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Science Journalism on Controversial Fields: Contextualizing Audience Expectations and (Dis)Approval of the Watchdog Role

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Abstract

Journalism research differentiates between various conceptions of roles and societal functions that journalism is expected to perform. Previous research has mainly examined journalists' role perceptions, while audience views remain underexplored. However, in the context of science journalism on controversial scientific fields such as climate change or Covid-19, audience insights are particularly relevant given that media coverage may shape public perceptions of science and influence crisis responses. This study combines semi-structured interviews and focus group discussions to investigate what functions audiences expect from science journalism on controversial scientific fields, focusing on context-dependent (dis)approval of the watchdog role. Findings indicate that audiences expect science journalism to fulfill both traditional and science- or crisis-specific functions. Regarding the watchdog role, participants emphasized journalists' task of uncovering misconduct and scientific norm violations in research underlying policy decisions. However, participants also viewed watchdog journalism as a balancing act as there are many forms of inappropriate critical reporting that might foster distrust in science and media. The findings are discussed regarding their implications for journalism practice and the role of watchdog science journalism in shaping public perceptions of controversial science.

Keywords

audience expectations; controversial scientific fields; journalism; journalistic roles; science communication; scientific norms; watchdog science journalism

1. Introduction

Journalism research traditionally distinguishes different normative ideas of what roles and functions journalists should fulfill for society (Hanitzsch & Vos, 2018; Mellado, 2015). Previous research focused on content analyses of media coverage and journalists' role perceptions, while audience views and interpretations of watchdog journalism are less researched. In this context, Riedl and Eberl (2022) and Vos et al. (2019) highlight the necessity of including audience perspectives into research on journalistic role perceptions—given that audience approval is a basis for both the legitimation of journalism's societal role and the economic functioning of journalism. Regarding journalism related to science, audience insights are argued to be particularly relevant for journalism on controversial scientific fields. Prominent examples of such fields include Covid-19 and climate change as both address topics situated at the center of highly politicized public debates, with members of the public disagreeing on how the knowledge produced in these research fields should be incorporated into (crisis) decisions (Gligorić et al., 2024; Suldovsky et al., 2019). Media discussions of scientific knowledge associated with these fields may influence crisis responses and shape public perceptions of science (Mihelj et al., 2022; Ophir et al., 2024).

Accordingly, the present study investigates the functions audiences expect from science journalism on controversial fields. Using a partly inductive approach, a special focus is placed on the watchdog role in these expectations as well as its context-dependent audience (dis)approval (Skovsgaard et al., 2024). Regarding methods, this study draws on a combination of semi-structured interviews and focus group discussions. This study contributes to a more holistic understanding of journalistic roles and audience expectations (Riedl & Eberl, 2022) in the context of reporting on controversial scientific fields, informing both journalism research and practice as well as future investigations of media reporting and its effects on public perceptions of controversial science.

2. Literature Review

2.1. *Journalistic Roles and the Context of Controversial Scientific Fields*

In journalism research, as in social sciences in general, a “role” concept usually “describes the sum of norms, ideals, privileges, and duties associated with a social position” (Krüger et al., 2022, p. 65). Following Hanitzsch and Vos (2017, p. 115), the present study theoretically conceives journalistic roles as “discursively constituted.” Hanitzsch and Vos (2017) point out that journalists' roles can be studied from different perspectives: regarding normative ideas of what journalists should do, cognitive orientations of what journalists intend or want to do, professional practice of what journalists actually do, and narrated performance of what they say they do. Empirical insights for cognitive orientations and narrated performance are often gained through quantitative journalist surveys or interviews and focus group discussions with journalists (e.g., Krüger et al., 2022; Ojala & Pöyhtäri, 2018) while professional practice is often analyzed through content analysis of news coverage (e.g., Márquez-Ramírez et al., 2020; Nolan et al., 2024). Normative ideas, however, are negotiated societally and held by audiences as well. As “agents of socialization” (Hanitzsch & Vos, 2017, p. 129), they may contest, (re)create, and (re)interpret journalistic roles, contributing to establishing specific public images and expectations of journalism (Hanitzsch & Vos, 2017, 2018). However, audience perspectives have been far less researched compared to the other perspectives (Riedl & Eberl, 2022; Skovsgaard et al., 2024; Vos et al., 2019). Past research on normative roles

and functions of journalism has introduced a variety of different typologies. One very influential typology is the one from Mellado (2015, 2020), an analytical framework distinguishing the interventionist, watchdog, loyal-facilitator, service, infotainment, and civic roles.

