

1 **Title**

2 “It’s my job”: A qualitative study of the mediatization of science within the scientist-journalist
3 relationship

4
5 Laura L. Moorhead, Alice Fleerackers and Lauren A. Maggio

6
7 **Abstract**

8 Through 19 interviews with scientists, this study examines scientists’ use of media logic and
9 their relationships with journalists using research as the focal point. The authors identified that
10 the scientists shared a basic understanding of media logic classified in three patterns. Two
11 patterns were previously identified by Olesk: 1) *adaption* (ability to explain research in a simple,
12 engaging fashion but with a reactive approach to journalist interaction) and 2) *adoption*
13 (proactively create and manage media interactions for strategic aims through a more active use of
14 media logic). The other emerged as a new, third pattern, *affiliation* (enthusiastic contributors to
15 journalists’ production practices and desire to engage in public outreach).

16
17 **Keywords**

18 mediatization, journalism, science communication

19
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28 official policy or position of the Uniformed Services University of the Health Sciences, the
29 Department of Defense, or the US Government.

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36 **Context**

37 Research—typically in the form of peer-reviewed journal articles and preprints—acts as a basis
38 of mutual interest for the scientist-journalist relationship. Journalists have long relied on these
39 articles as a primary source for information in their reporting [Williams & Clifford, 2008; Veneu
40 et al., 2008; Wihbey, 2017]. They connect with research articles in a variety of ways, notably
41 through online databases, journals, and preprint servers, and media relations offices of
42 universities, research organizations, and pharmaceutical companies [Amend & Secko, 2012;
43 Flerackers et al., 2021]. Journalists also reach out directly to scientists, asking for research
44 articles and interviews [Flerackers et al., 2021; Dijkstra et al., 2015]. Such approaches come
45 with risks: a “loss of information diversity” through the repetition of information sources and the
46 citation of the same scientists and research) and a science agenda overly influenced by academic
47 institutions and scholarly and commercial publishers issuing press releases [Granado, 2011, p.
48 795]. These risks can be exacerbated by a mismatch in practices, norms, and values between
49 scientists and journalists [Nguyen & Tran, 2019; Besley & Nisbet, 2013; Dunwoody & Ryan,
50 1985]. Scientists, for instance, may answer a journalist’s interview request or proactively share
51 research with the goals of promoting their field, their research, or their institution, while
52 journalists can be less concerned with these goals and more constrained by deadlines [Dijkstra et
53 al., 2015; Peters, 1995].

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55 Still, both journalists and scientists see science-media interactions as beneficial and the use of
56 research as a shared touchstone [Dijkstra et al., 2015; Besley & Nisbet, 2013]. These symbiotic
57 relationships between scientists and journalists [Lubens, 2015] may encourage an adaptation or
58 adoption of practices between professions [Olesk, 2021]. Journalists’ roles have evolved [Fahy &
59 Nisbet, 2011], with a move toward greater analysis and interpretation of research findings
60 [Rensberger, 2009; Albæk, 2011]. Scientists, meanwhile, have moved toward, if not embraced,
61 journalistic practices, goals, norms, and values in what they call the “mediatization of science”—
62 “an increase in the orientation of science to its social context” [Peters et al., 2008, p. 72].

63 Mediatization can be understood as:

64
65 the mutual relation between science and the mass media. It is based on the assumption that—due
66 to the importance of the mass media in framing public opinion—there is an increasingly tighter
67 coupling of science and the mass media [Franzen et al., 2012, p. 4-5].

68
69 This coupling has wide-ranging implications for science and society, shaping how scientific
70 research is conducted [Weingart, 2012] and presented to the public [Peters, 2012]. As such,
71 scholars have raised concerns that mediatization encourages a weakening of science’s autonomy
72 [Weingart, 2012] through a bend toward “media logic,” which Altheide [2013] described as the
73 form and formats of communication. Alongside these potential dangers of mediatization,
74 however, scientists’ adoption of media logic could also facilitate interactions between journalists
75 and scientists by providing the shared norms, practices, and expectations needed to effectively
76 communicate [Carson, 2015].

77
78 To understand the implications of the growing mediatization of science [Bauer, 2012], scientists'
79 use of media logic must be considered alongside ongoing changes to the relationships between
80 scientists and journalists. Recent studies suggest that scientists and journalists align in their
81 motivations, particularly in their sense of shared public responsibility and push for responsible
82 research [Olesk, 2021; Dijkstra et al., 2015]. Increasingly, journalists rely on interviews with
83 scientists to legitimize their news frames and to facilitate a “dynamic interplay between
84 journalist and researcher that will largely determine whether or not the journalist comes to see
85 the event as sufficiently ‘significant’ and ‘interesting’ to warrant news coverage” [Albæk, 2011,
86 p. 344]. The growing value placed on public visibility within the culture of science may also be
87 increasing scientists’ reliance on journalists [Dunwoody, 1999; West & Bergstrom, 2021].
88 Dunwoody [1999] argued that we should expect to see journalists and scientists develop a
89 “shared culture,” in which both groups *equally* contribute to the public portrayal of scientific
90 evidence. In such a culture, scientists would no longer simply be passive sources of information
91 but active partners in newswork—working alongside journalists to select, interpret, and
92 communicate research evidence to society. While this affiliation between scientists and
93 journalists may lead to smoother interactions and an easier reporting process, it may also
94 challenge the watchdog role of journalists [Cormick, 2019; Schulson, 2016].

95
96 While mediatization has been extensively considered (and debated) [Weingart, 2012; Wihbey,
97 2017], it is unstudied in light of Covid-19 as an ongoing global health crisis with associated
98 scientific controversies (i.e., efficacy of vaccines, mask mandates, use of preprints). Bucchi
99 [1996] noted that scientists, when faced with controversy in their fields, work to address the
100 public directly. Perhaps unsurprisingly, Covid-19 has encouraged scientists to do this through
101 online and social media [Bhopal & Munro, 2021; Colavizza, 2021; Joubert, 2020], including
102 through publishing models such as *The Conversation*, which partners scholars with journalists
103 [authors, under review]. These evolutions in the ways scientists and journalists communicate
104 reflect the kind of *post-normal science communication* (PNSC) [Brüggemann et al., 2020] that
105 can take place when “facts [are] uncertain, values in dispute, stakes high and decisions urgent”
106 [Funtowicz & Ravetz, 2020, p. 1]. In such contexts, journalists and scientists may come to share
107 norms, practices, and goals, as the boundaries between the two fields blur and are renegotiated
108 [Brüggemann et al., 2020]. This renegotiation—continuing throughout the pandemic and
109 possibly expanding in an era of declining public trust in scientists and journalists [Kennedy et al.,
110 2022]—will likely lead to the adoption of new norms and practices, which may, in turn, affect
111 the nature of relationships between scientists and journalists.

