gain further insight into whether direct cues or their absence drive inferences hypotheses as proposed by H5a (e.g., Peter, 2021). Furthermore, the experimental manipulation of the inference hypotheses could be a fruitful way to establish causal relationships between perceptual judgments about others derived from these hypotheses and subsequent individual outcomes. In particular, more research is needed to understand how personal predispositions and situational factors interact. For instance, a study by Peter (2021) showed that for people holding strong populist attitudes, only a high number of direct public opinion cues triggered reflection compared to people holding little to no populist attitudes.

With the proposed framework, we hope to inspire future theoretical and empirical work research as we are confident that it applies not only to research questions in political communication but to a wide range of research topics and outcomes. For instance, it could be applied to advertising research and used to understand whether the inclusion of the testimonies of ordinary people could trigger reflection inference and proposed consequences, e.g., buying a product when one believes that many people are in favor of it. Furthermore, it could be applied to health communication and in the context of media coverage about certain groups of people, e.g., those suffering from depression. If, for instance, coverage paints a negative picture of this group, reflection inference might lead consumers of said coverage to avoid contact with people in the group if they believe the display is representative of (a majority of) the group. Taken together, we believe that acknowledging the relevance of perceptual judgments for media effects on individual outcomes and integrating inference hypotheses into theoretical reasoning could help to shed light on prior confusing results in various areas and inform future research on media effects.

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Article

Insidiously Trivial: Meme Format Reduces Perceived Influence and Intent to Debate Partisan Claims

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Abstract
If citizens systematically respond differently to claims conveyed by memes, their effects on the broader information ecosystem may be underestimated. This US-based study (N = 598) uses a 2 (partisan news/meme format) × 2 (congenial/uncongenial message) design to examine perceptions of partisan memes' influence on self and others, and the format's effect on willingness to share disagreement in the context of partisan claims about corruption surrounding biofuels operations. Results indicate that meme format enhances individuals' tendency to see messages as less influential on oneself than on others and individuals less intent to share disagreement with claims presented in meme format. This decrease is mediated by the decrease in perceived influence over self. These findings call attention to the role format differences may play in the psychological processes underlying political discussion as it becomes increasingly mediated and visual.

Keywords
corrective action; perceived media influence; partisan media; political memes; third-person effect

Issue
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1. Introduction

Concern about the quality of online information environment has inspired debate about the prevalence of misinformation and hyper-partisan news, public susceptibility, and potential mitigation approaches (Albright, 2017). However, this debate:

> Has mostly referred to one thing: the spread of inaccurate, misleading, or otherwise invented *articles* passed as real news. The fake news conversation has taken place in the realm of words, but that's missing a big part of the story. Much of the content that circulates on Facebook are images, often memes. (Renner, 2017, para. 1)

In fact, as Renner (2017) points out, images were massively more popular than hyperlinks shared on *Breitbart*'s Facebook page in 2016, for example. Therefore, understanding how the public perceives and responds to claims conveyed in the partisan meme format—"the perfect vessel for the spread of false information" (Renner, 2017, para. 15) is critical. This has implications for the composition of online information ecosystems in terms of the amount of both outright false information as well low-credibility, hyper-partisan content that circulates unchecked.

With high novelty value, political memes are popular subjects in mass media reporting (DeLuca et al., 2012; Freelon & Karpf, 2015; Huntington, 2013), where they are billed as curios of internet participatory culture (e.g., Miranda, 2016). Scholarship has tried to catch up to this moving target with descriptive and conceptual work undertaken by Milner (2012, 2013), Shifman (2013, 2014), and others, often taking a qualitative approach to exploring media forms' cultural meanings (e.g., Rodley,

2016; Wetherbee, 2015). Some quantitative work has focused on their diffusion (Huntington, 2013) and usage (Chagas, et al., 2019; Martínez-Rolán, & Piñeiro-Otero, 2016; Moody-Ramirez & Church, 2019), but researchers seem to have neglected political memes from basic media effects and political psychology perspectives. This may be due in part to their deceptive appearance of triviality. But if citizens systematically respond differently to these messages than similar information in differing formats (e.g., more traditional forms of partisan media), then their effects on the broader opinion climate may be underestimated.

While political memes are not likely to cause vote switching in presidential elections, they may reinforce partisan attitudes or shape issue stances on low-information issues. And if they are a vehicle of misinformation that is less likely to receive interpersonal attention or correction, then they may be a weak spot in the information ecosystem. This study manipulated whether participants were exposed to political content in a common meme format—the image macro—or as a partisan news article and varied whether this content was oppositional or congenial to participants' party affiliation in the US.

Results show that participants saw partisan memes as less likely to influence both others' and their own views and were less likely in turn to say they would share disagreement. These findings suggest prominent but trivialized elements of socially mediated political communication may decrease the chances of deliberative or corrective exchanges.

1.1. Partisan Memes and the "Image Macro"

Like other new media formats before them, studying memes has become critical to "understanding the fabric of opinion formation," as it changes with technology and social trends (Banning & Sweetser, 2007, p. 453). Internet memes are "multimodal symbolic artifacts created, circulated, and transferred by countless mediated cultural participants" (Milner, 2013, p. 2359). Of these media, those arguably most commonly referred to as political memes are partisan "image macros": template-based single images superimposed with two lines of bold text (Börzsei, 2013; Lyons, 2017; Rintel, 2013; Vickery, 2014). This easily recognizable format may influence reactions regardless of a meme's content (e.g., Schmierbach & Oeldorf-Hirsch, 2012; Veenstra et al., 2015). However, it is worth noting that political memes encompass a sprawling set of media objects beyond the image macro, though these are not directly examined here.

Political memes combine a number of qualities of older political media, and in other ways transcend these (Lyons, 2017). Several of these qualities may matter in terms of perception and response. Political memes are created by anonymous amateurs who generally cite no sources, and remediation further obscures their origin (Rodley, 2016). Like more traditional political satire (Becker et al., 2010), they attempt both humor and persuasion. They also tend to inject politics into casual social spaces (da Silva & Garcia, 2012; Lyons, 2017). For these reasons, citizens may be wary of political memes and be motivated to reject their claims (Banning & Sweetser, 2007; Gunther & Thorson, 1992; Paradise & Sullivan, 2012). Like political advertising, they tend to malign or ridicule political figures or parties (Chagas et al., 2019; da Silva & Garcia, 2012; Moody-Ramirez & Church, 2019), and so may motivate greater backlash among partisans who feel attacked (Becker et al., 2010; Veenstra et al., 2015).

At the same time, political memes are deeply rooted in internet subculture (Milner, 2013), and are often absurd (Chagas et al., 2019; Jurgenson, 2012; Katz & Shifman, 2017), objectively wrong, or obnoxious even to in-groups. For these reasons, they are trivialized in media coverage (Huntington, 2013), and citizens may likewise look down their noses at them. These perceptions matter because of the behaviors they encourage. If viewers see them as less consequential, they may not bother to correct them. The broader opinion climate may then suffer as biased information and misinformation goes unchallenged (Neubaum & Krämer, 2016).

1.2. Presumed Influence

A few related literatures explore how the presumed influence of media messages motivates behavior. Most prominently, the third-person effect hypothesis posits that third-person perception—the belief that others will be more influenced by a message than oneself—often spurs action, such as censorship or correction (Davison, 1983). Individuals see themselves as less susceptible to persuasion, particularly from what they perceive as low-quality sources, and particularly when hypothetical consequences of a message are socially undesirable (Gunther & Mundy, 1993). Researchers have found third-person perception across a wide range of media forms, including political advertising, satire, and social media (e.g., Banning & Sweetser, 2007; Becker et al., 2010; Gunther & Thorson, 1992; Paradise & Sullivan, 2012).

The evidence regarding the behavioral component is less clear, though, particularly when behaviors beyond censorship are considered (Xu & Gonzenbach, 2008). Based on the third-person effect literature, other scholars have forwarded a related theory of the "influence of presumed media influence" (Gunther & Storey, 2003). Instead of the gap in perceived effects on self and others driving behavior, this theory focuses on a more general belief in a message's influence (Cohen & Tsfati, 2009; Cohen et al., 2008; Tsfati & Cohen, 2005). Both third-person perception and overall presumed influence have been linked with behavioral adjustments, including corrective actions (Barnidge & Rojas, 2014; Rojas, 2010; Sun et al., 2008). While third-person effects and the influence of presumed influence are thought of as complementary rather than competing hypotheses

(Gunther & Storey, 2003), some studies show the two variables do not necessarily translate into equivalent behavioral or attitudinal outcomes (Sherrick, 2016).