The thematic focus of journalistic roles has often been on political reporting (e.g., Hanitzsch & Vos, 2018; Ojala & Pöyhtäri, 2018; Riedl & Eberl, 2022), while the contexts of science journalism (Fahy & Nisbet, 2011; Polman et al., 2014) and crisis contexts (Klemm et al., 2019; Skovsgaard et al., 2024) have been less researched. Depending on the concrete topic or domain, both journalistic role perceptions and audience expectations may shift, and typologies need to be adapted or understood relationally and context-specific (e.g., Fawzi & Mothes, 2020; Klemm et al., 2019; Roney et al., 2025). For instance, focusing on German and Finnish journalists' role perceptions in the context of health crisis reporting, Klemm et al. (2019) adopted several broad professional roles, such as interpreters, watchdogs, and translators. Another identified role was that of a public mobilizer, which involves encouraging self-protective actions and promoting socially responsible behavior toward others. Drawing on interviews with UK and US science journalists, Fahy and Nisbet (2011) have developed a science journalism-specific role typology that builds on general journalistic roles but addresses domain-specific role interpretations (e.g., civic educator, conduit, agenda-setter).

Regarding controversial scientific fields, again, a context-sensitive understanding of journalistic roles and corresponding audience expectations is necessary. Scientific fields can be regarded as controversial when they deal with issues that lie at the heart of intensely politicized public debates and segments of the public disagree about how the knowledge and evidence generated in these research areas should inform (crisis) policymaking decisions (Gligorić et al., 2024; Suldovsky et al., 2019). Prominent examples of controversial scientific fields are Covid-19 and climate change. For both fields, public discussions intensively thematize the evidence produced in these fields. While this evidence is not necessarily considered controversial or contested within science (especially in the case of most climate science research), the evidence may create situations of post-normal science communication (see Funtowicz & Ravetz, 1993; Lörcher et al., 2024), often producing societal controversies, e.g., regarding the individual implementation of science-based recommendations and interventions (Gligorić et al., 2024; Suldovsky et al., 2019). Due to such controversies, science journalism plays a central role in forming public opinion on controversial fields, influencing crisis responses, and shaping public perceptions of science (Mihelj et al., 2022; Ophir et al., 2024). Moreover, reporting that does not meet audience expectations in the case of controversial fields like Covid-19 or climate change may fall at risk of damaging public trust in science and (science) journalism in times where trustful relationships between the public, science, and (science) journalism are very much needed (Bromme et al., 2022; Nicolaisen, 2022; Schug et al., 2025).

Given the shortcomings of previous research (e.g., the missing focus on audience expectations), the relevance of science journalism on controversial scientific fields as a science- and crisis-related information source (Mihelj et al., 2022; Ophir et al., 2024), as well as the need for a holistic and context-sensitive understanding of journalistic roles and audience expectations (Riedl & Eberl, 2022; Roney et al., 2025; Skovsgaard et al., 2024), this study aims to connect audience expectations towards science journalism to controversial scientific fields. Accordingly, this study asks:

RQ1: What functions do audiences expect from science journalism on controversial scientific fields?

2.2. Audience (Dis)Approval of Watchdog Science Journalism

The “watchdog” counts as a well-researched journalistic role that is recurring across different topical domains (e.g., politics or science; see Fahy & Nisbet, 2011; Riedl & Eberl, 2022). Watchdog journalism is considered necessary for functioning democracies, with watchdog journalists critically monitoring powerful public actors as a fourth estate (Mellado, 2015; Waisbord, 2000). Concerning science reporting, recent research ascribes the watchdog function an increasing relevance, given that fraud, misconduct, and norm violations seem to become more common in science and are already subject to various kinds of science journalism (Brainard & You, 2018; Mede et al., 2025; Schug et al., 2026). For instance, in the context of science coverage of biomedical Covid-19 studies, Schug et al. (2026) found that print media heavily referenced the scientific norms of communalism, universalism, disinterestedness, organized skepticism, and originality (Merton, 1973; Ziman, 2000) and their (un)fulfillment by reported studies. In this regard, norm violations related to researchers’ and research institutions’ motivations (disinterestedness) and critical challenging of studies (organized skepticism) were found to be important aspects of Covid-19 science media critique. Related, Mede et al. (2025) used the example of “Retraction Watch” and their X page to investigate norm discourses in hybrid media systems. On a content level, a broad range of ethical and epistemological norm violations was reported. However, they also found that audience participation and user engagement were relatively low (see Mede et al., 2025).

These findings raise questions on how watchdog science journalism can meet audience expectations and what defines “good” and approved or “bad” and disapproved watchdog journalism in the public eye—especially with regard to controversial scientific fields and post-normal situations challenging traditional norms of science, society, and journalism (Lörcher et al., 2024). From a normative perspective, watchdog science journalism that, for instance, exposes pseudo-science or debunks science-related conspiracy theories can be considered functional and societally important (Ardèvol-Abreu, 2022; Nguyen & Catalan-Matamoros, 2020). However, previous research on audience expectations of watchdog journalism has found that (dis)approval is individual and context-specific (e.g., Riedl & Eberl, 2022; Skovsgaard et al., 2024). Concerning political reporting, expectations and (dis)approval contexts of watchdog journalism depend on factors related to the media and political system (Riedl & Eberl, 2022). Regarding general Covid-19 reporting, audience demands for watchdog journalism depend on audience characteristics (e.g., political ideology and party preference) and context-specific functions and forms of critical reporting (Skovsgaard et al., 2024). For instance, while generally supporting watchdog journalism regarding crisis-relevant actors (especially politicians), audiences expressed discomfort when journalists adopted a self-promotional tone or when watchdog journalism was overly negative, nitpicking, or one-sided, or when the reporting denied portrayed actors the opportunity to respond or clarify their positions (Skovsgaard et al., 2024).