112 113 **Objectives**

114 This study, conducted during the pandemic and in the context of scientific debate, controversies,
115 and political polarization [Dunwoody, 2020], aims to examine scientists’ use of media logic and
116 the nature of their relationships with journalists. It does so using research (i.e., preprints and
117 peer-reviewed journal articles) as the focal point for qualitative interviews, offering a view into

118 this intersection of seemingly disparate professions as they negotiate the volatile waters of our
119 global pandemic.

120

121 We apply the mediatization of science as our conceptual approach and adapt a framework by
122 Olesk [2021] to evaluate the mediatization patterns of scientists in relation to journalists, making
123 this one of few studies that have investigated science-journalist interactions using an explicit
124 theoretical framework [Dijkstra et al., 2015]. We add to Olesk's [2021] list of indicators, using
125 scientist interactions with journalists to develop scientist personas—which Daston and Sibum
126 [Daston & Sibum, 2003] called *cultural identities*—that might allow for a more nuanced
127 understanding of scientists' professional roles alongside their personal needs, experiences,
128 behaviors, and goals in the scientist-journalist relationship. More specifically, we ask:

129

130 RQ1: What indicators can be used to expand and describe the mediatization patterns of scientists
131 who engage with journalists?

132 RQ2: What scientist personas can be identified using these indicators?

133

134 **Methodology**

135 This study is part of a larger research program that explores scientific research featured in the
136 news. We focus primarily on scientists' perspectives; however, our analysis was informed by
137 journalists' interviews (see Authors, 2021). We conducted the current study using qualitative
138 description methodology [Sandelowski, 2010] guided by a constructivist paradigm
139 [Sandelowski, 2010]. Constructivism assumes that participants devise the realities in which they
140 engage. Through this lens we were able to better understand scientists' motivations, views, and
141 professional practices in relation to journalists.

142

143 **Recruitment**

144 We recruited 19 scientists whose research had been mentioned in a news article. The lead author
145 and a research assistant manually identified names of scientists who were quoted directly or
146 whose research was mentioned or hyperlinked in a sample of 400 news articles from *The*
147 *Guardian*, *HealthDay*, *IFL Science*, *MedPage Today*, *News Medical*, *New York Times*, *Popular*
148 *Science*, and *Wired*.¹ Each article mentioned at least one preprint or peer-reviewed research
149 article; news articles were gathered during March and April 2021 (see Fleerackers et al., 2021,
150 for detailed data collection process). This study was exempted from further review by two
151 university ethics boards [institution names and REB numbers anonymized for peer review].

152

153 **Interviews**

154 We designed our semi-structured interview protocol² using the literature and our experience as
155 journalists and research scientists. The first portion of the protocol included general questions

¹ Full data set and description of collection methods available on Github at [anonymized for review]

² Both protocols are publicly available at [anonymized for peer review].

156 about scientists' use of research and experience working with journalists; the second portion was
 157 a talk-aloud in which they described their actual experience in the reporting of a science news
 158 article drawn from our sample. This approach allowed scientists to say what they typically did
 159 (first portion of interview) and then explain what they actually did for a particular story (second
 160 portion). Recruitment and interviews occurred between September-January 2022. After 15
 161 interviews, we began to discuss the potential of reaching an adequate level of information power
 162 base that would enable us to meet our research aims [Malterud et al., 2016]. After 19 interviews,
 163 we agreed that we had reached an adequate level. Interviews, which lasted up to 60 minutes,
 164 were conducted and recorded via Zoom and were transcribed and de-identified for analysis.

165
 166 **Analysis**
 167 We used framework analysis [Ritchie et al., 2013], which accommodates multidisciplinary
 168 research teams and thematic analysis of semi-structured interview transcripts [Gale et al., 2013].
 169 The framework allowed us to compare and contrast data across cases, as well as within
 170 individual cases (i.e., individual scientists), and to identify first patterns and then personas of
 171 mediatized scientists. We independently read and coded each transcript, using a mix of deductive
 172 coding based on Olesk's [2021] existing typology of mediatized scientists) and inductive coding
 173 (based on emergent patterns in the data). We coded instances of scientists presenting indicators
 174 of media logic in five dimensions (see Table 1). Throughout the coding, the three authors (a
 175 professor of medicine and two former journalists now working as academic researchers) met
 176 multiple times virtually to reflect on the analysis. In these conversations, we recognized and
 177 discussed how our backgrounds and experiences facilitated our ability to be reflexive in our
 178 examination of the transcripts from the perspective of both professions.

179
 180 Table 1. Framework used to analyze mediatization of scientists. Codes for Adaption and
 181 Adoption were drawn from Olesk's [2021] original typology, codes for Affiliation were
 182 developed inductively.

183

Dimension	Definition	Adaption of media logic [Olesk, 2021]	Adoption of media logic [Olesk, 2021]	Affiliation of media logic (inductively derived)
Communication as a responsibility	See public communication as part of professional responsibility.	See it as important but secondary to their scientific work.	See it equally important to their scientific work.	See it as a shared responsibility with journalists.
Awareness of media logic	Express awareness of media logic and feel confident using journalistic news style.	Able to explain their work in simple terms and feel confident giving interviews. Criticize journalists' routines.	Able to understand and accept journalists' work logic, and express themselves in journalistic news style.	Able to appreciate and contribute to content production practices used by journalists.

Mastering media logic	Confident in mastering media logic and using it to trigger media coverage or introduce relevant angles.	Not familiar with news production practices; write occasional press releases; otherwise do not initiate media coverage.	Contact journalists proactively and “sell” stories and angles to them.	Articulate and share content production practices used by journalists.
Purposeful use of media	See media as a tool for achieving scientific or non-scientific aims.	See media coverage as benefitting the current project (getting attention, increasing awareness about an issue, etc.).	Have more strategic aims (wider benefits to science, economy, etc.) and think in terms of <i>target groups</i> and <i>messages</i> .	See participation in media coverage as a partnership with journalists with a desire for high impact (contribute to public health, society) and think in terms of <i>behavior change</i> for public.
Institutionalization of communication activities	Communication activities in the research group/organization have been institutionalized within the professional activities of the scientist.	Perform communication activities on <i>ad hoc</i> basis.	Conduct communication activities systematically and follow a strategic plan, integrating public communication into the professional activities of the scientist.	Has internalized communication activities, integrating them into both professional and personal activities (e.g., tweet, personal blog).

