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THE REPRESENTATIONS OF SCIENCE, SCIENTISTS, AND SCIENCE COMMUNICATION IN *Don't Look Up*

Science communication in the face of skepticism, populism, and ignorance: what *Don't Look Up* tells us about science denial — and what it doesn't

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Abstract

Don't Look Up tells the story of a team of astrophysicists whose efforts to warn politicians, media makers, and the public about an apocalyptic comet impact on planet Earth are undermined by fundamental skepticism toward their expertise. On the one hand, the film offers a rich portrayal of contemporary anti-science sentiments, their societal conditions, and the media and communication ecology surrounding them. But on the other hand, *Don't Look Up* ignores and exaggerates several facets of those sentiments and the communicative settings in which they spread. This commentary analyzes this contrast through a science communication lens: it scrutinizes the (mis)representation of science denial and science communication in *Don't Look Up* — and aims to inspire further debate about portrayals of anti-science phenomena and potential remedies within popular media.

Keywords

Public perception of science and technology; Representations of science and technology; Science and media

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Introduction

"*I'm sure many of the people out there aren't even gonna listen to what I just said 'cause they have their own political ideology*". These words by astronomer Dr. Randall Mindy, a protagonist in Adam McKay's 2021 Netflix film *Don't Look Up*, probably stroke a nerve of many scientists. They might have resonated with Michael Mann, Ibram X. Kendi, Anthony Fauci, and various other scholars who have recently been challenged by skepticism, personal attacks, and politically motivated rejection of their expertise on climate change, critical race theory, and the COVID-19 pandemic, for example [Nogrady, 2021].

Don't Look Up tells the story of a team of scientists whose research on a deadly comet approaching Earth is ignored by significant parts of the general population and undermined by the ambitions of politicians — specifically those of the conservative US President Janie Orlean. The film shows several more facets of contemporary challenges to scientific expertise beyond science denial, hostility against scientists, and partisan reasoning, for example conspiracy theories on social media [Mahl, Schäfer & Zeng, 2022], corporate counter-research [Oreskes & Conway, 2010], and populist anti-elitism [Mede & Schäfer, 2020]. *Don't Look Up* thus offers a vivid picture of current anti-science resentment, the societal settings surrounding it, and ways in which scientists and science communicators can — or cannot — respond to it. But at the same time, the film overlooks many aspects of such resentment, exaggerates others, and thus conveys a narrow understanding of how anti-science sentiments operate within society and science communication ecologies.

This commentary discusses these (mis)representations through the lens of science communication scholarship. It seeks to inspire further debate and reflection about recent anti-science phenomena, potential remedies, and the way popular media portray them.

How *Don't Look Up* portrays contemporary anti-science resentments

Extant sociological and psychological scholarship has analyzed a range of forms and conditions of anti-scientific reasoning, affect, and behavior [e.g., Gauchat, 2008; Lewandowsky, Mann, Brown & Friedman, 2016; Rekker, 2021]. Many of these are showcased in *Don't Look Up*: the film portrays typical aspects of science denial, showing how parts of the public ignore research results indicating a 99.78% certainty that the comet will hit Earth [Hansson, 2017]. It illustrates how corporations fabricate evidence that challenges scientific consensus, showing how a billion-dollar tech company boss hires his own scientists to undermine the studies of Dr. Mindy and his PhD candidate Kate Dibiasky [Oreskes & Conway, 2010]. It references the affinity of anti-science resentment and populism, showing how President Orlean and her team slander Mindy and Dibiasky using populist rhetoric [Mede & Schäfer, 2020] and gather in an Oval Office that has a portrait of the anti-establishment science skeptic Andrew Jackson [Dupree, 1990]. It describes how public controversies about scientific research may fuel societal polarization, showing televised opinion poll results indicating that the population is divided as to whether the comet exists [Rekker, 2021]. And it features a number of characters with questionable expertise but considerable political, economic, or media power, such as a former anesthesiologist as the head of NASA, a hobby scientist as a tech company CEO, and conspiracy theorists as social media influencers [Harambam, 2017]. As such, *Don't Look Up* portrays several dimensions of current anti-science phenomena and the political processes, economic conditions, and media dynamics surrounding them — thus touching upon multiple aspects of the social setting of public reservations against science [see Scheufele, 2013].