Building on this line of research, this study places a special emphasis on the watchdog role and its (dis)approval contexts when analyzing journalistic roles in the context of reporting on controversial scientific fields, paying tribute to the role’s status as a prerequisite for a crisis-proof society (Márquez-Ramírez et al., 2020; Mellado, 2015; Skovsgaard et al., 2024). This decision was also strengthened empirically, as the watchdog role was discussed prominently but also controversially concerning RQ1. Accordingly, the author posed a second research question that is partly inductively derived from the material, extending the findings of RQ1:

RQ2: In what contexts do audiences (dis)approve watchdog science journalism on controversial scientific fields?

3. Methods

To explore these RQs, a qualitative approach was chosen, combining individual semi-structured interviews and focus group discussions. Triangulating both creates a nuanced understanding of audience views, representing individual perceptions and expectations and also recreating interpersonal communication about science news (Lambert & Loiselle, 2008; Yang & Stone, 2003). The latter is especially relevant when focusing on controversial fields, given the high practical relevance of science news on research findings, leading individuals to communicate with family, friends, colleagues, or also strangers about science-related news (Wagner & Reifegerste, 2023). Such communication can help process, discuss, and evaluate science-related information, potentially contributing to more effective crisis coping (Wagner & Reifegerste, 2023).

3.1. Design, Sample, and Procedure

Both the individual semi-structured interviews and the focus group discussions were conducted by MA students within the scope of communication science classes at the University of Augsburg, guided by the author. In both studies, participants were recruited through a convenience sample by the class participants based on quota plans; potential participants were from broader publics (but not working in science), German-speaking, and at least 18 years old. Before participating, participants were briefed concerning the conversation topics and signed an informed consent statement in line with the privacy policy of the University of Augsburg (see Supplemental File III). Ethical aspects, data protection information, and a note that study participants can skip questions or quit the study at any time were repeated at the beginning of each interview and focus group discussion (see topic guides in Supplemental File I; Niederberger & Zwick, 2023). While all focus group discussions were conducted online via Zoom, the individual semi-structured interviews were partly conducted face-to-face (six interviews) and online via Zoom (nine interviews), depending on the geographical availability and preferences of the participants as well as the availability of suitable premises.

For the interviews, 15 study participants were recruited using quotas on age (equal distribution of younger [18–35 years old] and older [>35 years old] participants) and gender (equal distribution of female and male participants). Class participants were also asked to aim at an equal distribution of education in terms of people with and without “Abitur” (German higher education entrance qualification), without using an explicit quota. This procedure resulted in a sample relatively balanced regarding age, gender, and education (age: minimum = 21, maximum = 67, $M = 35.6$; gender: 53.33% female; education: 53.33% with Abitur). All interviews were conducted in December 2023, and the length was between 45 and 150 minutes ($M = 78.07$ minutes).

For the focus group discussions, another 55 participants were recruited to participate in eight focus groups with six to nine participants per group. To approximate real social constellations in which science news are discussed and to increase the participants’ willingness to discuss (Fitzpatrick & Mayer, 2022; Stehr et al., 2023), the eight groups were put together homogenous in terms of age and education: two groups consisted of younger (18–35 years old) participants with Abitur; two groups consisted of younger participants without

Abitur; two groups consisted of older (>35 years old) participants with Abitur; two groups consisted of older participants without Abitur. Class participants were also asked to aim for an equal distribution of gender in terms of male and female participants, without using an explicit quota. The overall sample was relatively balanced regarding the targeted quota (age: minimum = 18, maximum = 70, $M = 35.4$; gender: 56.36% female; education: 50.91% with Abitur). All focus group discussions were conducted by three moderators each between February and March 2025. They took between 82 and 125 minutes ($M = 99.88$ minutes).