1.3. Corrective Action

In recent years, scholars examining the behavioral component of presumed influence have focused on corrective action (Barnidge & Rojas, 2014). The corrective action hypothesis holds that individuals respond to presumed media influence by expressing their own counter-opinions or otherwise "correcting" views and claims they see as wrong in the public sphere (Rojas, 2010; Sun et al., 2008). Scholars have forwarded models of corrective action stemming from both third-person perception (Lim & Golan, 2011; Sun et al., 2008) and overall presumed influence (Barnidge & Rojas, 2014; Rojas, 2010). These studies provide evidence that both are linked to behaviors that for the participant rehabilitate or improve public debate.

This could take the form of "social media activism" in which individuals seek to counter political messages' influence by posting refutations (Lim & Golan, 2011). Those who perceive memes as misguided and influential on others may seek to correct them. However, if individuals see memes as irrelevant, they may choose to refrain. Willingness to correct one's peers on social media platforms is important because professional outlets are unable to do so (Shelly, 2017), because such unchallenged claims can distort perceptions of the opinion climate (Neubaum & Krämer, 2016), and because peer corrections are effective (Bode & Vraga, 2017; Hannak et al., 2014; Serrano, 2017; Vraga & Bode, 2017).

2. Hypotheses and Research Questions

Based on the prior review, I formulate the following hypotheses: The first group assesses the effects of the meme format—that is, the effects of presenting messages in the classic "image macro" format that superimposes two lines of bold white text over an image. This study first seeks to confirm the existence of third-person perception regarding such formatting, hypothesizing that this perceptual gap will be greater for claims presented in meme format than in traditional partisan media format, and that meme format will reduce corrective intent relative to partisan media format.

H1: Partisan meme format induces greater third person perception (TPP) than traditional partisan media format.

H2: Partisan meme format induces lower corrective intent than traditional partisan media format.

Next, this study asks if the effects of partisan meme format on perceptions of influence and willingness to correct are conditional on the content's slant.

RQ: Does the partisan congeniality of the message moderate the effects of format on beliefs or corrective action?

The final set of hypotheses address the mechanisms of format effects (though note that these tests are nonetheless correlational). The literature provides little guidance regarding media content that may *decrease* presumed influence and corrective action. For the sake of reconciling previous work (Lim & Golan, 2011), this study tests competing hypotheses regarding presumed influence (TPP and total presumed influence [TPI]) and behavioral outcomes (Sherrick, 2016). Perceived influence is then posited as the mediation path between message format and behavioral intention.

H3a: TPP is associated with greater corrective intent.

H3b: TPI is associated with greater corrective intent.

H4: Partisan meme format's reduction of corrective intent is mediated through reduced presumed influence.

3. Methods

3.1. Sample

Hypotheses were tested using a between-subjects online experiment in March of 2016. Five hundred and ninety-eight participants were recruited via Amazon Mechanical Turk in March 2016 and compensated with $0.75. Demographically, Turkers are marginally more diverse than the typical Internet sample, significantly more diverse than an undergraduate sample (Buhrmester et al., 2011), and "exhibit the classic heuristics and biases," (Paolacci et al., 2010, p. 417). Mullinix et al. (2015) conducted a series of parallel experiments, comparing effects across a nationally representative survey sample, a Mechanical Turk sample, a student sample, and other convenient samples. They found that not only were Mechanical Turk samples' effects in the same direction as those of a national sample but of the same significance threshold and similar magnitude for each topic examined.

Participants were 53% female and 75.4% white, with a mean age of 39.22 (*SD* = 13.5), median education of a bachelor's or associate's degree, and median income of $20–40K. They were 44.1% democrat, 19.9% republican, and 36% independent. Accounting for independents who leaned toward one party or another, the participants were 57.5% democrat, 27.3% republican, and 15.2% independent.

3.2. Design and Procedure

The experiment employed a fully crossed 2 (meme/partisan news article) × 2 (congenial/uncongenial

content) design. A partisan dispute over advanced biofuels operations was chosen as a controversial topic for the stimulus (Fung et al., 2014); this low-salience issue was chosen to reduce pre-treatment exposure effects (Druckman et al., 2010). Participants were exposed to either an image macro (Börzsei, 2013) style political meme or a partisan news article about biofuels funding. The photograph in each was held constant. Partisan news articles were depicted as being posted by *Breitbart* or *Huffington Post* Facebook pages. The anti-Democratic Party meme included the text "Big Biofuels shut down? Where will Dems get handouts now?" while the anti-Democratic article (from *Breitbart*) included the headline "Democrats lose source of handouts with biofuels shutdown in NC [North Carolina]." The anti-Republican meme included the text "Repubs in big oil's pocket? Better shut down biofuels," while the anti-Republican article (from *Huffington Post*) included the headline "Bending to big oil, Republicans shut down biofuels operation in NC." The number of likes and shares was redacted. Stimuli materials can be seen in Figure 1 of the Supplementary Material.

Participants were told the meme or article was popular on social media following the controversy and answered questions about their perceptions of the content's potential influence over themselves and others, as well as the likelihood of sharing disagreement via social media. The survey experiment took place in the context of a larger survey, following an experiment analyzed as a separate study (Lyons, 2018). Specifically, participants had previously engaged in brief writing exercises before selecting discussion partners and news stories, and then viewing news video to test hypotheses relating to the mitigation of partisan bias. Using Transue et al.'s (2009) procedures, I find no spillover effects of the writing task on the current study's outcomes (see Table A1 of the Supplementary Material).

3.3. Measures

3.3.1. Independent Variables

Based on the manipulations, a dummy variable for meme format and a three-level oppositional content variable constructed using valence of the content and respondent party affiliation (45.2% opposed, 39.6% supported, 15.2% neither opposed nor supported) were employed.

3.3.2. Dependent Variables

Third-person effects researchers favor competing analytical approaches to perception of influence. One set of authors operationalizes third-person perception as perceived influence on self subtracted from influence on others, and TPI as the sum of self and other items (McLeod et al., 1997; Neuwirth & Frederick, 2002; Schmierbach et al., 2011). Another set of authors include both self and other items as conjoint predictors of behaviors, thus controlling for presumed influence on the self (others) when examining the effects of presumed influence on others (self; Cohen & Tsfati, 2009; Tsfati et al., 2005). As recommended by Schmierbach et al. (2008) and Sherrick (2016), both methods are employed and reported below.

Presumed influence on others (M = 4.80, SD = 1.39) and presumed influence on self (M = 3.62, SD = 1.71) were measured on seven-point scales. Third-person perception was computed by subtracting presumed influence on self from presumed influence on others (M = 1.18, SD = 1.63). TPI was computed by summing other and self-measures (M = 8.42, SD = 2.65).

Corrective action was likewise measured on a seven-point scale (M = 3.14, SD = 1.70) based on the statement "I would be likely to share my disagreement with it on social media." Importantly, Rojas (2010) and subsequent work on "corrective action" define such behavior as any actions that contest the influence of media messages—including expressing opinions, communicating one's views, voting, persuading others to vote a given way, or other attempts to sway public opinion. This is an important point, given that the present study touches upon how users may respond to misinformation or misleading content; the corrective action hypothesis does not refer specifically to fact-checking endeavors, but discussion more broadly. In studies of social media activism in response to presumed media influence, this concept has been measured with items such as "how likely would you be to leave a negative comment…?" (Lim & Golan, 2011). We take a similar approach and ask about intent to share disagreement.

3.4. Random Assignment Check

In addition to the sample's demographics described above, two further variables were included in the random assignment check based on their potential as confounds. Strength of party affiliation was measured as strong (52%) or not strong (48%). Network homogeneity was measured with the average of three five-point items (Chronbach's α = 0.82, M = 3.02, SD = 0.73): "Most people in my online social network [are like me/share my outlook on life/share my political views]." Random assignment was checked using analysis of variance, which showed no significant differences in age, gender, race, education, income, party affiliation, strength of affiliation, or network homogeneity across either the meme format factor of the oppositional content factor.

4. Results

H1 and H2 were tested using ordinary least-squares (OLS) regression models, with a meme format dummy variable and a three-level oppositional content variable, as well as their interaction term. Results of the first model support H1: Messages induced greater third-person perception when conveyed in a meme format than when presented

as a partisan news article (β = 0.16, p < 0.001). Likewise, the second model showed support for H2: Meme format decreased corrective intent (β = −0.11, p = 0.011). While oppositional content increased third-person perception and correction intention (which is in line with prior work), slant did not interact with format. That is, addressing RQ, the effects of meme formatting were not moderated by messages' alignment with participants' party affiliation. The full results of these models are reported in Table 1, in the first two columns.