Many of these portrayals can be interpreted as references to the denial of research on climate change: empirical evidence demonstrates how deniers of anthropogenic global warming often ignore an overwhelming certainty of its existence and consequences [Björnberg, Karlsson, Gilek & Hansson, 2017], refer to manufactured findings undermining scientific consensus [Goldberg & Vandenberg, 2021], adopt populist attitudes and rhetoric [R. A. Huber, Greussing & Eberl, 2021], provoke

societal polarization [Dunlap, McCright & Yarosh, 2016], and profit from the power and reach of prominent science skeptics [van den Bulck & Hyzen, 2020] in much a similar way like what is depicted in *Don't Look Up*. After all, the film contains subtle Easter egg references to (the denial of) climate change, such as mention of Carl Sagan, who advocated for the urgency to combat it, or a painting of George W. Bush, who later tried to downplay this urgency [Byrne, Hughes, Rickerson & Kurdgelashvili, 2007].

But even if many pundits saw *Don't Look Up* as a portrayal of climate change denial in particular [Desch, 2021; Oppenheimer, 2021; Sinatra & Hofer, 2022], it can also be understood as an allegory for anti-science phenomena in general, because rejection of scientific consensus, corporate counter-research, or populist backlash have also challenged academic expertise on issues other than climate change — such as vaccination, gene engineering, 5G technology, fracking, cigarette smoking, gender studies, or the COVID-19 pandemic, for example [Mede & Schäfer, 2020; Merkley, 2020; Oreskes & Conway, 2010]. *Don't Look Up* thus seems to offer a broad picture of those phenomena. However, the film's perspective on anti-science sentiments is nevertheless limited, as it reproduces a couple of rudimentary, dated, and misleading assumptions about these sentiments.

How *Don't Look Up* reproduces limited assumptions about recent anti-science resentment

Don't Look Up has received many positive reviews, also from the scholarly community: astrophysicists and climate scientists praised it as "one of the most important recent contributions to popularizing science" and maintained that it has been "the most accurate film about society's terrifying non-response to climate breakdown" [Desch, 2021; Kalmus, 2021; Oppenheimer, 2021]. However, taking a social science perspective on *Don't Look Up* — and more specifically, a (science) communication perspective — suggests that the film also presents a short-sighted view on the nature and surroundings of public denial, skepticism, and criticism of scientists and their knowledge. This caveat revolves around at least four themes:

The monolithic passive public. With few exceptions, *Don't Look Up* portrays the general public as a large anonymous collective of seemingly manipulable citizens who have no choice but to submit to the appeals of societal elites and opinion influencers: film viewers watch masses of people unanimously cheering to their political leaders, witness Internet users thoughtlessly following social media hypes, and hear film characters repeatedly referring to "the people out there", "peoples of the world", or "the public" when addressing TV audiences, voters, or opinion poll respondents. Meanwhile, *Don't Look Up* barely depicts civic initiatives or social action — except for the activist group Kate Dibiasky joins in a somewhat negligible subplot.

The film thus conveys the impression that science denial results unavoidably from society being exposed to persuasive election campaigns or misleading online information. It arguably subscribes to an outdated media effects model that assumes that political leaders or social media influencers can inject their ideas into the general population with the proverbial "hypodermic needle" [Maeseele, 2007, p. 2]. Accordingly, *Don't Look Up* seems to blame the public for not resisting to persuasion and deception, and pathologizes the formation of public opinion on science as a detrimental and inevitable process among allegedly incompetent and

submissive lay audiences [see Krause, Scheufele, Freiling & Brossard, 2021]. This perspective neglects established conceptual assumptions and empirical findings of the social sciences: it largely ignores the possibility of societal and individual agency, i.e. the potential of publics to initiate responses to substantial crises like climate change and its denial [McAdam, 2017], to develop resilience against mis- and disinformation [Humprecht, Esser & Van Aelst, 2020], and to actively scrutinize the political and economic interests of stakeholders involved in discourse about science [Weingart & Joubert, 2019]. Therefore, *Don't Look Up* bears the risk of conveying the misconception that society is a passive monolith of ignorant people that scientists, science communicators, and policymakers simply have to deal with.

The US American view on science denial. *Don't Look Up* clearly adopts a US American view on anti-science resentments that is to some degree barely comparable to other countries. The film depicts sharp partisan divides, strong affective polarization, high distrust toward science within certain social milieus, and pronounced news media sensationalism, which have been found to be characteristic of the United States but not, or to a lesser extent, of several countries other than the US [Boxell, Gentzkow & Shapiro, 2020; Dimock & Wike, 2020; Kleemans & Hendriks Vettehen, 2009; McLamore et al., 2022]. *Don't Look Up* also suggests that societies will generally become more critical toward science when facing catastrophes — which conflicts with evidence showing that existential crises like the COVID-19 pandemic can lead publics to have *more* trust in science and *less* populist reservations against it in countries like Germany and Switzerland [Bromme, Mede, Thomm, Kremer & Ziegler, 2022; Mede & Schäfer, 2022]. After all, the film's depiction of US American science denial specifically is limited as well, as it does not acknowledge that US public opinion on science in general [Besley, 2018] or climate change in particular [Chryst et al., 2018] may not split into two polarized groups but spread across multiple nuances.