Both interviews and focus groups were semi-structured and followed a similar topic guide. Students were intensively trained using those guides as interviewers and focus group moderators. This training also included preparations for difficult interview and focus group discussion situations (e.g., handling crying or arguing participants, handling participants with strong anti-science attitudes; Fitzpatrick & Mayer, 2022; Niederberger & Zwick, 2023). While the main questions and sections remained constant, the focus group discussion guide contained fewer detailed questions to allow enough time for interactive discussion (Stehr et al., 2023). The main part of the guides focused on a stimulus-based discussion of science coverage of controversial fields. Here, material derived from a content analysis of Covid-19 print media coverage was used (Schug et al., 2026), supplemented by examples from climate science coverage. The material consisted of selective science coverage excerpts (just texts, no media templates) in which five cases of scientific norm negotiations (communalism, universalism, disinterestedness, organized skepticism, and originality; see Merton, 1973; Ziman, 2000) as a form of watchdog science journalism (Mede et al., 2025) were displayed successively. Covid-19 and climate change were selected as examples because both represent societally very prominent controversial scientific fields, even though both fields may differ significantly concerning the underlying scientific consensus and how this consensus is represented in public discourse. The author assumed that, due to the high societal and media presence of these fields, respondents would be able to express topic-related attitudes and discuss them in detail. The science coverage excerpts contained critical media evaluations of reported studies' and related researchers' or research institutions' transparency and availability (communalism), inclusiveness or exclusiveness (universalism), research motivations and interests (disinterestedness), attitudes towards and appliance of critical challenging (organized skepticism), and innovativeness as well as theoretical and/or practical relevance (originality). For the interviews, these examples displayed norm fulfillments and participants were asked to think aloud (Bilandzic, 2017). Follow-up questions then asked participants to elaborate on how they would perceive the media coverage in a reverse case, i.e., a norm violation, serving to approach perceived (dis)approval contexts of watchdog science journalism (RQ2). For the focus group discussions, the individual thinking aloud was left out, and the stimulus material was directly discussed. Four groups were confronted with five cases of norm fulfillment. These have been the same as the ones used for the interviews, but were slightly adapted due to some wording confusion that occurred during the interview study. The other four groups were confronted with five cases of norm violations. For all groups, again, follow-up questions asked participants to elaborate on how they would perceive the media coverage in a reverse case. While the examples used as stimulus material represented print media coverage, the following discussions centered science journalism independently from media type. Both interviews and focus group discussions were concluded with questions on overall expectations of science coverage of controversial scientific fields (RQ1). The topic guides and the stimulus material used are added as Supplemental File I in the German original version and in an English translation.

3.2. Analysis

All data were transcribed using f4 (<https://www.audiotranskription.de/en>; partly with computer assistance for automatic transcription) and analyzed by the author according to reflexive thematic analysis (Braun & Clarke, 2006, 2019). Following Braun and Clarke (2019, p. 594), themes were created “at the intersection of data, analytic process and subjectivity.” Accordingly, all transcripts were first inductively coded and initial codes emerging from the data were step-wise collated into themes that were refined and finalized in several (re-)coding steps (Braun & Clarke, 2006, 2019). Using a step-wise coding and reviewing approach, the author carefully identified dividing and uniting elements of the codes generated. For instance, regarding RQ1, initial codes like “calling attention to societally important research and evidence,” “reaching issue-fatigued publics,” or “educating about the *modus operandi* of science” were collated into a theme that addressed the journalistic role of mediating between science and society on different levels. After re-coding the material to check for the applicability of such a theme as well as additional dimensions included in other initial themes, this theme was finally labeled as the role of a “science-society agent.” Existing typologies and analytical frameworks (especially Fahy & Nisbet, 2011; Fawzi & Mothes, 2020; Hanitzsch & Vos, 2018; Klemm et al., 2019; Mellado, 2015, 2020; Riedl & Eberl, 2022; Skovsgaard et al., 2024; Vos et al., 2019) informed the analytical process (Braun & Clarke, 2019), functioning as orientations for defining the scope of individual themes as well as for determining the final role designations. Examples and detailed explanations are described in Section 4.

Ultimately, the coding process resulted in six different journalistic functions or roles (RQ1) and six (dis)approval contexts (RQ2). The themes are summarized in Tables 1–3 in Supplemental File II. As contexts, the author considered the participants’ perceived broader societal developments and circumstances in which science reporting was situated (Skovsgaard et al., 2024). These perceptions are individually based on prior knowledge and preconceptions of the respondents (e.g., regarding the general societal role of science and media, previous experiences with science and media, or expected conditions of news production and impact of the reporting) that become approachable as the result of “deep and prolonged data immersion” (Braun & Clarke, 2019, p. 591). To protect the privacy of participants, pseudonyms have been used for quoted material. Direct quotes included in Section 4 were translated manually by the author. Supplemental File IV lists all direct citations included in the manuscript in their original and translated version.

Due to the similar topic guides, interviews and focus group data provided insights into the same dimensions. Comparing both datasets, statements from the focus group participants generally appeared a little more reserved (e.g., concerning the articulation of more critical science views) as participants across all groups seemed to be quite consensus-seeking. As the author did not detect any further differences, the results outlined in Section 4 make no comparison between the interview and focus group data. However, quotes from the material still include an “FG” or “I” note next to the participants’ pseudonym to indicate whether the person participated in a focus group discussion or an interview.