In anticipation of the two-pronged approach to assessing the relationship between presumed influence and behavior (Schmierbach et al., 2008; Sherrick, 2016), two further OLS analyses were conducted to model the individual components of third-person perception and TPI—perceived influence on self and on others—as outcomes of message format. Reported in Table 1, in the third and fourth columns, meme format reduced perceived influence on self (β = −0.24, p < 0.001) and others (β = −0.11, p < 0.001).

As indicated previously, two hierarchical linear regression models were employed to analyze the effects presumed influence on corrective intent (H3). The first included third-person perception (others − self) and TPI (others + self) simultaneously, while the second included self and other influence simultaneously. In both cases, format and consonance were included in the first block, with presumed influence variables included in the second block.

Results of the first model showed that the perceptual gap variable was not a significant predictor of correction (β = −0.05, p = 0.205). TPI was, however (β = 0.15, p < 0.001). It is noteworthy that the meme format became nonsignificant with the addition of the second block to the model, suggesting its effect may be mediated by TPI.

Results of the second model showed that presumed influence on the self (β = 0.16, p < 0.001), but not on others (β = 0.04, p = 0.429) predicted correction. Again, meme format became nonsignificant with the addition of the block of perceptual variables, suggesting presumed influence on self, in particular, mediates the format effect. The full results of these models are reported in Table 2.

Together, these tests suggest that a *perceptual gap* is not the mechanism of the meme format's diminishing of corrective action. Unlike third-person effects demonstrated elsewhere in the literature, where concern about the effect of a media message's influence over others appears to motivate corrective behavior (e.g., Lim & Golan, 2011), this outcome suggests that partisan memes instead *discourage* correction by *reducing* overall presumed influence, and particularly perceived influence on the self.

Before discussing the formal mediation analysis, it is important to note shifts in understanding of mediation models in recent years. In particular, mediation tests assume no confounding bias as applied to the X to M and M to Y paths (i.e., the sequential ignorability assumption; Imai et al., 2010). Because this study, like most others and those dedicated to third-person effects in particular, only randomizes levels of X, not M, these assumptions are not fully upheld. Still, the tests below are included as they might speak to prior work regarding presumed media influence, though they should be viewed in light of this limitation.

To formally test the proposed mediation pathway (H4), Hayes' (2013) PROCESS Macro (Model 4) was employed. Meme format was entered as the independent variable, influence on self as the mediator, and corrective intent as the dependent variable. Message consonance and presumed influence on others were entered as covariates. The 5,000 bootstrap sample procedure generated a 95% bias-corrected confidence interval that did not include zero (−0.205, −0.029) for the indirect effect of meme format on correction through self-influence. After accounting for self-influence, the direct relationship between format and behavior became insignificant

Table 1. Effects of media format and consonance on perceptions of influence and correction.

	TPP		Correction		Self		Others	
Meme Format	0.16***	0.16***	−0.10*	−0.10*	−0.24***	−0.24***	−0.11**	−0.11**
Consonance	−0.11**	−0.14*	−0.08*	−0.05	0.17***	0.19***	0.08*	0.07
Meme × Consonance	—	0.04	—	−0.04	—	−0.02	—	0.02
R^2	0.04	0.04	0.02	0.02	0.09	0.09	0.02	0.02

Notes: Cell values are standardized betas; * p < 0.05, * p < 0.01, *** p < 0.001.

Table 2. Effects of perceptions of influence on correction.

Meme Format	−0.10*	−0.06	Meme Format	−0.10*	−0.06
Consonance	−0.08*	−0.11**	Consonance	−0.08*	−0.11**
TPP	—	−0.05	Self	—	0.16***
TPI	—	0.15***	Others	—	0.04

Notes: Cell values are standardized betas; * p < 0.05, ** p < 0.01, *** p < 0.001.

(t = −1.48, p = 0.139, CI = [−0.486, 0.068]), indicative of indirect only (i.e., "full") mediation. The mediator accounted for a third of the total effect (P_M = 0.33).

5. Discussion

By focusing on perceptions of and responses to partisan memes, this study contributes novel insight into a popular communicative form that has nevertheless flown under the radar of media effects research. I find that partisan claims engender less corrective intent when conveyed by partisan memes than by partisan news articles. Mediation tests show this is due to a decrease in the message's presumed influence over the self. In other words, people see partisan memes as trivial, and not worth corrective efforts. For this reason, however, memes may present a highly effective vehicle for the spread of misleading claims or outright misinformation. Not only are they often more likely to be shared than traditional news links (Renner, 2017), they are less likely to attract corrective efforts of professionals or peers. Image-based memes may therefore serve as a loophole for those wishing to intentionally mislead others online (Marwick & Lewis, 2017; Renner, 2017).

Importantly, this study shows how presumed influence can explain instances where individuals choose *not* to act. Rather than see partisan memes as low-quality information sources from which they must protect others, individuals instead see less reason to engage in persuasive or informative efforts in the face of messages to which they feel impervious. As with Sherrick (2016), it is important to note that a third-person perceptual gap was present, but not associated with behavioral intention. This lends further support to the notion that the belief that others are more vulnerable to media than oneself and the belief that media has generally derogative effects are not always equivalent predictors of attitudinal or behavioral response (for a more in-depth discussion of why discrepancies may appear in studies examining the downstream behavioral effects of third-person perception, see Lyons, 2022).

This study also complements prior qualitative, rhetorical, and descriptive approaches to memes by providing an initial understanding of the psychological processes involved when individuals encounter partisan memes on social media platforms. Similarly, the findings add texture to recent technical reports calling attention to memes' potential roles in disinformation campaigns, though the stimuli tested here do not represent disinformation per se (Gorwa, 2017; Marwick & Lewis, 2017). Likewise, on the practical front, these findings might inform future expansions of efforts to enhance media literacy (Mullin, 2017).

However, this study is also limited in a number of ways that may be supplemented by future work. First, the study employed a measure of behavioral intention rather than observed behavior. While behavioral intentions are typically antecedents of behaviors (Ajzen, 1985), this approach could be extended with computational efforts using large social platform datasets, to observe how citizens actually systematically respond to different media formats. As an additional threat to external validity, the effects found here may not necessarily generalize to other types of memes beyond the image macro and to political topics beyond biofuels. While it is wise to be circumspect about the generalizability of the findings, it seems less likely that these effects are due to the biofuels-centric message but rather the partisan framing of any low-salience political issue. In other words, to assume that the effects of the meme format (lesser presumed influence, lesser corrective intent) relative to the partisan headline conveying the same claims about biofuels are due to the biofuels content, rather than the meme format, is to assume that there is a specific interaction effect whereby meme format drives down presumed influence relative to traditional media formatting, but only for biofuel-related partisan content. I do not see this as particularly theoretically plausible. Overall, single-message design is a common limitation for experimental research in communication (Pingree et al., 2014), and can be aided through replication or designs employing multiple message versions. Admittedly, this is the first step in what should become a line of research dedicated to examining visual communication effects in online political discourse. It is my hope that I and others will replicate and extend upon this finding.

It may also be the case that the stimuli construction influenced respondents' intent to share disagreement, as the image macro versions of the claims employed rhetorical questions (e.g., "Big Biofuels shut down? Where will Dems get handouts now?"). Some may view such a question as hard to share "disagreement" with, but in my view, partisans likely understand such questions to be equivalent to a claim that Democrats are receiving handouts (as is made in the headline). It should also be mentioned that although the results should speak to perceptions of misinformation conveyed across formats, it may be argued that the stimuli do not represent misinformation per se, but rather partisan slant. It is my view that the messages represent a form of unsupported claim—that the opponent party is unethically accepting handouts in return for policymaking. In any event, whether we are concerned with falsified information or hyper-partisan content more broadly, it is worth asking whether mere format differences can distort public response.

It is also an inevitable fact that (reported) engagement with media will differ between artificial exposure and when embedded in real-world social networks. Notably, though, this study is not attempting to explain engagement decisions per se, but rather whether the formatting of messages can influence this in the abstract. That is, all else equal, I ask whether meme format itself exerts any influence on engagement intent. It is possible that the influence of formatting effects and social

connections interact such that individuals may be especially more or less likely to engage with a meme—relative to other political content—when posted by a friend rather than a stranger.

Most importantly, more dimensional work, in general, is needed to understand the nascent formatting of memes. For example, as conversations surrounding memes take place on social platforms, future research should consider the interplay of social and political cues (Messing & Westwood, 2014), the implications of context collapse (Davis & Jurgenson, 2014; Shmargad & Watts, 2016), and the role of perceived network heterogeneity (Veenstra et al., 2017) in individuals' corrective decisions. Likewise, the effects of intramedium interaction (Lyons & Veenstra, 2016; Veenstra et al., 2015), whereby comments on shared posts might reframe and alter responses, should be examined. In other words, more work is needed to understand how social media users perceive their need to act based on the presence of various overlapping social signals. With an eye toward making those corrections more effective, experiments can suggest which might be the best forms and sources of evidence for specifically debunking a meme vs. other media (Vraga & Bode, 2017). Lastly, researchers may determine whether the threshold for inducing familiarity effects, wherein information comes to be seen as truer through repetitious exposure (Weaver et al., 2007), varies across media formats.