184

185 We used a spreadsheet to generate a matrix, including references to illustrative quotations.
 186 Charting involved summarizing the data by category to create a holistic impression of what each
 187 scientist said [Miles et al., 2018]. For each scientist we created a *user profile* with demographic
 188 information and categorized each scientist’s orientation to media logic using the adapted Olesk
 189 [2021] framework (see Table 1). Then, we created *personas* (i.e., “super-typical” representations
 190 of scientists) by grouping user profiles based on demographic and mediatization patterns
 191 [LeRouge et al., 2013].

192

193 **Results**

194 All 19 participant scientists shared at least a basic understanding of media logic; yet our analysis
 195 revealed three patterns in their mediatization. Two of these patterns were previously identified by
 196 Olesk [2021]: 1) *adaption of media logic* (ability to explain research in a simple, engaging
 197 fashion but with a reactive, rather than proactive, approach to journalist interactions) and 2)
 198 *adoption of media logic* (proactively create and manage media interactions for strategic aims and
 199 through the more active use of media logic). We identified a new, third pattern, *affiliation of*
 200 *media logic*, through early reading and coding of the transcripts.

201

202 ***Patterns of mediatization***

203 Adaption of media logic

204 A minority of scientists expressed an awareness and basic mastery of journalistic norms, values,
205 and practices but took a reactive approach to communication activities characteristic of adaption
206 of media logic. These scientists' interactions with journalists were typically mediated by their
207 institution's communications group or a journal's press department. While these scientists could
208 articulate the process of working with the media, they did not necessarily experience it firsthand,
209 often relying on others to write their quotations and public-facing research descriptions. They did
210 not prioritize media outreach or see their relationships with journalists as something they needed
211 to maintain or improve.

212

213 Adaptive scientists generally viewed the role of communication professionals as helpful—a
214 shield from the risks of working with the news media. If a journalist reached out to them directly,
215 they typically reported seeking help in responding from their institution's communications
216 group. As one scientist explained,

217

218 We have people here who write drafts, and we'll go back and forth and make sure that the science
219 and, you know, the communication is as accurate as it can be. And then, they do the press release,
220 and then news outlets will take that up. [Sci_13]

221

222 As adaptive scientists' understanding of the journalistic process was typically framed from the
223 perspective of an institution or journal, they could be flummoxed when a journalist deviated
224 from this idealized process. For example, adaptive scientists were often frustrated if journalists
225 did not circle back with their quotations and interview content for approval or did not exclusively
226 contact first or second authors.

227

228 Adaptive scientists also viewed journalism as a way to promote one's work, rather than to
229 promote research as a societal good. Several resisted reaching out to journalists, with one saying:

230

231 I do not...contact journalists to send them my work. I don't know, it feels like—for some
232 reason—it feels tacky to do that, but maybe I should do it more often? [Sci_11]

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234 Yet, that scientist also acknowledged that peers had different, albeit still promotional,
235 approaches:

236

237 We have this paper that's currently in review, and the first author, who is currently looking for a
238 new job, was very excited and started posting the preprint, started showing it around. Journalists
239 started contacting him to interview...and, actually, a piece came out at some point. I was not
240 angry, because I can understand why he did that. [Sci_11]

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242 Adaptive scientists also seemed to share a lack of confidence in journalists' ability to understand
243 research:

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Unfortunately, it just seems really, really, really unlikely to me that a journalist can look at a preprint or an article, something in arXiv, and make any sense out of it, and make any judgment about correctness or importance, or anything like that. [Sci_08]

Adoption of media logic

Adoption of media logic was a more common pattern among the scientists, characterized by ambivalence about the controlled forms of media outreach laid out by communication groups at their institutions and target journals. On the one hand, adoptive scientists said they appreciated the efficiency of this approach; they put their trust in communications professionals, thankful that someone else could handle the influx of media requests and help them navigate the media system. On the other hand, adoptive scientists were sometimes frustrated that this approach gave communications professionals ultimate control over their public communication. They lamented how communications professionals organized and “triaged” media interviews, deciding which requests to prioritize and which to pass over; determined which papers to promote actively; enforced limits on what scientists could and could not discuss on the record; and prepared press releases with ready-made author “quotes” for scientists to review and approve. Unlike their adaptive peers, adoptive scientists also revealed a sophisticated understanding of the outcomes of media coverage, which they leveraged to advance their institution’s brand and reputation, recruit faculty and students, and procure funding. Adoptive scientists better recognized that journalists operated independently—outside the controlled, if not idealized, realm of an institution’s communications group or a journal’s press department.

Adoptive scientists also proactively created and managed media interactions, stating that they “always respond” or “try to respond to all” journalist inquiries [Sci_12, Sci_19]. These scientists considered working with journalists as part of their professional role, even if the effort fell outside of their formal work description. One scientist put it simply: “It’s my job” [Sci_19]. Another scientist explained his need to “always respond” in the context of journalists’ reliance on experts for accuracy:

The last thing I want is for a journalist to write a paper about our work or about anybody’s work without talking to experts, so I’m totally available...we want it to be presented in the best, correct scientific light.” [Sci_12]

Oftentimes, adoptive scientists leveraged multiple ways to encourage media coverage. One scientist said, “I know journalists cover scientific conferences,” adding that he responded to a journalist at a recent conference and “ended up exchanging emails” as the journalist “prepared the piece” [Sci_18]. That same scientist also reached out directly to journalists through a range of media, intertwining personal and professional realms:

284 I think leveraging all of those resources—social media through your own personal or institutional
285 account, but also using media outlets virtually or in print—could be very beneficial for scientists.
286 [Sci_18]

287

288 As demonstrated above, adoptive scientists often employed language suggesting the “use” of
289 journalists and the media to achieve their goals. However, they also expressed frustration at the
290 professions’ differing practices. One scientist explained,

291

292 Sometimes it can be challenging talking to journalists, and there’s just different norms about
293 attribution and citation and stuff like that in journalism versus academia. [Sci_14]

294

295 Scientists’ lived experiences interacting with journalists did not always align with their more
296 abstract, big picture reflections on their relationships to media logic. Even scientists who held
297 journalists in high esteem overall could recall negative interactions (e.g., being misquoted, being
298 asked unexpected or inappropriate interview questions). These negative experiences often
299 elicited critical perceptions of journalists that were most in line with an adaptive orientation. This
300 was the case for Sci_05, for example, who recounted a live radio interview in which she was not
301 addressed by name but instead referred to as the “pretty mumps lady.”