The portrayal of an inevitable persistence of science denial. *Don't Look Up* may cause viewers to believe that there is no effective solution to science denial: the film shows how scientists do their best to communicate their knowledge to the general population — but eventually fail to change public opinion, as their efforts get undermined by political campaigns, social media hypes, celebrity scandals, and a billionaire's pursuit of economic profit. Hence, *Don't Look Up* promotes a fatalistic narrative suggesting that measures against science denial, even if effective for brief periods of the story, still end up unsuccessful.

This narrative undoubtedly helps the film emphasize an urgency of combating (climate) science denial, and it does conform with empirical research showing that interventions against anti-science perceptions can have little success or might even backfire [Lazić & Žeželj, 2021]. But it neglects that such perceptions can indeed be effectively alleviated, for example through inoculation or debunking interventions [Lewandowsky & van der Linden, 2021]. Public anti-science resentments can thus not be conceived in terms of the apocalyptic, inevitable consequences that *Don't Look Up* insinuates.

The pathologizing of social and entertainment media. Media play a crucial role in *Don't Look Up*: the film includes several sequences featuring TV talk shows, social media, and a Hollywood blockbuster that adapts the events shown in *Don't*

Look Up for a film entitled "Total Devastation." Most of those sequences portray these media and their users rather negatively: TV hosts dismiss the urgency of the comet threat, trying to "keep the bad news light", as they put it. Social media are repeatedly depicted as pervaded by hate speech, hypes, and misinformation. And the film industry is conceived as an unscrupulous business seeking to monetize the apocalypse.

Don't Look Up therefore paints a dark picture of current media and communication ecologies. In the vein of cultural pessimism, it assumes that social and entertainment media harbor and catalyze science denial [see Fuchs, 2016]. Scholarship suggests that some of these media may indeed promote — or do not challenge — simplifying, misleading, and sensationalist depictions of science as well as anti-science sentiments, conspiracy theories, and misinformation [Kaplan & Dahlstrom, 2017; Scheufele & Krause, 2019]. Yet on the contrary, social and entertainment media have also been found to cultivate pro-science views, for example through edutainment formats, positive portrayals of scientists, and dialogue between science and the public [B. Huber, Barnidge, Gil de Zúñiga & Liu, 2019; Nisbet & Dudo, 2013]. *Don't Look Up* barely shows this, thus pathologizing science communication via popular media to some extent unwarrantedly.

How *Don't Look Up* (mis)conceives science communication within public discourse about science

The spread of critical, hostile, and populist reservations against scientific expertise is closely intertwined with the media and communication ecology of contemporary societies: for example, newspaper reporting may feature (and challenge) climate change skeptics [Brüggemann & Engesser, 2014]. Social networking sites may harbor (and deplatform) conspiracy theorists [Mahl, Zeng & Schäfer, 2021]. Instant messaging services may allow users to share (and debunk) mis- and disinformation [Rossini, Stromer-Galley, Baptista & de Oliveira, 2021]. Election campaigns may articulate (and criticize) anti-academic resentment [Dunlap et al., 2016]. And entertainment media — such as *Don't Look Up* itself — may popularize (and satirize) science denial and similar sentiments [Rousseau, 2015]. *Don't Look Up* portrays several of these dynamics. It can thus be understood not only as an allegory for societal conflicts over scientific issues, but also for the intricacies of science communication within such conflicts.

Generally, the film discusses multiple timely issues of science communication scholarship and practice: for example, *Don't Look Up* suggests that popular media should be acknowledged as a potent route of science communication [Allgaier, 2012], showing how two pop stars perform a hit song that urges their fans to "listen to the goddamn qualified scientists." Moreover, it alludes to the role of source credibility in science communication [Sanz-Menéndez & Cruz-Castro, 2019], showing how President Orlean mocks the protagonists as allegedly mediocre Michigan State University scientists who should be replaced by proper "Ivy Leaguers."

More specifically, *Don't Look Up* portrays science communication strategies against science denial in particular [see Hansson, 2018]. For example, it emphasizes — albeit only for brief parts of the plot — that public reservations against science can be reduced through advocacy and counter-speech by scientists like Dibiasky and Mindy [Betsch, 2017]. The film also illustrates that storytelling can be a promising

strategy to mitigate these reservations [Wang & Huang, 2021], showing how Mindy is advised before a TV interview that he is "just telling a story" and must "keep it simple." And it suggests that emotions can play a crucial role within such strategies [Scheufele & Krause, 2019], showing how Sesame Street kid actors feel saddened and frightened by Mindy. *Don't Look Up* may thus have also stroke the nerve of *science communicators* in particular.