Regardless, this study calls attention to the role of format differences in the psychological processes underlying deliberation and political discussion as it becomes increasingly mediated and visual (Hendriks et al., 2017; Lyons, 2017). In doing so, it provides initial empirical evidence about a commonly overlooked form of contemporary political discussion. Political memes warrant further attention, even if it is their very triviality that poses consequences for the public.

Conflict of Interests

The author declares no conflict of interests.

Supplementary Material

Materials, data, and analysis script can be found at https://osf.io/pu2sb.

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Article

How Citizenship Norms and Digital Media Use Affect Political Participation: A Two-Wave Panel Analysis

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Abstract
A centrally important question for researchers of media and communication is whether any type of individual-level behavior (e.g., digital media use) or normative attitude (e.g., norms of good citizenship) contributes to equalizing patterns of political participation, which often favor higher-status groups. Drawing on a two-wave repeated panel telephone survey that uses a nationally representative sampling frame, the study's research design facilitates a robust analysis of how citizenship norms and digital media use affect political participation, with a focus on comparing higher- and lower-status groups. Specifically, the study analyzes a survey conducted in 2018 (Wave 1) and 2019 (Wave 2) among Israeli citizens, with a representative sampling of the generally higher-status Jewish majority and the lower-status Arab minority. The findings indicate that citizenship norms and digital media use in Wave 1 have a time-ordered positive effect on nonelectoral participation in Wave 2 for both Jewish and Arab citizens of Israel. However, the findings also show that for voting, the only statistically significant determinant is citizens' Jewish or Arab identity. At a time when many democracies are facing severe challenges due to democratic erosion and social disintegration, this study contributes a normatively encouraging finding that key factors identified in the literature on citizenship norms and digital media use do not contribute to participatory inequalities between the Jewish majority and Arab minority in Israel. The findings also show, however, that it is essential to look beyond digital media use patterns to mobilize lower-status groups to become politically engaged in electoral-oriented politics.

Keywords
citizenship norms; digital media; electoral participation; nonelectoral participation; participatory inequality; voting

Issue
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1. Introduction

In an era marked by growing concerns about political inequality in contemporary democracies, two conflicting global trends in political behavior have gained attention in the last several decades. First, there has been a clear decline in voter turnout, especially among individuals of lower socioeconomic status (Blais et al., 2020; Kostelka & Blais, 2021). Second, evidence indicates an increase in nonelectoral political participation, which tends to be more common among higher socioeconomic status individuals (Dalton, 2022; Theocharis & van Deth, 2018).

Two growing lines of literature have emerged that investigate distinct explanations for these trends in political behavior. First, one line of research related to citizenship norms argues that changing conceptions of what it means to be a good citizen are transforming citizens' political behavior in contemporary democracies (e.g., Dalton & Welzel, 2014). This causal theory has important implications for the study of democratic representation since it highlights the potential of prodemocratic norms to affect the political engagement patterns of diverse groups in society. A second explanation has emerged more recently in the literature focusing on digital media use as a separate important factor that

influences political participation patterns (e.g., Xenos et al., 2014). While research has confirmed the importance of these two explanatory factors on political participation, little attention has been paid to date to integrating these explanations with a focus on testing their relative effects among diverse socio-demographic groups.

A key gap in research on these topics is that while both arguments have a clear causal logic whereby the explanatory factors at a certain time point have a causal effect on subsequent political behavior at a later time point, empirical research has been based largely on cross-sectional research designs that cannot assess causal direction (e.g., Copeland & Feezell, 2017; Dalton, 2008; Schnaudt et al., 2021). An additional gap in the literature is that the cross-sectional surveys that inform these studies as well as the limited number of repeated-wave panel surveys (e.g., Ohme, 2019a; Shehata et al., 2016) have all been conducted in relatively advanced democracies (e.g., Australia, Denmark, Germany, Sweden, the United States, and the United Kingdom) and have not investigated whether citizenship norms and digital media use may have a differential impact on levels of political participation among higher-status and lower-status groups in diverse societies. The question remains, therefore, whether an equalizing effect on levels of engagement in different types of political participation can be identified among higher-status and lower-status groups characterized by multiple socio-demographic cleavages, including majority/minority ethnic status.

The current study contributes to scholarship on these topics by analyzing a survey in Israel designed to test the relative strength of these two arguments, focusing on comparing higher-status and lower-status groups. Repeated-wave panel studies on these topics have focused on adjacent theoretical questions centered on, for example, adolescent citizenship norms (Shehata et al., 2016) and how social media affects first-time voting behavior (Ohme, 2019b). However, empirical research has yet to assess the relative effect of citizenship norms and digital media use on different types of political participation while considering whether the relations differ for higher-status and lower-status groups.

Based on an analysis of a high-quality two-wave panel telephone survey of Israeli adult citizens that uses a representative sampling frame, the findings show that citizenship norms and digital media use do not have statistically significant effects on voting behavior, but do have time-ordered effects on nonelectoral political participation. Importantly, there is no evidence that either citizenship norms or digital media use contribute to participatory inequalities between the generally higher-status Jewish majority and the lower-status Arab minority. The findings and concluding discussion highlight the importance of continuing to advance political behavior research that is informed by repeated-wave panel data in diverse geopolitical contexts to assess the generalizability of theories that have gained prominence based on cross-sectional studies in advanced representative democracies.

2. Citizenship Norms, Digital Media Use, and Political Participation

As noted, one of researchers' main explanations for changing political participation trends in recent years is the effect of changing citizenship norms on political behavior. Recent scholarship on this topic has been reinvigorated by Dalton's (2008, p. 78) investigation of citizenship norms as "a shared set of expectations about the citizen's role in politics," and the effect of changing norms on expanding patterns of political participation. The relationship between citizenship norms and political participation is a fundamental subject of political inquiry, dating back at least to Aristotle's writings on political community and the common good (Smith, 1999). In modern scholarship in the fields of political science and communication, scholars have made ground-breaking efforts to assess the empirical relationship between citizens' attitudes and political processes, from Almond and Verba's (1963) classic cross-national empirical study of civic culture to more recent inquiries about norm change (Dalton & Welzel, 2014). Informed by both longstanding and more recent investigations of citizenship norms, scholars argue that the shared set of expectations about people's roles in politics shapes individuals' propensities and motivations for being politically active in various ways (Bolzendahl & Coffé, 2013). Select studies of the relationship between political attitudes and political behavior have shown that the causal arrow can point in both directions (e.g., Galais & Blais, 2016; Gastil & Xenos, 2010; Quintelier & Hooghe, 2012; Quintelier & van Deth, 2014). These studies report evidence supporting the common assumption that attitudes have causal effects on behavior, along with evidence for the reciprocal argument that behavior can have a socialization effect that subsequently impacts a range of political attitudes, including political interest, political efficacy, and political trust.

A second prominent explanation for shifting patterns of political participation is that digital media use increases all types of political participation, especially nonelectoral participation (Anduiza et al., 2012; Gainous & Wagner, 2014). As noted in Boulianne's (2020, p. 954) definitively comprehensive meta-analysis of digital media effects on civic and political participation, digital media use includes any use of a device that requires an Internet connection, with relevant activity ranging from relatively passive exposure to political information to more active behaviors of blogging and social network posting. Boulianne's (2020) study and others (e.g., Valenzuela, 2013) clarify a range of reasons why digital media use may have a positive impact on political participation, including its facilitation of information sharing, opinion expression, and network effects. Prominent studies have found positive associations between digital media use and political participation in countries such as Australia, the United Kingdom, and the United States (Bode, 2012; Cantijoch et al., 2016; Xenos et al., 2014). Furthermore, the results

of Boulianne's (2020) meta-analysis of cross-sectional studies show a clear positive association between digital media use and political participation. In addition, a meta-analysis based on repeated-wave panel data found a significant, time-ordered effect of digital media use on subsequent civic and political participation (Oser & Boulianne, 2020).