4. Results

4.1. Expected Functions of Science Journalism Concerning Controversial Fields

4.1.1. Service Provider

As service providers (Hanitzsch & Vos, 2018; Mellado, 2015, 2020), study participants expected science journalists to organize the confusing and overloaded scientific discourse around topics like climate change or Covid-19. Especially regarding Covid-19, some participants perceived a science-related “information flood” (I_Amelia, 21 years old). Accordingly, science journalists should carefully overview all new studies, filtering practical information and recommendations derived from scientific evidence, e.g., regarding climate-friendly or Covid-19 protective behavior (e.g., I_Leon, 24). Moreover, regarding fields like Covid-19 or climate science, journalists should consider that they do not necessarily target only science-interested but ordinary citizens:

An ordinary citizen, who is only confronted with this in societal life on an exceptional basis, is probably mainly interested in the things that then affect him personally in his life, such as vaccination issues, what am I allowed to do, and so on. (I_Sebastian, 30)

4.1.2. Between Conduits and Interventionists

Study participants regularly mentioned that they expect science journalism on controversial fields to act in a tension between rather neutral conduits (Fahy & Nisbet, 2011) and interventionists (Mellado, 2015, 2020). Accordingly, most participants expect science journalism to (neutrally) translate abstract scientific information from experts to non-specialist publics. However, study participants were more divided concerning active commentary. For instance, Markus (I, 37) was generally skeptical of reporting on controversial scientific fields that went beyond neutral information dissemination:

[Science journalism on such controversial fields shouldn't be] steered in a particular direction, presented in a suggestive manner, and then sold as if this is the new truth, but simply stick to the things that are clear. Yes, who did it? What is [the scientist's] background, what were [the scientist's] results and conclusions, and present it just as objectively, without introducing any interpretation.

4.1.3. Between Anti-Infotainers and Marketers

Many study participants do not expect science journalism on controversial fields to perform infotainment (Mellado, 2015, 2020) and, for instance, focus on personalization or sensationalism in their reporting. Accordingly, applying such news factors in science reporting could lead to both science journalism and the science it reports to lose reputation (e.g., FG_Lana, 23). Some participants reject a focus on individual scientists and their private lives: “Yes, I think it's very important to report in a way that is as impersonal as possible. That means focusing on the issue itself and not on individual characters” (I_Anna, 23). As a negative example, many participants mentioned the German tabloid *Bild*.

However, some participants also demand the entertainment function to spark public excitement for scientific issues (e.g., I_Henriette, 56). This entertainment function was also mentioned to be important for

science journalists to fulfill their role as marketers (Riedl & Eberl, 2022; Vos et al., 2019), ensuring their economic survival in order to, in the long term, continue to represent a counterweight to fake news and less professional journalism. Melanie (I, 54) said: “I think the problem is that good journalism costs money and isn’t free. [Regarding the entertainment function], you must differentiate between quality journalism on the one hand and amateurishness or even interest-driven opinion-making on the other hand.”

4.1.4. Science-Society Agent

The function of a science-society agent is somewhat new, but it contains qualities from previously discussed journalistic roles such as public forum (Fawzi & Mothes, 2020), agenda setter, and civic educator (Fahy & Nisbet, 2011), or change agent and mediator (Vos et al., 2019). In this role, science journalists covering controversial fields are expected to mediate between science and society on different levels, for instance, by serving as research-related agenda setters, calling public attention to societally important research and evidence. In the case of the climate crisis, many participants mentioned that they expect incessant and constant reporting on new findings and their implications, even if some stories are not necessarily economically viable. In this regard, participants highlighted science journalism’s function to also keep issue-fatigued and science- and media-critical publics informed (e.g., I_Erika, 67; FG_Luisa, 24). Moreover, as science-society agents, science journalists should educate about science (e.g., its methods and *modus operandi*), contributing to an increased science literacy and a trustworthy and functional science-society relationship, potentially by demonstrating their own trust in science through their reporting (e.g., I_Henriette, 56).

4.1.5. (No) Public Mobilizer

Participants articulated a very context-specific expectation of the public mobilizer role (Klemm et al., 2019). On the one hand, journalists should mobilize their audiences, e.g., regarding evidence-based climate or Covid-19 protective behavior (e.g., I_Leopold, 21). According to Amelia (I, 21), such reporting should also focus on the benefits of evidence-based behavior, e.g., staying home to save lives or saving the environment by reducing the individual carbon footprint. On the other hand, for some participants, acting as public mobilizers was related to causing (unnecessary) panic, especially when the scientific evidence justifying mobilization efforts appeared fragile to them (e.g., I_David, 37; FG_Nora, 23). For Lana (FG, 23), science journalism that reports on controversial fields may sometimes legitimately cause panic, but she underlines that mobilizing reporting should include concrete options for action as well, as she illustrates regarding her impressions from climate science reporting: “It’s five past 12 and the world is going to end the day after tomorrow and everything is really terrible. And what can be done about it isn’t really being reported.”

4.1.6. Between Watchdogs and Loyal-Facilitators

Participants often referred to the watchdog function (Mellado, 2015, 2020). For instance, Melanie (I, 54) expects science journalists covering issues like Covid-19 or climate change to “engage with critical opinions and substantiate their sources. In other words, they mustn’t simply parrot what others say but must maintain a certain critical distance.” Following Tim (FG, 26), a critical attitude is connected to the credibility of science journalism: “When the media report on something and are already raving about it themselves, it makes it less credible in my view.”