302

303 In most cases, however, specific experiences working with journalists did not appear to
304 fundamentally change adoptive scientists’ underlying orientation to media logic; instead, they
305 elicited a more measured approach to media interactions, particularly when accepting interviews
306 from unknown journalists or those from outlets perceived to be less trustworthy. For instance,
307 several scientists preferred national over local media and legacy print publications over radio and
308 broadcast outlets, believing that those publications produced higher quality journalism.

309

310 Despite negative experiences with *specific* journalists, these scientists expressed deep, if not
311 grudging, respect and gratitude when speaking about journalists in general. As one senior
312 scientist commented:

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314 It’s rare for me to talk to a journalist who doesn’t show a very intelligent understanding of the
315 field. They’ve done their homework.... If they’re confused about something after the interview,
316 they call me back and get clarification about something. [Sci_12]

317

318 **Affiliation of media logic**

319 Adding to Olesk’s [2021] framework, we identified a third pattern of mediatization—affiliation
320 of media logic—that differed from the other patterns in important ways. Affiliative scientists
321 demonstrated greater contribution to the content production practices of journalists than either
322 adaptive or adoptive scientists. They cared deeply about public outreach, unlike adaptive
323 scientists, who saw media communication as secondary to their research. In this sense, they
324 resembled adoptive scientists, who saw communication as equally important to their other

325 professional duties. Yet, affiliates expressed greater appreciation for journalists' unique abilities
326 and used their awareness and mastery of media logic to support, rather than control, journalists'
327 work. Finally, although these scientists pursued communication with journalists in a goal-
328 oriented fashion that resembled adoption of media logic, they did so with broader, societal goals
329 in mind (e.g., reduce Covid-19 transmission, promote vaccine safety, etc.).

330
331 At the core of the affiliation of media logic pattern was a sense of collaboration. These scientists
332 partnered with or helped journalists by articulating research in simplified narratives, providing
333 critique and context about other scientists' studies, and inspiring news frames and story ideas.
334 They also employed characteristics of content production used by journalists, such as an
335 awareness of a story's timeliness and the need for it to be both interesting and relevant to the
336 public. These scientists displayed a more purposeful use of media. For instance, one scientist
337 said, "For me, I see the press as an ally in terms of helping disseminate information and being
338 very committed to doing that accurately and fairly" (Sci_19). Many enjoyed talking with
339 journalists and some believed their research benefited from the conversations. Several had
340 fostered long-term relationships with journalists, who would occasionally call on them seeking
341 comments about new studies in their area of expertise. These scientists also recognized
342 journalists' unique skills in explaining difficult or technical research to the layperson. As one
343 participant explained,

344
345 There has been a lot of news or information on the virus that was not precise [...] and
346 that's really a problem. From that point of view, the scientists—the ones that are really
347 working on things—they should really help the journalists provide reliable information.
348 [Sci_01]

349
350 For affiliative scientists, interactions with journalists were motivated by a personal mandate to
351 communicate science, beyond any expectation to follow media relations protocols laid out by
352 research institutions or journals. These scientists integrated public outreach into both their
353 professional and personal activities, for example, by sharing their research on social media,
354 personal websites or blogs, or through articles contributed to "research amplifier" platforms
355 [Osman & Cunningham, 2020] such as *The Conversation*.

356 357 **Factors intersecting with mediatization**

358 While the adaption, adoption, and affiliation patterns appear clear cut, most scientists did not
359 consistently follow a single pattern for all five dimensions of mediatization. Instead, most
360 expressed different patterns depending on the dimension, expressing, for example, an affiliative
361 pattern for the *Communication as a responsibility* and *Purposeful use of media* dimensions, but
362 an adaptive pattern for the *Awareness*, *Mastering*, and *Institutionalization of media logic*
363 dimensions. We explored these variations further while developing scientist personas, reflecting
364 on their relationships with other aspects of participants' profiles. We found that three

365 interconnected factors—career status, journal pressures, and institutional context—intersected
366 with scientist mediatization patterns to shape their interactions with journalists.

367

368 Career stage

369 Among participants it was clear that early career scientists experienced risks that more
370 established scientists did not. Keenly aware of the embargo policies at their target journals, and
371 the importance of publishing in “high impact” venues, these untenured and early-career
372 researchers (ECRs) often hesitated to fulfill journalists’ requests. This barrier was most obvious
373 in the case of unpublished data and preprints, which they did not want to discuss with journalists
374 for fear of jeopardizing future publication opportunities. For example, one ECR recounted a time
375 that they had been approached by a journalist with a request for unpublished data. While the
376 scientist wanted to contribute, and felt that their evidence would have enhanced the journalist’s
377 story, they were unable to share the data because “that’s a huge career issue for me if I just kind
378 of give it up” as “a lot of journals won’t let you submit if you shared your information or shared
379 your data elsewhere” [Sci_16].

380

381 ECR status amplified not only professional risks but also potential benefits of interacting with
382 journalists. When it came to peer-reviewed research, ECRs stressed that media coverage “does
383 help our careers quite a bit with the tenure process” [Sci_09]. Some established scientists
384 similarly acknowledged that this attention “can be seen to be sort of good for the CV/career”
385 [Sci_02] as “the paper you published is somehow more important than if you don’t have press”
386 [Sci_01]. Yet, more senior scientists described these career rewards as more of an added benefit
387 than a major motivation for working with journalists, possibly because—as tenured
388 researchers—they had already proven their value at their institution.

389

390 Journal pressures

391 The need to please journals was an important force shaping scientists’ interactions with
392 journalists. This pressure meant that both fears and potential benefits associated with media
393 attention were often amplified when submitting research to “high impact” journals, which
394 scientists believed were not only more valued by their tenure committees but also by their
395 institutional communication groups. As one researcher recounted of her time as a grad student:

396 I was at, you know, a big R1 university, and the culture was sort of if your paper wasn’t in
397 *Science* or *Nature*—or maybe *PNAS*—like, you did not tell the press department. Like, they only
398 cared about high-impact articles. [Sci_10]

399

400 Beyond implicit pressures related to the journal publishing system, journals directly shaped
401 scientists’ interactions with journalists by setting embargoes, preparing and publicizing press
402 releases, and promoting new studies. Again, “high impact” journals appeared to play an outsized
403 role. As one participant explained:

404 ...they are very keen on broader dissemination. So if you publish in the high-impact journals, you
405 know, I think the aim is that it gets out to a wider audience, by default. And they have a very
406 active kind of media division. [Sci_02]