Theoretical claims that these two explanatory factors of citizenship norms and digital media use have driven recent changes in political behavior do not inherently contradict one another. Prior research has found strong associations between each of these explanatory factors and political participation; and indeed, the strength of these associations rivals the strength of the link between political participation and education, which is the most prominent covariate identified in prior research. Furthermore, recent studies have found that citizenship norms and digital media use have an interactive effect on political participation (Copeland & Feezell, 2017; Ohme, 2019a). However, the existing research has important limitations. First, research has not yet been conducted to robustly evaluate the relative effect sizes of these two explanatory variables. Second, researchers have not yet assessed how citizenship norms and digital media use might impact participatory inequalities between higher-status and lower-status subgroups that can be investigated in the context of deeply divided societies such as Israel (Harel-Shalev, 2010; Hermann et al., 2022).

2.1. Why Investigate Higher-Status Versus Lower-Status Groups?

The importance of investigating differential effects on political participation for distinct subgroups of any polity was compellingly articulated by Sidney Verba (2015) in a fiftieth-anniversary discussion of his classic book on civic culture co-authored with Gabriel Almond (Almond & Verba, 1963). Reflecting on the legacy of this research on political culture and political participation, Verba discussed the importance of paying attention to how explanatory factors may differ for distinct subgroups of national polities:

> One danger of comparative survey studies of things like political culture is that we focus heavily on the comparison across nations….But there may be as much or more difference in the political cultures of Mississippi and California as there is between the USA and many other countries—which are also heterogeneous. And we tend to typify groups within nations: women, Moslems, the rich, the poor and so forth. These perspectives are valuable—but those groups are internally divided; not all the same. The typifications are illuminating, but there is a danger of oversimplification. (Verba, 2015, p. 239)

As noted by Ariely (2011, p. 249), societal divisions in Israel create a laboratory for studying differential citizenship. Specifically, a high level of stratification and deep societal divisions—including a generally higher-status Jewish majority and lower-status Arab minority (Galnoor & Blander, 2018; Jamal, 2002; Peled, 2013)—make Israel a useful context for investigating differential effects on participation across subgroups. At the time the data for the current study were collected, 2018–2019, the Central Bureau of Statistics of Israel (2018, 2019) documented a total Israeli population of approximately 9 million residents—74% Jews and 21% Arabs—which allows for meaningful empirical investigation of variation in these groups' socio-demographics, attitudes, and behaviors. Israel is also a useful case for the current study because it is generally considered to be a democratic regime despite the ongoing debate about the strength of its democratic characteristics (Ariely, 2021; Jamal, 2020; Oser & Galnoor, 2016).

The country also has a high level of variation in the key factors of interest in the current study of digital media use, societal attitudes, and political behavior (Hermann et al., 2022; Kohut et al., 2011). Regarding social attitudes, prior research has generally found stronger support for pro-democratic political attitudes such as political trust and political efficacy among the Jewish majority than among the Arab minority (Ariely, 2018), but research focused explicitly on citizenship norms in Israel has not yet been conducted. A related divide in social attitudes identified in cross-national research is that attitudinal connection to the state is very low for the Arab minority in Israel compared to the Jewish majority (Elkins & Sides, 2007). Regarding digital media use, although Israelis have been described as highly connected (Dror & Gershon, 2012), because average levels of digital media use are on par with and even exceed levels in many of the most developed democracies, previous studies have shown a digital divide within Israel characterized by intentional avoidance of digital media among lower-status groups, including the Arab minority (e.g., Hijazi-Omari & Ribak, 2008). Regarding political participation, prior research found a consistently higher voter turnout rate for the Jewish majority than for the Arab minority, while the more limited research on nonelectoral participation suggests relative parity between Jews and Arabs in levels of participation beyond the electoral arena (Ariely, 2018; Shihade, 2015).

Along with the importance of investigating these topics in diverse contexts, including deeply divided societies like Israel's, a single cross-sectional survey is not adequate for assessing how these factors may be causally related to each other. The hypotheses articulated in the following section therefore take into account the question of causal direction in the investigated relationships.

3. Hypotheses

Informed by this literature on the relationship between citizenship norms, digital media use and political participation, we test the following hypotheses:

H1: Norms of good citizenship have a positive effect on subsequent political participation.

H2: Digital media use has a positive effect on subsequent political participation.

Regarding expectations for how the generally higher-status Jewish majority and the lower-status Arab minority may operate differently in relation to the three key factors of citizenship norms, digital media use, and political participation, the literature does not inform clear hypotheses. While it is feasible that citizenship norms and digital media use may serve as particularly useful mobilizing forces for lower-status groups, these factors of citizenship norms and digital media use may be even stronger mobilizing forces in the hands of the dominant higher-status majority. In lieu of specific hypotheses about differential behavior of majority and minority groups, the current study investigates the following research question:

RQ: How do the relationships between citizenship norms, digital media use, and political participation operate for the two key subgroups of Israeli citizens of the Jewish majority and Arab minority?

4. Data and Methods

4.1. Data

To address the theoretical interests of the study, it is necessary to analyze survey data that reflects the Israeli population's socio-demographic diversity. This requires a high-quality survey of the Israeli adult population that uses a nationally representative sample frame capable of gathering representative data on both Jewish and Arab citizens of Israel. In addition, multi-wave panel data of at least two waves are needed to assess the relative strength of one causal direction versus the other (Finkel, 1995, 2008).

The dataset analyzed in this study is based on a telephone survey conducted by Tel Aviv University's B.I. Cohen Institute using a representative sample frame of the Israeli adult population (for supplementary information on the dataset see Supplementary File Section 1: Survey, variable, and index documentation; and Section 2: Summary of sample characteristics). The selection of this survey design is informed by literature indicating that telephone samples have the capacity to be more representative of socio-demographic variation in diverse populations (e.g., Berinsky, 2017; Yeager et al., 2011). In accordance with respondents' language preferences, the interviews were conducted in Hebrew or Arabic by professionally trained interviewers speaking in their native languages. The survey was conducted using a geographically representative sampling frame of Israeli households.

The first wave (W1, n = 1,470) was conducted between November 2018–January 2019, with a response rate of 48%. The second wave of the survey was conducted between November and December 2019, and included a total re-interview sample size of n = 771 for respondents who provided responses on the political participation dependent variables. This re-interview rate of 52.4% reflects the rigorous survey procedures implemented by the B.I. Cohen Institute, as prior literature indicates that repeated wave panel attrition may range between 25–50% in rolling six-month panels, and it is common for repeated-wave panel surveys in annual or longer panels to experience attrition of 70% or higher (Bartels, 1999; Dimitrova et al., 2014). The sample in Wave 1 is fairly representative of population statistics for Jews and Arabs for the key socio-demographic characteristics of age and gender, although the sample is somewhat biased toward higher levels of education. As is common for repeated-wave surveys, this higher education bias is stronger in Wave 2, and some bias is also evident for gender and age. As education is the most important socio-demographic variable for the theoretical focus of the current study, and the sample is too small to create a valid multivariate weighting variable, we created a variable to weight the dataset to match the Israeli education distribution for Jews and Arabs (see Supplementary File Section 2 and replication files for further documentation). The multivariate regression findings reported in the article apply this weighting variable, and the replication files document that the findings are substantively consistent with and without the applied weight.

The current study examines the two main types of political participation that have been studied most intensively in scholarship on political behavior, namely electoral-oriented participation such as voting, and nonelectoral participation, such as protest (e.g., Brady, 1999; Oser, 2022a; Vráblíková, 2014). This study adopts this fairly parsimonious theoretical distinction (between electoral and nonelectoral participation) because much of the prior research on these topics has focused on young age groups, and thus has either omitted the important political act of voting (e.g., Shehata et al., 2016; Xenos et al., 2014), or focused on first-time voters (Ohme, 2019b; Ohme et al., 2018b). Because national elections were held in Israel between Wave 1 and Wave 2, there is sufficient variance to include the turnout measure in dynamic models. Notably, recent innovative research has made conceptual and empirical advances in identifying several types of nonelectoral participation (Ohme et al., 2018a; Theocharis & van Deth, 2018; van Deth, 2014), and the concluding discussion details avenues for future research on these topics for additional types of political participation.

To measure the political participation indicators, we follow common practice in research that investigates the effect of digital media use on political participation by operationalizing the political participation measures to include only offline political acts, thereby offering a clear distinction between independent and dependent variables (e.g., Boulianne, 2020, p. 955). Figure 1 displays the

mean political participation levels of Jews and Arabs in Wave 1 and Wave 2 with valid responses on all indicators of political participation (n = 771). Consistent with prior research, the most prevalent reported act among the population as a whole was voting, followed by nonelectoral political acts—including petitioning, political consumerism, attending a political meeting, donating money for a social or political activity, protesting, contacting a political or civil servant, and working in a political party or action group.