However, some participants prefer to reject the watchdog function in favor of a loyal-facilitator role (Mellado, 2015, 2020). Such rejection was mainly due to the perceived crisis character associated with fields like Covid-19 and climate science. In both crises, societal and political decisions were perceived as almost solely based on scientific evidence. For some participants, critical science investigations by science journalism are not necessary in such contexts. Moreover, the media could focus on giving credible scientists a platform and audiences unfiltered access to those scientists. For instance, both Henriette (I, 56) and Leopold (I, 21) mentioned that regular situation assessments of the German virologist Christian Drosten were sufficient to assess the current Covid-19 situation, and the media could have invested more to spread his (unfiltered) opinions even more widely.

4.2. (Dis)Approval Contexts of Watchdog Science Journalism Concerning Controversial Fields

4.2.1. Approval Contexts

First, some study participants approve watchdog science journalism when it is “challenging the (alleged) scientific consensus.” Especially with Covid-19 or climate issues, few study participants feel betrayed or manipulated by an unrealistic scientific consensus pictured in established media (e.g., I_Erika, 67). They appreciate watchdog journalism that provides counter-information and unheard critique (I_Doris, 54). Participants emphasized that sometimes no one in their personal environment could give them such information or that such critique may otherwise be hardly accessible. Moreover, participants hope that watchdog journalism challenging an (alleged) scientific consensus could lead society to reconsider political directions taken based on Covid-19 and climate science evidence (I_Barbara, 28; I_Hannah, 24). “It doesn’t mean an insight is wrong just because it goes against the mainstream,” Leopold (I, 21) said.

Second, watchdog science journalism is often approved if it is “drawing the line between ‘good’ and ‘bad’ science.” When science journalists investigate the background of a study in detail, e.g., underlying motivations, study method details, or the appropriateness of the scientific practices used, and the result of their investigation is communicated through their reporting, audiences can form credibility or trustworthiness evaluations (e.g., I_Barbara, 28; I_Leon, 24). This concerns rewarding and drawing attention to good scientific practices (e.g., cases of scientific norm fulfillment by reported studies or scientists) but also unveiling unreliable science (e.g., I_Henriette, 56; FG_Rebecca, 39; FG_Sarah, 18). Accordingly, study participants value if scientific norm violations are communicated, especially concerning communalism (e.g., transparency) and disinterestedness (e.g., underlying motivations and conflicts of interest):

So, it’s important that the results are always presented together with the institution or whoever initiated them, so that society has the opportunity to contextualize them. Where do they come from, and what might people be trying to achieve with them? And if those goals are indeed self-enrichment or profit, then it must be communicated. (I_Barbara, 28)

Unveiling norm violations and cases of scientific misconduct is particularly relevant for watchdog science journalism that covers controversial fields like Covid-19 or climate science, as society must identify research that should have no significance for Covid-19 or climate policy decisions (I_David, 37). As Josha (FG, 24) says:

So, if it involves medical matters, or politically significant decisions, or major financial decisions that are made as a result, then I think it's much more important that it's reviewed [by journalists] than if it's just small studies that don't have any real impact on the lives of many people.

Lastly, study participants approved watchdog science journalism when it was “picturing ‘real’ science.” Accordingly, unveiling violations of scientific norms or cases of scientific misconduct could transport a picture of scientists as human beings who make mistakes like everyone else (I_Henriette, 56). As perfect scientific conduct may be unrealistic, an important aspect of watchdog science journalism should also be to contextualize scientific misbehavior in terms of how the present scientific system works and what mistakes and norm violations may be considered usual or human (e.g., FG_Tobias, 40). For instance, this concerns scientists who are exposed by watchdog science journalism as self-interested, profit-oriented, or non-transparent—aspects that are not necessarily reprehensible (I_Erika, 67). In the long term, watchdog science journalism that makes scientific misconduct a subject but also contextualizes it could therefore dispel misconceptions regarding society's expectations of science and individual scientists (I_Anna, 23).

4.2.2. Disapproval Contexts

First, watchdog science journalism is disapproved when participants notice “poor treatment of (media-inexperienced) scientists.” This is the case, for instance, when audiences perceive that pictured scientists are treated disrespectfully (e.g., I_Henriette, 56). Some participants mentioned that they found this even more striking when it concerned epidemiologists or virologists that, at the beginning of the pandemic, suddenly became highly sought-after experts. They were probably insecure and overstrained due to missing media experiences and consultation options (FG_Bernhard, 33; I_Henriette, 56; FG_Ines, 36). Watchdog science journalism is disapproved if it takes advantage of that (e.g., by decontextualizing statements or letting scientists fall into traps). Participants, therefore, called for sensitive training and treatment of media-inexperienced scientists. Tobias (FG, 40) believes that poor treatment could have long-term effects on the willingness of such scientists to cooperate with the media.