407
408 **Institutional context**

409 Finally, scientists' institutional context informed whether and how they engaged with journalists.
410 Institutions directly influenced interactions with journalists by preparing press releases, pitching
411 media coverage, facilitating interviews, and more. Some also had strict policies controlling how
412 or whether employees could engage with journalists. As one scientist explained, these policies
413 sometimes acted as a barrier to communication:

414 ...because it's a US government organization, we have to be really careful about not appearing to
415 endorse products or things like that. So sometimes explaining what we've done is difficult.
416 [Sci_06]

417
418 Institutions also implicitly affected interactions by communicating norms and expectations about
419 what kind of media attention, if any, was considered acceptable and valuable. Some actively
420 encouraged and rewarded media outreach (e.g., those with active communications groups, media
421 training opportunities, public outreach mandates), while others were less enthusiastic. For one
422 scientist, a lack of alignment between their personal communication goals and those of their
423 institutional context encouraged a job change. This scientist explained:

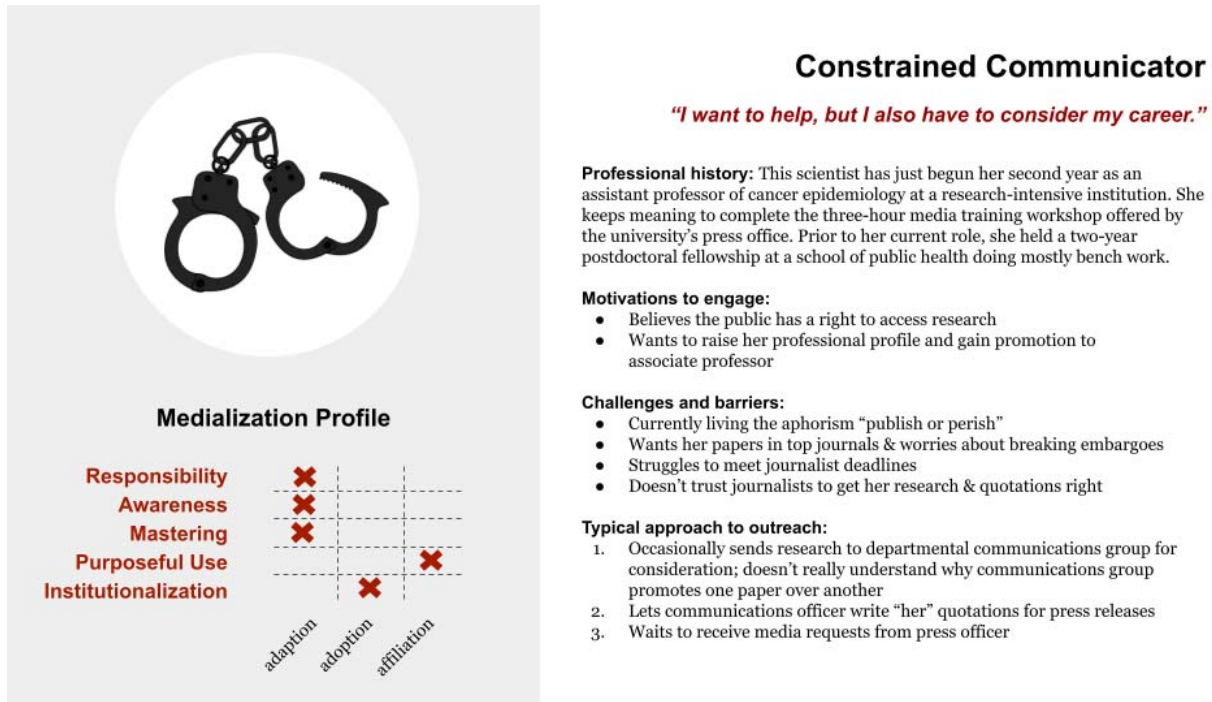
424 If you can get your work into open-access journals or you work for an institution that's willing to
425 pay the open-access fees, then I think academic journals can be a reasonable vehicle of influence,
426 as long as the turnaround is quick. But my experience is that it takes a while [...] so I took a job
427 with [another institution], which produces research to inform law and public policy, in part
428 because I felt like I wanted my time to be meaningfully spent [...] We've got a great
429 communications director, and our work is often cited by the press, more so than when I worked at
430 universities. [Sci_19]

431
432 **Scientist personas**

433 By combining the scientists' accounts through Olesk's framework and three interconnected
434 factors, we developed four personas that allowed for an intertwining of dimensions and,
435 ultimately, a more complex and nuanced understanding of scientists' professional roles alongside
436 their personal needs, experiences, behaviors, and goals in the scientist-journalist relationship.
437 These fictional personas represent different scientist types that interact with journalists.
438 Displayed by their profiles below, the personas were the (1) Constrained Communicator, (2)
439 Ambivalent Media Source, (3) Strategist, and (4) Media Enthusiast.

440

441 Constrained Communicator



442
443 Figure 1. Persona representing the Constrained Communicator.

444
445 While most scientists reported some level of pressure or control from their institution or target
446 journals, the Constrained Communicator expressed the greatest frustration. Typically, this
447 scientist was either an ECR focused on academic promotion or a more senior researcher working
448 for a large nonprofit or government organization. The ECR found the general publishing and
449 research promotion process—from journal embargoes to institutional and journal press releases—
450 frustrating and out of their control. As one scientist explained,

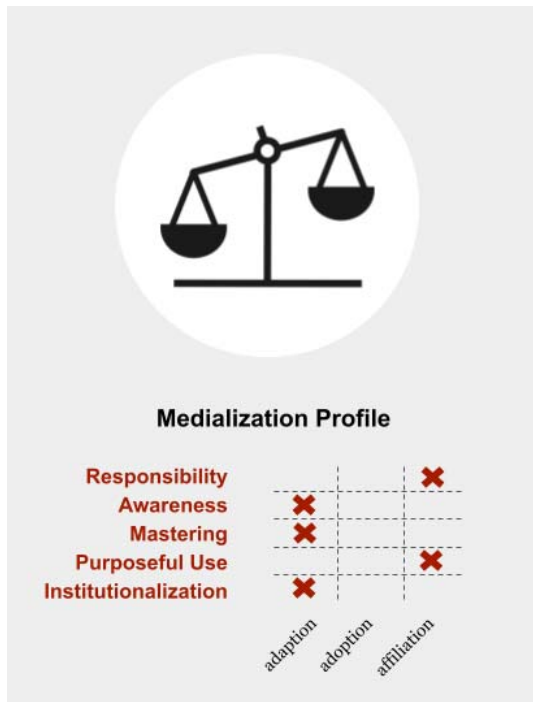
451
452 [The press release] was from the journal. They wrote one. And we actually didn't have a lot of
453 say in how that was written. I remember because we were not super happy with it, but they said
454 we should just only comment.... They made it very clear that we were not supposed to change
455 anything. It was odd. [Sci_03]

456
457 Senior scientists were more accepting of institutional processes, but felt those elements could
458 work against a mandate of science: to share timely, understandable scientific knowledge with the
459 public.