The mean participation levels in Figure 1 clarify that the relative prevalence of these different types of political behavior is similar across both waves of the study, including the differential prevalence between Jews and Arabs. Consistent with prior research, there is a clear gap between Jews and Arabs in their level of voting turnout, which is higher for Jews than Arabs in both waves of the study. For nonelectoral participation, however, only two types of political acts are more prevalent among Jews than Arabs, namely petitioning and political consumerism. The remaining, less common political acts are either clearly more common among Arabs in both waves (e.g., party work), or are relatively similar between the two groups when standard errors are taken into account. Taken together, the mean participation levels show clearly higher levels of voting for the Jewish majority, but relatively similar levels of nonelectoral participation for majority/minority groups. This gap between majority and minority groups for electoral participation compared to the relative parity between these groups in their levels of nonelectoral participation highlights the importance of investigating these two distinct types of political participation in the Israeli context.

Although some studies find that electoral-oriented political acts, such as contact and party work, form coherent indices with voting, the dimensional analyses of the data used in the current study do not support combining these indicators in a single index. The multivariate analyses conducted in this study therefore use two main dependent variables: For electoral participation, the indicator of Vote; and for Nonelectoral Participation, a mean index of the other participation indicators documented

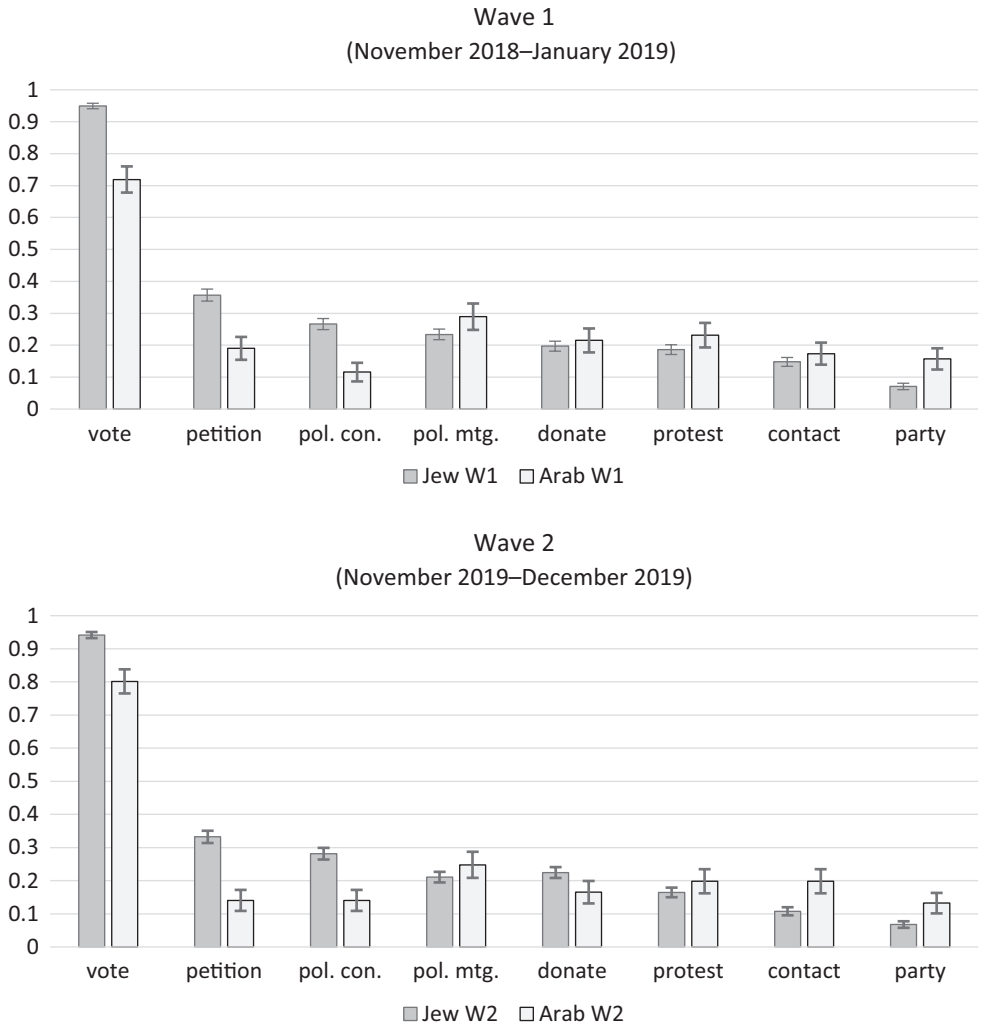

Figure 1. Electoral and nonelectoral political participation among Jews and Arabs in Waves 1 and 2. Notes: Error bars represent 95% confidence intervals; sample size is limited to respondents with valid data for all political participation measures depicted in the figure for both W1 and W2 (n = 771).

in Figure 1. Table 1 documents the descriptive statistics for the political participation dependent variables as measured in Wave 1 and Wave 2, and for the independent variables and control variables measured in Wave 1.

The key independent variable of Good Citizenship Norms is informed by the battery of questions in the International Social Survey Programme that is analyzed in prominent studies on this topic in the literature (Bolzendahl & Coffé, 2013; Dalton, 2008, 2020). The survey asks respondents to note their opinions on how important a series of items are to being a good citizen on a scale from *not at all important* (1) to *very important* (5), including: voting in elections, not evading taxes, obeying laws, keeping watch on the government, being active in social and political associations, understanding the reasoning of people with other opinions, engaging in political consumerism, and helping people in the country and in the world who are worse off than yourself. Dimensional analysis of these indicators in the Israeli data identifies one clear dimension, and indicators of index strength do not support creating sub-indices consistent with distinct dimensions identified in the literature using data from other contexts. The current study therefore uses a single mean index to measure good citizenship norms. Consistent with prior research using cross-sectional data to examine the relationship between citizenship norms and political behavior (e.g., Bolzendahl & Coffé, 2013; Oser, 2017, 2022b), we acknowledge the inevitable challenge of potential endogeneity as the variables and their error terms are likely to be systematically related to one other. Yet, the current research design of a two-wave repeated panel improves the analytical capacity to assess the potential independence of these measures.

The key independent variable of digital media use is measured as a self-report of two types of digital media use in the past year. First, a measure of Online News Media is a mean scale of two items that ask respondents to note how often they use the Internet or social network sites to receive political news or information (1 = *never*; 5 = *several times a day*). Second, a mean index of three indicators of Social Media Political usage measures respondents' reports of whether they have re-posted or shared links on social media received from others; posted or shared original political content; and encouraged others to take political action on social media platforms. As this second measure of digital media use is the more politically active of the two measures, we expect it to have a stronger association with the political participation dependent variables of the current study. While we follow common practice of studies that investigate the effect of digital media use on political participation by operationalizing the dependent variable of political participation using offline measures only, it is noteworthy that this type of social media political activity is itself defined in recent studies as political participation—either in the same category with offline participation measures (e.g., Ohme et al., 2018a) or as an additional distinctive type of online participation (Oser et al., 2022; Theocharis & van Deth, 2018). Importantly, however,

Table 1. Descriptive statistics.

	N	Min	Max	Mean	SD
Wave 2 DVs					
Vote W2	771	0	1	0.92	0.27
Nonelectoral participation W2	771	0	1	0.19	0.21
Online news media W2	769	1	5	2.53	1.22
Social media political W2	769	0	1	0.22	0.31
Good citizen norms W2	771	2.11	5	4.08	0.50
Wave 1 DVs, IVs, and controls					
Vote W1	771	0	1	0.91	0.28
Nonelectoral participation W1	771	0	1	0.21	0.22
Online news media W1	769	1	5	2.61	1.27
Social media political W1	771	0	1	0.22	0.32
Good citizen norms W1	771	2.22	5	4.08	0.46
Arab (ref: Jew)	771	0	1	0.16	0.36
Female (ref: male)	771	0	1	0.49	0.50
Age	764	18	89	48.88	15.72
Education	771	1	8	5.53	1.96
Income	729	1	5	3.03	1.30
Internal efficacy	765	1	5	3.12	1.11
External efficacy	771	1	5	2.56	0.87
Political interest	771	1	4	2.89	0.90
Observations	771				

Notes: DVs = dependent variables; IVs = independent variables.

there is no concern of multicollinearity in the multivariate regression models, as the variance inflation factor accords with accepted guidelines in the literature (e.g., Thompson et al., 2017): the variance inflation factor for social media political and nonelectoral participation measures is 1.19, and the variance inflation factor does not exceed 1.5 for any measures in the multivariate regression models.

