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# Who Is Invited to the Metaverse? Analyzing Media Coverage of an Emerging Virtual World

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## Abstract

As a new technology awaiting widespread immersive usage, public awareness and understanding of the metaverse is likely significantly shaped by its coverage in the media. This study explored how the metaverse is framed in U.S. news media coverage, including who the media targets as metaverse users, and reflects on how this could shape public attitudes and engagement with the metaverse. Specifically, this study asked: which people and institutions are included and excluded from media coverage of the metaverse? To answer this question, a systematic content analysis of 526 U.S. news articles was conducted, drawing from three media databases. Findings reveal that the media frames the metaverse as a corporate space for those with buying power: investors, technology experts, and consumers. Users without buying power and users from marginalized groups were rarely considered in media coverage. Despite this, most coverage of the metaverse was descriptive, with only 11 percent of articles critiquing this space. These findings raise broad questions about commodification, exclusion, and inequality in the metaverse.

**Keywords:** metaverse, ethics, inclusion, media analysis

## Introduction

IN OCTOBER OF 2021, MARK ZUCKERBERG announced that the company formerly known as Facebook would be changing its corporate name to Meta, in line with the company's movement toward becoming a part of the *metaverse*.<sup>1</sup> Other companies, such as Apple<sup>2</sup> and Microsoft,<sup>3</sup> have proposed similar promising online environments, opening questions about the metaverse's capacity for actualizing its potential as a tool for democratization of knowledge, facilitating social connection, and advancing society more generally.

However, given that the metaverse is still in its early stages of development, information about it remains elusive to many, and people's primary exposure to such information comes from news media coverage. In this article, using a media framing approach to content analysis, we analyze the ways that information about the metaverse is being communicated to the public, specifically the people framed as invited to the metaverse.

The metaverse's most enthusiastic proponents see it as a transformative tool that could reshape our daily lives for the better. It has been called an "equalizer,"<sup>4</sup> whose benefits could include increasing the affordability and accessibility of education,<sup>5</sup> helping people with disabilities,<sup>6</sup> advancing medical training and facilitating surgical procedures,<sup>7</sup> enhancing psychiatric care,<sup>8</sup> bringing health care and urban development to lower-income countries.<sup>9</sup> Its detractors, in contrast, are concerned that the metaverse may exacerbate the inequalities we navigate in online spaces today.

Early metaverse users have reported facing a "barrage" of sexual abuse, racism, homophobia, and rape jokes,<sup>10</sup> and scholars have warned that, without critical evaluation, virtual and augmented reality are poised to replicate and augment current inequalities.<sup>11</sup> To reach its potential as a way to disrupt inequities in society, equity must be foundational to the development of the metaverse. Early users also help shape culture. As such, understanding who is being positioned as a potential user of the metaverse is an important research objective.

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When the Internet was first reaching our homes in the 1990s, it was similarly framed by early adopters as a liberatory space that would reverse offline inequalities and welcome all people regardless of “color or creed.”<sup>12</sup> However, although the Internet provided crucial spaces of safety and belonging for individuals from minoritized groups, it also channeled and exacerbated offline inequalities such as hate speech<sup>13,14</sup> and ushered in new forms of violence against these communities.<sup>15</sup>

Nonetheless, digital spaces can also support peer group development among adolescents<sup>16</sup> and provide a sense of belonging for individuals from minoritized groups, and even for social justice activism.<sup>17</sup> Parts of Twitter, for example, have become spaces for belonging and community-building among Black users,<sup>18</sup> Facebook groups have become important sites for belonging among, for example, Black women in Higher Education,<sup>19</sup> and for Lesbian, Gay, Bisexual, Transgender, Queer (LGBTQ+) youth, online interactions provide life-affirming connections to a wider community.<sup>20</sup> However, algorithmic bias, harassment, and exclusion have limited the potential of virtual spaces.<sup>21,22</sup>

Understanding how media influences individuals’ engagement with the world around them is a fundamental driver of the field of Media Studies,<sup>23</sup> and metanalytic research shows that the news media has strong public agenda-setting effects.<sup>24</sup> News articles communicate to readers what the metaverse is, how it may affect them, and whether they can and should participate in it. Thus, in line with media framing analysis,<sup>25</sup> this study investigated how the metaverse is communicated to the public in U.S. news media coverage, asking: *which people and institutions are included and excluded from media coverage (i.e., news articles) of the metaverse?*

**Methods**

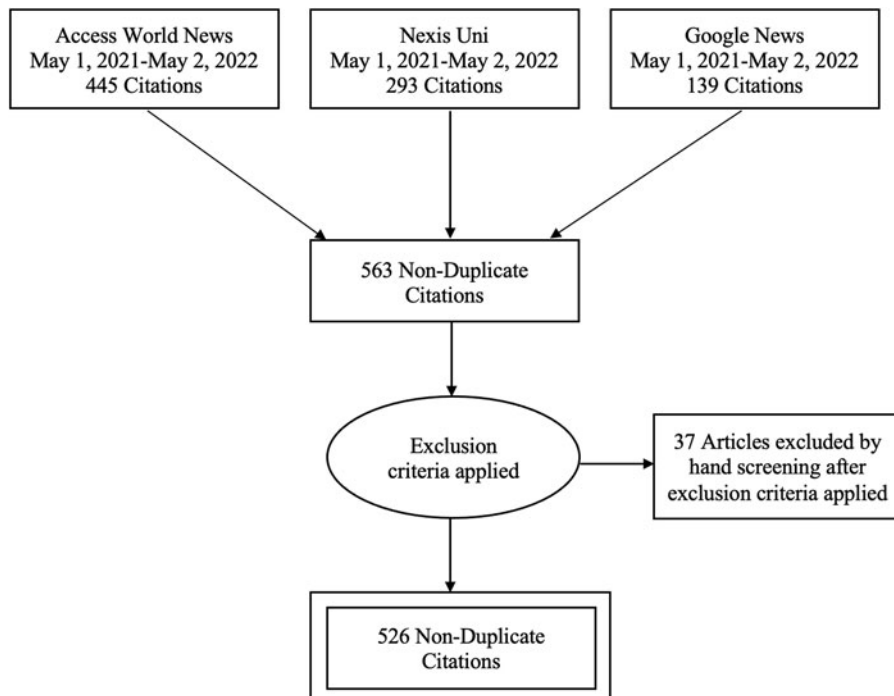
To examine media coverage of the Metaverse, a content analysis of 526 news articles was conducted. Content anal-