However, communication researchers and practitioners could still raise concerns about the film's portrayal of science communication approaches against anti-science phenomena. For example, they may criticize that *Don't Look Up* portrays science communication primarily as a unidirectional top-down process through which a somewhat authoritative scholarly community transports "science du chef" [Bucchi, 1998, p. 2] to a passive public: the film shows Mindy trying to reach out to "the people out there," Dibiasky preaching to an anonymous TV audience, and pop stars advocating for science in front of an indistinct concert crowd. It therefore insinuates that the go-to approach against science denial is "putting more and more information in front of an unaware public" [Nisbet & Scheufele, 2009, p. 1774]. However, this approach has been described as ineffective, as just communicating the "best available evidence" [Rynes, Colbert & O'Boyle, 2018, p. 2995] and waiting for people to come find it is often unsuccessful in reducing public resentment against science [Scheufele, Krause & Freiling, 2021]. The film does show this, for example when Dr. Mindy asks in despair: "Why aren't people terrified? What do we have to say? What do we have to do?" But it barely considers alternative strategies that are common practice in science communication, i.e. participatory, dialogue-oriented, bottom-up approaches that conceive science communication as a bidirectional process [Akin & Scheufele, 2017]. The group of activists, who could serve as protagonists of such an approach [Fähnrich, Riedlinger & Weitkamp, 2020], yet plays an insignificant role in the film, and its members are depicted as marginalized, weird outsiders. Meanwhile, *Don't Look Up* does not only reproduce stereotypes of activist movements, but it also reiterates clichés of scientists themselves, as it portrays Mindy — at least in the beginning of the film — as a socially insecure, jargon-using ivory tower scientist and stereotypes Dibiasky as an emotionally unstable, geeky PhD student.

Another blind spot of the representation of science communication in *Don't Look Up* concerns its conception of which science should be communicated in times of crisis: in *Don't Look Up*, scientists are astrophysicists, geologists, and spacecraft engineers — but not social or behavioral scientists, albeit psychologists, sociologists, and communication scholars contribute substantial knowledge to the solution of societal crises in general [Moser, 2016; Van Bavel et al., 2020] and the combatting of science denial specifically [Ecker et al., 2022; Vraga & van der Linden, 2020]. The film thus suggests a natural-scientific rather than a social-scientific science communication perspective on solutions to science denial, similar to the way it proposes a "techno-fix" rather than a "socio-fix" in order to avoid the comet impact [van Zyl-Bulitta, Ritzel, Stafford & Wong, 2019, p. 316]. Single scenes do not only ignore but almost ridicule social science expertise, for example those that show rather dumb polling results indicating that "people [. . .] wanna manage the comet to create jobs."

After all, *Don't Look Up* barely shows ways in which science communication can *successfully* and *sustainably* address denial and skepticism of science. This was most

probably not the film's objective, but it might still leave the viewer with the idea that science communication is eventually incapable of preventing anti-science resentment. So on the one hand, *Don't Look Up* may indeed be considered a felicitous primer on science denial and science communication strategies against it [Sinatra & Hofer, 2022]. But on the other hand, it adopts a dated, narrow, and stereotypical perspective on recent science communication scholarship and practice.

Conclusion

This commentary argued that the 2021 Netflix film *Don't Look Up* presents vivid depictions of contemporary anti-science phenomena — but also features simplified, exaggerated, stereotypical, antiquated, and overly pessimistic portrayals of these phenomena, the social setting in which they are embedded, and the science communication ecology surrounding them. The film did not, perhaps, aspire to make these portrayals comprehensive and entirely accurate. However, discussing how it (mis)represents science denial and ways to respond to it can still go beyond complaining about flaws *Don't Look Up* never aimed to avoid: analyzing the film's merits and limitations, similar to those of films like "The Social Network" or documentary-dramas like "The Social Dilemma" [Preston, 2020], can spark worthwhile reflection about how the public (and Hollywood) views scientists. Such analysis is particularly important for science communication researchers and practitioners, because *Don't Look Up is* science communication: it has potentially affected attitudes toward science among some of its millions of viewers, motivated online discussions about it, and may inspire other depictions of science in popular media. The film therefore deserves debate within and beyond science communication scholarship. This commentary sought to contribute to such debate — and may hopefully even inspire further empirical research on science communication within public controversies, as well as popular media representations thereof.

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