To rigorously test the study's hypotheses, in addition to the measure of ethnic identity (0 = *Jew*; 1 = *Arab*), we include the following comprehensive set of control variables: Gender (0 = *male*; 1 = *female*), Age (in years), Education (1 = *elementary or less*; 8 = *MA degree or more*), Income (self-report in relation to Israeli average household income; 1 = *very below average*, 5 = *very above average*), Internal Efficacy and External Efficacy (1 = *low*; 5 = *high*), and Political Interest (1 = *not interested*; 4 = *very interested*).

The sample size for all variables included in the analysis is documented in Table 1, which shows that the maximum sample size of individuals interviewed in both waves who provided valid responses for all political participation indicators is n = 771. The descriptive statistics in Table 1 indicate that the rigorous survey procedures succeeded in yielding low levels of missing data for all variables, including for socio-demographic control variables such as income that tend to suffer from relatively high levels of missing data. All multivariate regressions and supplementary analyses are conducted using the maximum valid sample size for the fully specified regression analyses (n = 716). See the Supplementary File for correlation matrices of all variables included in the multivariate regression models (Table A1).

4.2. Methods

The analysis proceeds in three steps. First, we estimate linear regression models with dependent variables of political participation measured in Wave 2 and all independent variables and control variables measured in Wave 1. Second, we estimate cross-lagged panel models, depicted in Figure 2, to assess whether the independent variables of Wave 1 have a time-ordered and statistically significant effect on the dependent variables in Wave 2. Although at least three observation periods are required in order to prove causality, cross-lagged effects based on two survey waves can establish the time-ordered direction of effects that are a necessary condition for causal relations.

Finally, we conduct interaction analyses of respondents' ethnic identity as Jewish or Arab citizens of Israel with the independent variables of citizenship norms and digital media use to investigate our RQ of whether the key findings differ in meaningful ways between these subgroups of the population. As Vote is a binary indicator, logistic regression models are documented in the replication files for models with Vote as the dependent variable, and the substantive findings are consistent with the linear regression models. All analyses are conducted using Stata 17.0, and supplementary analyses are documented in the Supplementary File (Section 3). Data and replication files are available in the Open Science Framework (Oser, 2022c).

5. Findings

The findings for the first step of the analysis using linear regression are documented in Figure 3. For nonelectoral participation, the findings in Figure 3 provide suggestive support for the two main hypotheses of the study. Specifically, the results indicate a positive and statistically significant effect of good citizenship norms and the more active of the two measures of digital media use ("social media political," but not "online news media") in Wave 1 on nonelectoral participation in Wave 2. Thus, for nonelectoral participation, these findings support H1 (good citizenship norms) and H2 (digital media use). Notably, some socio-demographic variables that

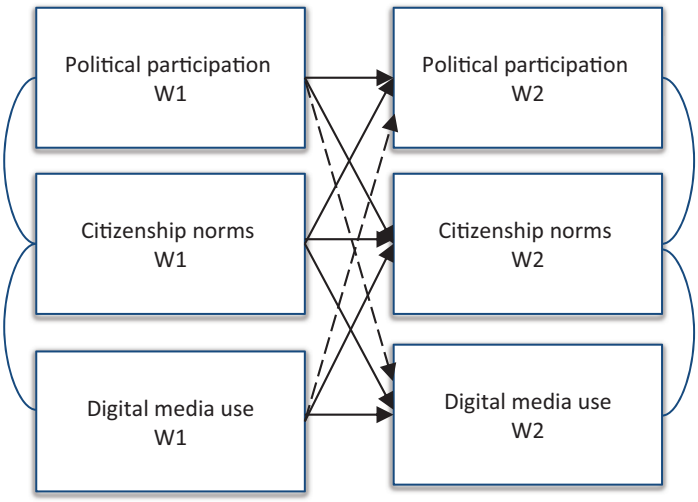

Figure 2. Cross-lagged panel model.

are often significant determinants of political participation are not statistically significant in the current study (e.g., political interest). Yet the findings show that the magnitude of the effects of social media political and good citizenship norms on nonelectoral participation is on par with the coefficient size for education, which has consistently been shown in prior research to be one of the socio-demographic variables with the strongest connection to nonelectoral participation. For electoral participation, however, the findings show that the digital media variables and good citizenship norms have no significant effect on voting, and that the only statistically significant determinant is citizens' Jewish or Arab identity.

Taken together, these findings suggest potential support for a time-ordered causal effect of citizenship norms and the use of political social media on subsequent nonelectoral political participation. Turning to the second step of the analysis to test the directionality of these relations, Tables 2 and 3 shows the results for the cross-lagged panel models (Frees, 2004; Paxton et al., 2011) which assess the statistical significance of the time-ordered relationships between the study's independent and dependent variables.

For nonelectoral participation, the findings in Table 2 provide evidence of a time-ordered relationship between good citizenship norms in Wave 1, and subsequent nonelectoral participation in Wave 2. These results therefore support H1's expectation of a time-ordered positive effect of citizenship norms on subsequent nonelectoral participation, and the findings show no reciprocal effect in the opposite direction of nonelectoral participation in Wave 1 impacting good citizenship norms in Wave 2. The same finding obtains for the social media political measure in Wave 1 having a time-ordered effect on nonelectoral participation in Wave 2, with no reciprocal effect in the opposite direction of nonelectoral participation in Wave 1 on the social media political measure in Wave 2. Consistent with findings from the linear regression results plotted in Figure 3, the digital media use measure of online news media is not significantly related to nonelectoral participation. Furthermore, the relative strength of the two significant independent variables—

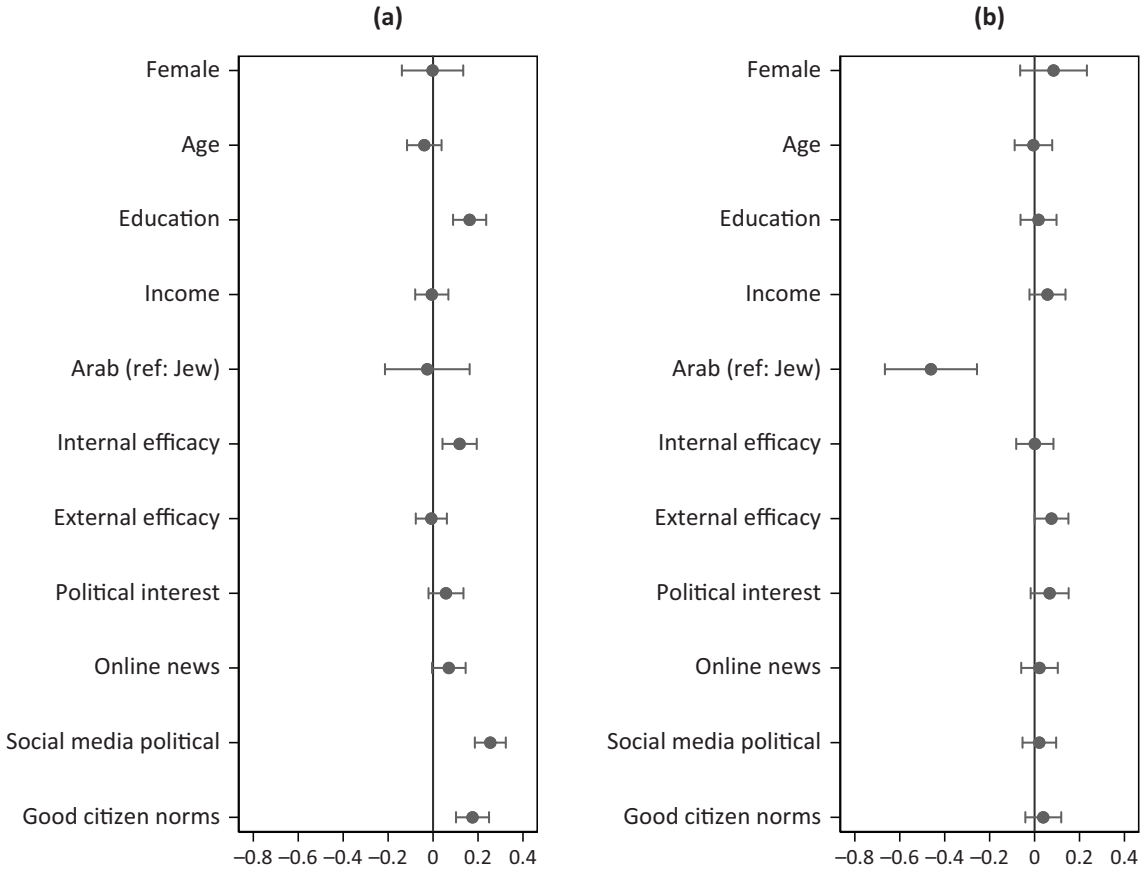

Figure 3. How citizenship norms and digital media use affect political participation: **(a)** Predictors of NEP W2; **(b)** Predictors of vote W2. Notes: Coefficient estimates with 95% confidence intervals; the sample was limited to the identical maximal n for both models (n = 716); independent variables and control variables are measured in Wave 1, and dependent variables are measured in Wave 2; all variables are standardized except for the binary control variables of gender and Jewish/Arab ethnic identity; see Supplementary File Table A2 for non-standardized results in tabular form, and Table A3 for results confirming that the main effects remain robust when including interaction terms between the key independent variables; SM = social media; GC = good citizenship.