Second, participants disapprove watchdog science journalism when reporting includes “inappropriate, hasty, or biased critique.” This can concern criticizing actors' features, e.g., journalists' or media's lack of expertise or domain-specific training (e.g., I_Melanie, 54). Moreover, some participants mentioned that the critique needs to be addressed to the correct addressees. In the case of Covid-19 or climate science, where policy is often derived from scientific evidence, science should only be criticized for its research and not made responsible for political decisions (e.g., FG_Tobias, 40). However, inadequate, hasty, or biased critique most often concerned content production and reporting characteristics. For instance, this concerned unbalanced or inappropriate expert choices like politicians cited to criticize a scientific study (e.g., I_Leopold, 21) or critique derived from unspecified or uncited “experts,” “reports,” “videos,” or “studies” (e.g., FG_Amelie, 24; FG_Jürgen, 35). It also concerned cases in which critique is unsecured or based solely on speculation. In this regard, Leon (I, 24) said: “In most domains [of journalism], the societal relevance simply isn't so extreme that one couldn't express information that's 75% accurate or speculative. I believe science reporting on areas like Covid-19 simply can't afford that.” Participants were also skeptical if the critique appeared motivated or biased (e.g., in line with media's or journalists' political ideology; see I_Barbara, 28; FG_Julius, 24; FG_Jürgen, 35). Watchdog science journalism was also disapproved if critique was based on superficial arguments (e.g., scientists' character or private life; see FG_Bernhard, 33) or unrealistic demands towards science. The latter includes expectations

of scientific studies having no limitations or certainty levels, research projects not having any (even small) associated financial interests, basic research directly solving societal problems, or preprints drawing 100% finalized conclusions (I_Anna, 23; FG_Florian, 24; FG_Jürgen, 35; FG_Oskar, 23). Lastly, some participants said they disapprove of watchdog journalism that generally lacks background information and two-sidedness in reporting (e.g., I_Hannah, 24; I_Matt, 23) or that cherry-picks single negative aspects of a study (FG_Oskar, 23).

Finally, watchdog science journalism is often disapproved when journalists appear to be “accepting or not considering negative consequences” of their reporting. This is especially the case if science journalists generalize from the misconduct of individual scientists to the whole scientific community, potentially contributing to a negative image of scientists or distrust in science in general (e.g., FG_Frederik, 68; I_Leon, 24). Moreover, watchdog journalists should be aware that if their reporting meets some of the disapproval criteria described above, it may lead to decreasing interest in science-related topics like Covid-19 or climate change (I_Anna, 23), biased opinion formations regarding evidence-based behavior (FG_Isabell, 24), as well as increasing “Lügenpresse” (“lying press”; see Koliska & Assmann, 2021) accusations and distrust in (science) journalism in general (e.g., FG_Antonia, 22; FG_Maximilian, 23).

5. Discussion

Drawing on the theoretical concept of journalistic roles (Hanitzsch & Vos, 2017) and a methodological combination of semi-structured interviews and focus group discussions, this study investigated what audiences expect from science journalism on controversial fields and the contexts in which audiences (dis)approve the watchdog function.

Results indicate that audiences expect science journalism covering controversial scientific fields to fulfill not only traditional roles like the service provider or the watchdog (Mellado, 2015), but also crisis-specific roles like the public mobilizer (Klemm et al., 2019) and science-specific roles like the conduit (Fahy & Nisbet, 2011). The identified functions outline a comprehensive and complex set of requirements for science journalists, which may be difficult to fulfill; some functions are only expected in specific contexts and expectations seem to depend on a person's attitude towards both science and journalism in general and controversial topics like Covid-19 or climate change. Similar forms of the identified roles were also found in previous research. However, there are some concrete details and tensions that may be unique to the case of science journalism on controversial scientific fields. These details and tensions may be less likely to occur when focusing on other scientific fields that are less relevant to crisis decisions and for which audiences may not hold strong attitudes towards journalistic roles in reporting. For instance, an adequate implementation of the entertainment function (e.g., by using entertaining narratives; see Bloomfeld, 2024) was almost exclusively seen as the domain of quality journalism while tabloid-like entertainment focusing on sensationalism and the private life of highly visible scientists (e.g., Butler et al., 2021) was seen negatively. Also, the expectation of science journalism as a public mobilizer was discussed controversially. Demands were rather expressed by participants that appeared to be in line with scientific recommendations regarding Covid-19 or climate change issues while participants with skeptical attitudes rather reject this role as it is more interpreted as a panic producer. The same applies to the tension between watchdog and loyal-facilitator roles. Most participants value the watchdog role; however, some see this role as rather inappropriate in crisis contexts relying on scientific evidence and demand more unfiltered information from the scientific community.