460
461 Both types of Constrained Communicator viewed their plight as part of a larger promotion
462 system outside their control. They followed the lead of press officers, hewed closely to dictums
463 of top journals, and resisted sharing data and papers prior to peer-reviewed publication. Contact
464 with journalists was highly mediated by their institution; their views of journalists were framed
465 by communication professionals.

466
467

Ambivalent Media Source



Ambivalent Media Source

"I don't take as active of an approach as several of my collaborators and coauthors. I sort of think if it's in a good journal, it sort of will be found."

Professional history: This mid-career researcher works at a teaching hospital with an overtasked communications team. Unless their research has big potential for media pick-up, they are largely on their own to promote it. Their research commitments, teaching load, and inconsistent experience with journalists, keeps them from being more proactive.

Motivations to engage:

- Personal mandate to better public health and policy
- Wants to help fight misinformation
- Believes journalists play crucial role in public communication of research

Challenges and barriers:

- Time and bandwidth—can't keep up with the journalists' deadlines
- Confused about journalist norms and practices
- Intimidated yet unimpressed with social media

Typical approach to outreach:

1. Generally waits to be approached (too crass, too self-promotional otherwise)
2. Occasionally reaches out to a journalist who they've worked with before
3. Skips the press release

468

469 Figure 2. Persona representing the Ambivalent Media Source.

470

471 Typically a mid-career scientist, the Ambivalent Media Source expressed mixed feelings
472 regarding their interactions with journalists. While they believed journalists could be crucial in
473 "translating" esoteric research, they also worried about journalists' accuracy. This scientist
474 bemoaned losing control of their research:

475

476 Once it is published, everybody can read the article, and it is not our thing. I mean it's something
477 public. And it's okay, but sometimes when things are not accurate it's a bit sad. [Sci_07]

478

479 They were also more pessimistic about the scientist-journalist relationship, occasionally speaking
480 of the two professions as misaligned in goals, norms, and professional practices:

481

482 Maybe I'm too cynical, but it feels like...They're covering a particular issue for a reason;
483 sometimes it could be that they're genuinely interested in learning about new developments in a
484 particular field. But I think many times, journalists—they already know the content...of the piece
485 they're going to write. [Sci_18]

486

487 Perhaps as a result, the Ambivalent Media Source rarely approached journalists, recognizing that
488 they would need to commit time and energy—which they did not have—to communicate.

489 Additionally, there were no guarantees that their efforts would pay off:

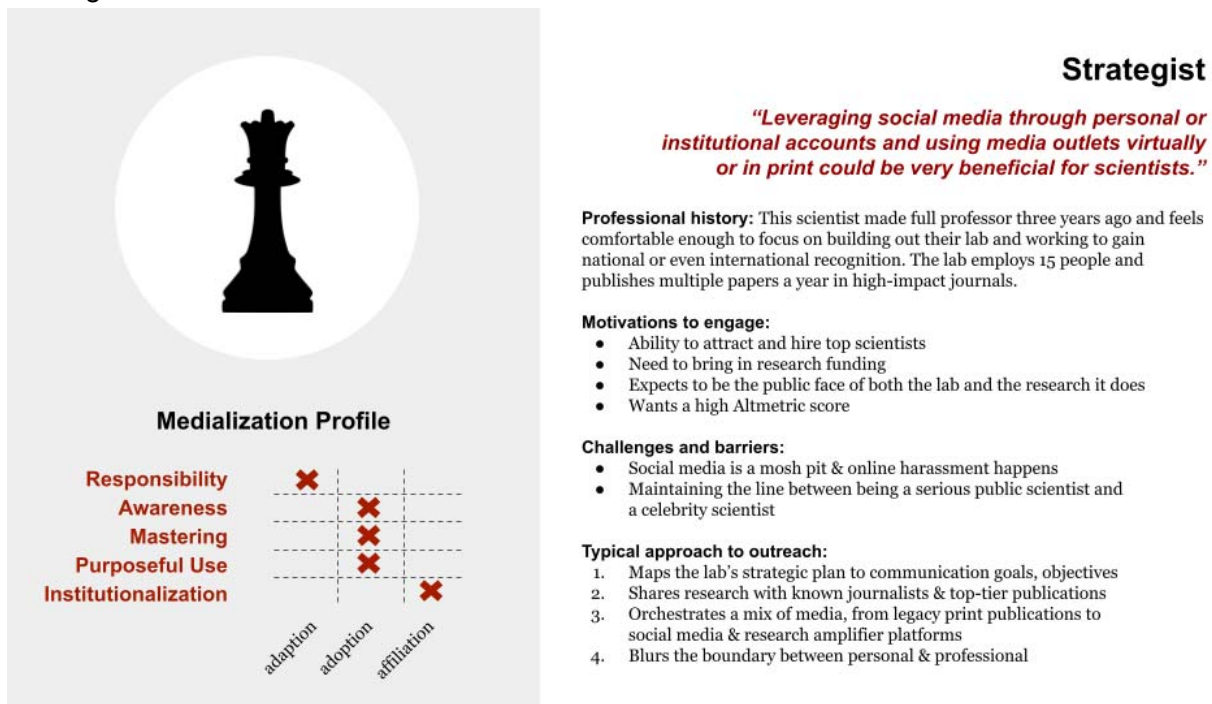
490

491 Sometimes, I'll spend an hour or so talking to a journalist, and then they'll use a lot of the stuff I
492 told them, and not mention that I was the one who told them or not link to any of the papers.
493 [Sci_14]

494
495 While the Ambivalent Media Source occasionally had direct contact with journalists, it was
496 reactive (i.e., "I always call them back") and their mediatization was piecemeal, with a limited
497 understanding of journalistic practice. One scientist said:

498
499 We get contacted by journalists and then even if you ask them, 'Can you send me a link when the
500 piece is out,' they rarely do it. I don't know if it's some rule to not do it, or if they just forget or
501 don't care. [Sci_11]

502
503 Strategist



504
505 Figure 3. Persona representing the Strategist.