Table 2. Cross-lagged panel models: Nonelectoral Participation.

	(1) Nonelectoral Participation W2	(2) Norms W2	(3) Social media W2	(4) Online news W2
Nonelectoral Participation W1	0.497*** (0.033)	0.047 (0.035)	0.049 (0.036)	0.011 (0.035)
Norms W1	0.088** (0.033)	0.501*** (0.035)	0.041 (0.036)	0.027 (0.035)
Social media W1	0.123*** (0.032)	0.022 (0.034)	0.421*** (0.035)	0.098** (0.034)
Online news W1	0.032 (0.033)	−0.057 (0.035)	0.107** (0.036)	0.414*** (0.036)
Constant	−0.060 (0.046)	−0.169*** (0.049)	−0.005 (0.049)	−0.020 (0.049)

Notes: Standard errors in parentheses; the sample was limited to the identical maximal n for both models (n = 712); results are based on fully specified models that include all control variables analyzed in Figure 3; * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$.

Table 3. Cross-lagged panel models: Vote.

	(1) Vote W2	(2) Norms W2	(3) Social media W2	(4) Online news W2
Vote W1	0.351*** (0.044)	0.153*** (0.039)	0.022 (0.040)	0.048 (0.040)
Norms W1	0.003 (0.039)	0.498*** (0.035)	0.049 (0.036)	0.025 (0.035)
Social media W1	0.035 (0.037)	0.035 (0.032)	0.434*** (0.034)	0.101** (0.033)
Online news W1	0.038 (0.040)	−0.045 (0.035)	0.112** (0.036)	0.417*** (0.036)
Constant	−0.032 (0.055)	−0.191*** (0.049)	−0.008 (0.050)	−0.027 (0.049)

Notes: Standard errors in parentheses; the sample was limited to the identical maximal n for both models (n = 712); results are based on fully specified models that include all control variables analyzed in Figure 3; * $p < 0.050$, ** $p < 0.010$, *** $p < 0.001$.

good citizenship norms and social media political—on nonelectoral participation are of similar magnitude, as a post-estimation *F*-test did not reject the null hypothesis that the effect size is the same for both relations ($p = 0.441$). For voting, the findings in Table 3 confirm prior results that neither of the explanatory factors investigated in the current study of citizenship norms and digital media use has an effect on voting.

In the third and final analytical step we investigate the RQ of whether the relationships analyzed to this point operate differently for the generally higher-status Jewish majority in comparison to the lower-status Arab minority. As noted, the literature does not inform clear hypotheses on this topic. The fully specified regression tables documented in the Supplementary File report on the interaction effect between Jewish/Arab ethnic identity and each of the three key independent variables in Wave 1 (Online News Media, Social Media Political, and Good Citizenship Norms) on the political participation dependent variables in Wave 2. The findings show that the interaction effects between Jewish/Arab ethnic identity and the key independent variables of the study in Wave 1 are not statistically significant for either nonelectoral participation or voting (see Supplementary File Tables A4 and A5). Thus, for the Jewish and Arab populations of Israel, these findings do not support a normatively positive conclusion that social media use is a "great equalizer" of political participation, as was found by Xenos et al.'s (2014) focus on education in three advanced democracies. However, the results of the current study do support the normatively encouraging finding that key factors identified in the literature on citizenship norms and digital media use do not contribute to participatory inequalities between the Jewish majority and Arab minority in Israel.

6. Conclusion

As many democracies worldwide face challenges related to democratic erosion of institutions and the disengagement of diverse populations, this study provides new insights into the relative contributions of citizenship

norms and digital media use on patterns of political behavior. The findings of the current study indicate that citizenship norms and digital media use have a time-ordered, positive, and substantive effect on nonelectoral participation for both Jewish and Arab citizens of Israel. The findings also show, however, that for voting, the only statistically significant determinant is citizens' Jewish or Arab identity. This study therefore contributes a normatively encouraging finding that key factors in the literature of citizenship norms and digital media use do not contribute to participatory inequalities between the Jewish majority and Arab minority in Israel. This type of time-ordered causal analysis of the factors that affect patterns of political behavior is of the utmost importance in light of the emergence of a vibrant literature that aims to assess the factors that explain changing trends in political participation among diverse socio-economic groups in recent years.

More specifically, the findings of the current study show that for nonelectoral participation, the cross-lagged panel analyses provide evidence of time-ordered effects of citizenship norms (H1) and digital media use (H2) on subsequent nonelectoral participation. Furthermore, the standardized results show that the magnitude of these positive effects are similar to the coefficient size of the central socio-economic status measure of education (Figure 3a). The findings therefore confirm a main conclusion in prior research (e.g., Dalton, 2008, 2020; Xenos et al., 2014) of a meaningful effect size of these explanatory factors on nonelectoral participation—even for a representative sample of an adult population in a less developed and deeply divided democracy. Importantly, these findings are obtained through the analysis of a telephone survey that uses representative sampling procedures, and includes a comprehensive set of socio-demographic control variables.

The current study also tested these hypotheses for electoral-oriented participation, and for this type of political participation, the findings showed no significant main effect of good citizenship norms or digital media use in Wave 1 on subsequent voting behavior in Wave 2. Rather, the findings for voting show that the only relevant socio-demographic characteristic that has a main effect on voting in the repeated-wave data is individuals' ethnic status as Jewish or Arab citizens of Israel. The results therefore suggest that for the important political act of voting, prominent explanations in the literature for political behavior such as citizenship norms and digital media use are overshadowed in the Israeli context by individuals' majority/minority ethnic identity. Regarding the RQ of whether the effect of citizenship norms or digital media use on political participation operates differently for the Jewish majority and the Arab minority, the interaction effect between ethnic identity and the explanatory variables were not significant for either type of political participation. These findings indicate that the explanatory factors of citizenship norms and digital media use clearly do not provide an additional participatory boost to the Jewish majority in comparison with the Arab minority.

Along with these contributions, we conclude by noting the current study's limitations as well as topics for future research. First, we note that while the current study's focus on the Israeli case provides new knowledge in the context of a deeply divided society, additional research is needed in varied contexts to test the generalizability of the findings. An additional limitation is that while the two-wave panel data in the current study is adequate for identifying time-ordered effects, at least three waves are necessary to firmly establish causal relations. A related concern is that despite the relatively high reinterview response rate compared to accepted standards in the literature, repeated-wave panel studies inevitably suffer from attrition. While the total sample size for the two-wave data analyzed in the current study is adequate for multivariate analyses, a larger sample size might facilitate the identification of small or modest significant coefficients that are not evident in the current study's findings. Furthermore, although a lag of one year with a relatively high response rate in Wave 2 is indicative of a high-quality survey design, the inclusion of longer time lags with a larger sample size would be useful for continuing to advance empirical research on these topics.

Despite the operational challenges of conducting multi-wave panel studies, this study suggests the importance of fielding more extensive multi-wave panel surveys in diverse contexts to investigate additional related topics. An important topic for future research is to test more fine-grained hypotheses regarding the effect of distinct sub-categories of citizenship norms and digital media use on the typology of nonelectoral participation that was established conceptually by van Deth (2014) and has been tested empirically in select contexts such as Germany (Theocharis & van Deth, 2018) and Denmark (Ohme et al., 2018a). Future research should investigate whether the findings of the current study are generalizable when analyses account for distinctions between the four main types of political participation identified in these studies: namely, political participation occurring in the political sphere; targeted at the political sphere; targeted at community issues; and non-political but politically motivated participation. Regarding more fine-grained research on the digital media use variables, it is noteworthy that only the more active of the two digital media use variables (i.e., social media political) analyzed in this study has a positive effect on subsequent nonelectoral participation. Keeping in mind that the more passive measure of online news media use is not significantly related to political participation in any of the models, an important avenue of future research is to assess more specifically how different types of digital media use relate to different types of political participation. Finally, an important topic for future research is whether more fine-grained media and communication mechanisms can be identified as potential avenues for equalizing the electoral-oriented participatory playing

field between higher-status and lower-status groups, including even between ethnic majority and minority groups in deeply divided societies.

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Conflict of Interests

The author declares no conflict of interests.

Supplementary Material

Supplementary material for this article is available online in the format provided by the author (unedited).

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