This tension regarding the watchdog role was further explored in RQ2. It was found that audience (dis)approval of the watchdog role was highly context-dependent and “good” watchdog science journalism needs to be understood as a balancing act. Some of the disapproval contexts identified are in line with normative demands of argumentation theory, e.g., regarding the appropriateness of superficial “ad hominem” arguments (see Barnes et al., 2018). However, for some (dis)approval contexts, this in-depth investigation also revealed concrete implications and audience-related recommendations for watchdog journalism practice. First, the participants appreciate watchdog science journalism highlighting violations of scientific norms (see Mede et al., 2025; Merton, 1973). For instance, unveiling potential conflicts of interest or non-transparent study method details can help the public identify unreliable science. Furthermore, participants approve watchdog journalism when it portrays science realistically, i.e., conducted by human beings that, of course, sometimes make mistakes. This finding implies that audiences want watchdog journalism to picture the “counter-norms” of science (e.g., Mitroff, 1974), contextualizing misconduct within the context of usual practices in the current scientific system. Such contextualization could contribute to educating audiences about the scientific *modus operandi*, potentially improving science literacy and limiting negative consequences of reporting (e.g., concerning the image and trustworthiness of scientists and [science] journalism). Some participants appreciate watchdog journalism if it challenges the (alleged) scientific consensus concerning Covid-19 or climate change topics. Possibly, this specific context-dependent approval is associated with political ideology (Riedl & Eberl, 2022; Skovsgaard et al., 2024) and individual attitudes towards climate change or Covid-19 protection measures. In this regard, science-skeptical audiences may (in vain) expect watchdog science journalism to counter the established discourse around these topics, fulfilling the role of rather “alternative” news media (Holt et al., 2019) and, in the German context, countering the established “lying press” (see Koliska & Assmann, 2021). Furthermore, audiences disapprove of watchdog science journalism that poorly treats media-inexperienced scientists. This finding underlines the necessity of respectful media treatment of scientists—to meet audience expectations but also to prevent scientists from developing skepticism towards media involvement (e.g., Marcinkowski et al., 2026; Skovsgaard et al., 2024). Lastly, audiences may reject watchdog journalism based on the media’s or journalists’ features, the chosen critique addressees, or the content production process and reporting characteristics. Accordingly, from an audience perspective, watchdog journalists could address such disapproval by considering an active and explicit communication of their own and the cited expert’s topic-related expertise as well as potential conflicts of interest.

Given these findings, it is important to note that science journalism practices not meeting audience expectations may contribute to perceived “expectation-evaluation discrepancies” (Fawzi & Mothes, 2020) and potentially erode science journalists’ professional credibility (Skovsgaard et al., 2024). Follow-up research should quantitatively compare audiences’ perceived importance of the roles identified and investigate to what extent unmet expectations and different disapproved watchdog journalism practices contribute to specific audiences migrating from established journalism or developing distrust towards science (journalism). For journalism practice, it will additionally be insightful to test the (potentially positive) effects of implementing some of the audience-approved watchdog science journalism practices, for instance, concerning a more nuanced contextualization of scientific misconduct within the scientific system’s *modus operandi*.

The present study also has limitations. First, this study is limited to audiences’ normative expectations and does not represent other dimensions in the context of journalistic roles (e.g., what journalists want to or

actually do; see Krüger et al., 2022). Also, regarding journalistic roles and functions, it is generally challenging to develop context-specific typologies that are free of interpretation-based category overlaps (Riedl & Eberl, 2022). For instance, in the present study, this concerns potential overlaps between the science-society agent and other previously discussed roles (e.g., Vos et al., 2019). Due to the qualitative approach, the categories identified provide an insight into the breadth and ambivalence of audience expectations but cannot be statistically associated with audience characteristics such as science-related media consumption or overall attitudes towards science (journalism). Regarding the interview and focus group procedure, participants were recruited through a student-based convenience sample. Moreover, the stimulus material centered on specific cases of watchdog science journalism (negotiations of scientific norms) and follow-up discussions mainly focused on Covid-19 and climate science as primary examples for controversial scientific fields. In this regard, qualitative follow-up research could attempt to orient questions concerning expectations of science journalism and (dis)approval contexts of watchdog journalism more strongly based on the understanding and definitions of the respondents regarding critical science reporting and controversial fields. Finally, follow-up analyses could try to identify differences in the perception of various controversial scientific fields and, in turn, link these differences back to individual topic-related attitudes and experiences of respondents.

6. Conclusion

Watchdog journalism remains virtually indispensable for society, particularly concerning crisis contexts and controversial scientific fields such as Covid-19 and climate science (Barel-Ben David et al., 2020; Mihelj et al., 2022). Precisely in such contexts, it is crucial that journalists respond to the needs and expectations of their audiences (Blanchett et al., 2024). Audiences not only shape public support for evidence-based decision-making through their media consumption; they also secure journalism's economic survival and provide valuable feedback for adapting and improving reporting practices. Consequently, journalists must take context-specific audience expectations seriously and critically reflect on practices that may provoke public disapproval. Only trusted and publicly legitimate watchdog journalism can fully exercise its democratic function as the fourth estate.

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Conflict of Interests

The author declares no conflict of interests.

Data Availability

Data can be shared upon reasonable request.

LLMs Disclosure

The author utilized ChatGPT-4o (OpenAI) to assist with language editing. Parts of the interviews and focus group discussions were transcribed automatically using f4 (audiotranskription). All content generated was reviewed and verified.

Supplementary Material

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

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