506
507 This seasoned scientist was a strategic marketer and recognized their efforts as crucial for
508 gaining talent and funding. Their lab and research were well established and did not require
509 constant oversight, allowing time and space to develop plans for promoting their work. The
510 Strategist saw media coverage as a powerful tool for advancing their career, findings, and field.
511 They worried less about being seen as crass or "tacky" and were comfortable using mediatized,
512 commercial language:

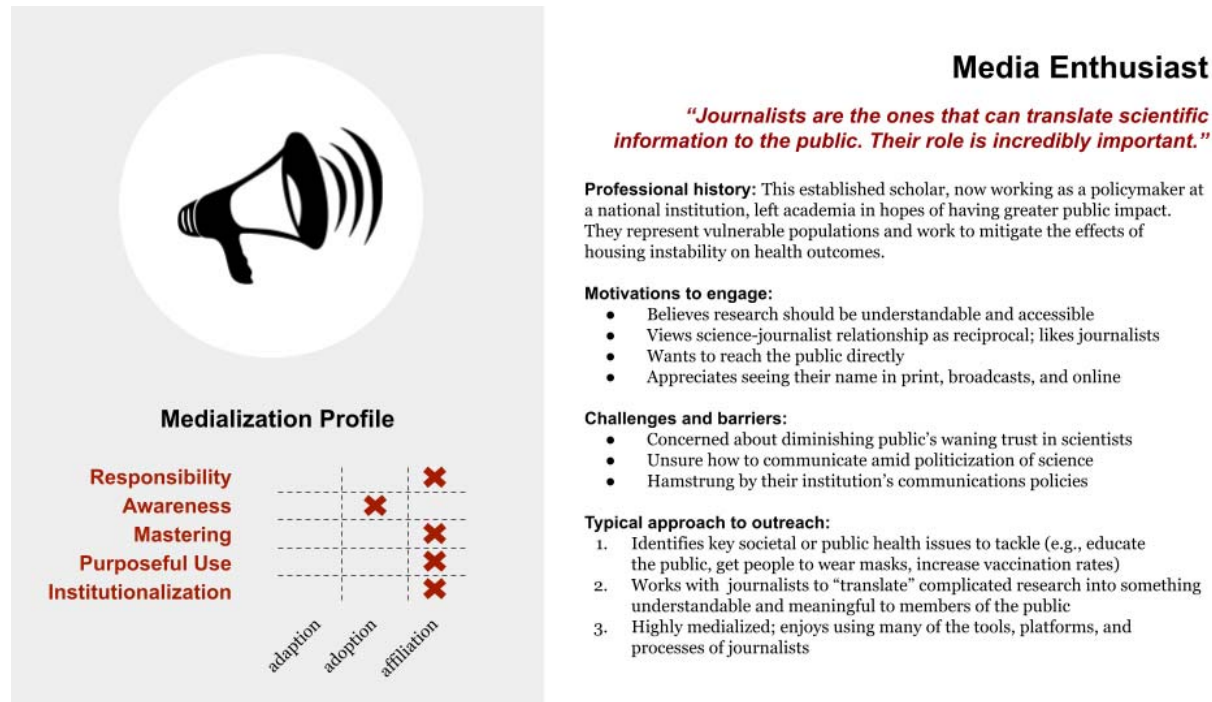
513
514 Getting some recognition... is motivating... exposing the public to some of the nice things that
515 you are doing—that's one of the greatest recruiting tools for science and engineering. [Sci_09]

516

517 From their view, journalists and communication professionals can—and should—be managed.
518 The Strategist was selective about the media they shared their research with, favoring journalists
519 at major legacy publications such as the *Atlantic*, *BBC*, *Guardian*, *New York Times*, or
520 *Washington Post*.

521
522 Highly mediatized, the Strategist used many journalistic tools and approaches to orchestrate
523 media coverage and dedicated considerable time to planning interactions with journalists.

524
525 Media Enthusiast



526
527 Figure 4. Persona representing the Media Enthusiast.

528
529 This scientist genuinely liked working with journalists and saw their efforts to do so as a
530 collaboration. The Media Enthusiast viewed journalists as a key way to share knowledge and
531 encourage change in society. They were mediatized enough to be strategic but were driven by a
532 desire to share science, rather than promote themselves or their institutions. As one Media
533 Enthusiast put it:

534
535 [Getting research to the public]—it's huge. I mean, most of my work is publicly funded, so I have
536 a mandate or mission to share the work with the public... journalists are and news organizations
537 are super, super important in that process.... They are the best way for us to get the word out.
538 [Si_10]

539
540 The Media Enthusiast had often left—or was teetering on leaving—academia for an environment
541 where they believed they would have greater public impact.

542

543 Highly mediatized and curious, the Media Enthusiast was likely to join a journalist for lunch at a
544 conference or exchange email messages about a topic of interest. They brainstormed with
545 journalists and shared story ideas. They regularly tweeted, looked for opportunities to build their
546 online following, and enjoyed publishing work on research amplifier platforms such as *The*
547 *Conversation*, where they could partner more formally with journalists.

548

549 **Discussion**

550 This research examines the mediatization of science holistically, exploring how scientists’
551 professional context works alongside their internalization of media logic to shape interactions
552 with journalists. Our findings offer a comprehensive and updated understanding of
553 mediatization, demonstrating how factors such as career stage, pressures from journals, and
554 institutional context can intersect with a scientists’ wider communication goals to influence
555 whether and how they engage with journalists. We also highlight a partnership-type “affiliation”
556 orientation of scientists to journalists that is characterized by collaboration, shared interests,
557 goals, and efforts. In doing so, we make several empirical, practical, and methodological
558 contributions.

559

560 Empirically, the affiliation pattern expressed by many scientists in this study diverges from
561 previous research suggesting antagonistic relationships between scientists and journalists
562 [MacNamara, 2014], but supports recent studies suggesting such relationships are generally
563 positive and mutually beneficial [Peters et al., 2008; Dijkstra et al., 2015]. The dominance of this
564 affiliative pattern also aligns with Dunwoody’s [1999] prediction—made two decades ago—that
565 a “shared culture” would eventually emerge between scientists and journalists, in which the two
566 sets of actors would equally contribute to the public communication of science. What this
567 affiliation orientation means for science, journalism, and the public is unclear. On the one hand,
568 mutually supportive relationships between scientists and journalists could support high quality,
569 evidence-based science media coverage—particularly given that this orientation is characterized
570 by goals of improving public wellbeing and maximizing societal benefits. On the other, the
571 affiliation orientation could signal a further breakdown of the autonomy of science [Weingart,
572 2012] and of journalism [Schulson, 2016].

573

574 Our study sheds light on the interconnected dimensions and roles that personal, institutional, and
575 systemic factors can play in the mediatization of science. In developing our personas, scientists’
576 career stage, institutional contexts, and pressures from journals emerged as important forces
577 shaping the nature of their relationships with journalists. This echoes findings by Calice et al.
578 [2022] that institutional factors, particularly in regard to tenure and promotion, are crucial in
579 whether or not a scientist will engage with the public. Our study offers a view into how
580 communication professionals at both academic institutions and scholarly journals implicitly and
581 explicitly influence scientists’ participation in that competition, with implications for how
582 scientists and journalists work together in the public communication of science. In particular, our

583 study reveals the often overlooked role that scholarly publishing plays in whether and how
584 scientists participate in public engagement. Findings suggest that journals may, in fact, have their
585 own form of mediatization, in which scientists bend toward their norms and practices more than
586 those of journalists. At times, the pressures to publish in high-impact journals discouraged even
587 the most affiliative scientists from discussing their research with journalists before it had been
588 peer reviewed and published. At others, journals facilitated media outreach by preparing press
589 releases, introducing embargoes that allowed more time for scientist-journalist interaction, and
590 arranging interviews to promote new publications. Such facilitation was typically welcomed by
591 scientists, but allowed for a high level of control, from dictating scientist quotations to directing
592 the news cycle of science and potentially narrowing information sources by favoring particular
593 journalists and media organizations [Granado, 2011]. The role of the journal system as both an
594 enabler and obstacle in the public communication of science warrants further research,
595 particularly as embargoes and press releases influence the work of journalists and, ultimately,
596 what knowledge is shared with the general public [Sumner et al., 2016; Taylor et al., 2015].

597
598 Practically, our findings could help address concerns that scientists need more than tactical skills
599 (e.g., speaking and writing clearly, fostering dialogue, telling stories) for engaging the public
600 with their research [Besley, 2020; Cooke et al., 2017]. Besley pointed out that “most
601 communication experts within the scientific community work for organizations where the
602 primary goals are about helping the organization, rather than advancing the overall scientific
603 enterprise” [Besley, 2020, p. 158]. Our findings also point to this concern and extend it beyond
604 what Besley called “the health and welfare of science” to the health and welfare of society.
605 Personas from this study could be used to develop guidelines for supporting scientists of
606 different institutions, career stages, and mediatization patterns to engage in strategic science
607 communication for the benefit of society. For instance, our findings support calls to support
608 faculty members in pursuing meaningful public engagement through changes to review, tenure,
609 and promotion guidelines (e.g., Calice et al., 2022; Alperin et al., 2019). Our findings could also
610 help communications professionals at institutions and journals adapt their policies and systems to
611 ensure they enable, rather than inhibit, accessible, impactful, and societally beneficial media
612 coverage of research.

613
614 Our study makes several methodological contributions. It introduces a novel methodology that
615 integrates framework analysis and persona development to provide theoretical and practical
616 insights. It also highlights the value of using methods such as talk-alouds or reconstructive
617 interviews to anchor discussions of relatively abstract topics to real-world practices (cf. Barnoy
618 & Reich, 2019, 2022). For example, the scientists sometimes described their relationships and
619 practices differently when answering general, open-ended questions than when discussing
620 specific news stories during the “talk-aloud” portion of their interviews. We encourage scholars
621 to integrate the two elicitation approaches, as the tensions between the general and the specific
622 that emerged during the interviews added a richness and complexity to the data that allowed us to

623 answer our research questions with greater depth and nuance than would have been possible
624 using either interview method alone.

625
626 This study must be considered in light of its limitations. We conducted research at a time of
627 relative stability during the pandemic; the initial vaccine rollout had been completed and
628 boosters were being administered in the US, Canada, and the UK, where most of the scientists
629 were based. It is likely that the views in this paper would differ from those of scientists
630 interviewed at the onset of the pandemic. Also, it is possible that this relatively high level of
631 mediatization of participants is, in part, an artifact of when the interviews were conducted (i.e.,
632 during the COVID-19 pandemic). However, although a few scientists in our sample described
633 increased or altered media relations as a result of the pandemic, the vast majority of scientists we
634 interviewed did not describe altered media relations as a result of the pandemic. The timing
635 allows for us to link the changing practices and norms of journalists to the changing (i.e. post-
636 normal) communication context. All scientists had research mentioned in at least one article by a
637 journalist working for a science publication. As such, these scientists may have had a higher
638 degree of mediatization than scientists outside our study. Additionally, all publications in the
639 data set were text-based (not multimedia), English only, and based in the Global North. Future
640 research could expand outside these three categories.

641
642 **Conclusion**

643 In conclusion, regardless of specific orientation to media logic, most, if not all, of our scientists
644 can be described as relatively mediatized. All understood at least some of the norms, values, and
645 practices of journalists and had been interviewed for news stories. Many also knew how to use
646 their knowledge of media logic to pursue professional, institutional, or societal goals. This
647 suggests an area ripe for future research in order to understand how to best support scientists and
648 journalists in increasingly collaborating to sharing research with the public through the news
649 media.

650
651

652 **Appendix A. Supplementary data (online)**

653

654 Table 1. User profiles for interviewed scientists

Scientist	Country	Experience	Institution (type)	Journal articles published in past year	Persona
Sci_01	France	Senior	National research institution	5	Constrained Comm
Sci_02	England	Senior	University	12	Media Enthusiast
Sci_03	England	ECR	University	4	Constrained Comm
Sci_04	U.S.	Senior	University	50	Media Enthusiast
Sci_05	US	Senior	Local government	4	Strategist
Sci_06	US	Senior	National research institution	27	Constrained Comm
Sci_07	France	ECR	National research institution	2	Constrained Comm
Sci_08	US	Senior	Corporate research institution	4	Media Enthusiast
Sci_09	US	ECR	University	5	Strategist
Sci_10	US	Mid-career	University	10	Media Enthusiast
Sci_11	US	Mid-career	University	4	Ambivalent Media
Sci_12	US	Senior	University	5	Media Enthusiast
Sci_13	US	Mid-career	Nonprofit research institution	10	Media Enthusiast
Sci_14	US	Mid-career	University	15	Ambivalent Media
Sci_15	Canada	Senior	University	15	Strategist
Sci_16	US	Mid-career	University	8	Media Enthusiast
Sci_17	England	Mid-career	Public health center	5	Strategist
Sci_18	US	ECR	University	10	Strategist
Sci_19	US	Mid-career	University	1	Media Enthusiast

655

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