ysis is a research method common in analyses of media and communication messages.<sup>26</sup> For this study, the manifest content—or the information that is explicitly stated—of the articles was analyzed inductively. Bridging both qualitative and quantitative methodology, content analysis involves interpretation and coding of textual material to make replicable valid inferences.<sup>27,28</sup> This study used conceptual content analysis to assess the existence and frequency of concepts in the news articles we collected.<sup>29,30</sup> From an epistemological standpoint, our analysis is fundamentally postpositivist, and specifically critical realist/essentialist, lending itself to mixed-methods analysis.

The sample contained news articles published in U.S. media outlets over a 1-year period (May 1, 2021–May 2, 2022). We selected this timeframe due to the boom in news articles surrounding the metaverse during this time, in part due to the Zuckerberg announcement.<sup>1</sup> The sample was derived from three existing databases. A diagram illustrating the search and screening process for database development can be seen in Figure 1. The news databases Access World News, NexisUni, and Google News were used to find all articles published in U.S. newspapers, in English, that used the term “metaverse” in the headline.

The use of three databases served to ensure full coverage of existing news stories, based on best practices in media research.<sup>31</sup> The sample includes newspaper and magazine articles but excludes personal blogs. The initial search produced a combined total of 877 news sources. After removing duplicates, as well as fictional and satirical articles, the final sample included 526 articles.

A combination of deductive and inductive coding methods was used to develop a codebook for content analysis.<sup>32,33</sup> Coding sought to capture (a) who the news media was explicitly inviting to the metaverse and (b) the purpose or topic of the invitation. In the first phase of coding (e.g., “decontextualisation”<sup>34</sup> or “preparation”<sup>35</sup>), three of the authors independently read the first 60 articles. After discussion, they



**FIG. 1.** Search and screen process.

read the next 60 while doing open coding. After further discussion, the authors devised a set of preliminary themes and definitions. During this “organizing” phase, the authors repeated this process three more times with three more sets of 60 articles, until the final version of the codebook was created.

Next, two independent coders (the first and fourth author) applied the agreed-upon codes to the next 90 articles for the purpose of establishing interrater reliability. At this stage, coders failed to reach a minimum reliability level of  $\kappa=0.70$  on all themes.<sup>36</sup> After discussion and further revision of their coding strategies, the coders then independently reviewed and coded 90 additional articles; interrater reliability for all themes was then acceptable. Thus, the fourth author coded the remaining articles independently, as well as recoding the initial articles used to develop the codebook.

The iterative codebook-building process led to the creation of a limited number of clear and bounded codes that captured the data in its entirety. To identify who the news media was inviting to the metaverse, each article was coded for up to 11 categories of “invited people” (e.g., celebrities and gamers) and 6 categories of “invited institutions” (e.g., corporations and government). To capture the purpose of each article, one out of eight possible codes was chosen to identify each article’s main theme.

Each article was also coded as either “descriptive,” “critical,” or “mixed” in its framing. “Descriptive” articles were broadly neutral-to-positive about the metaverse, outlining its features and functions or reporting on the actions of early adopters, for example, articles on celebrities<sup>37</sup> or companies<sup>38</sup> making their metaverse debut. “Critical” articles typically raised ethical or technical concerns about the metaverse, such as concerns around data privacy<sup>39</sup> or economic inequality<sup>40</sup> in the metaverse. Meanwhile, “mixed” articles combined both descriptive and critical elements.

## Results

The top five groups of people invited to the metaverse according to news media coverage were consumers (21 percent), content creators (19 percent), technology experts (16 percent), investors (16 percent), and celebrities (15 percent). For example, the metaverse was described as operating stores selling virtual Ray-Ban glasses<sup>41</sup> and Timberland shoes,<sup>42</sup> whereas celebrities such as Paris Hilton<sup>37</sup> and Justin Bieber<sup>43</sup> were described as early adopters. Other groups were referenced in news coverage at much lower rates: gamers (5 percent), employees (2 percent), children (2 percent), and students (1 percent). Often when children were mentioned as participants in the metaverse, it was as consumers or content creators, such as in the article “Nike Asked Kids to Build a Metaverse World Inspired by Its Classic Air Max Sneaker.”<sup>44</sup>

The code “everyone” was used whenever an article referenced the metaverse without any financial barriers to entry (e.g., an article about VR headsets being made available to anyone through public libraries). By this definition, <0.5 percent of articles invited “everyone” to join the metaverse. The least common code applied was “marginalized people.” This referred to articles that framed the metaverse as a space for those from historically marginalized groups, including people of color, women, people with disabilities, and LGBTQ+ people.

TABLE 1. INVITED PEOPLE

	<i>Frequency</i>	<i>Percent</i>
Consumers	498	21.15
Content creators	468	19.87
Tech experts	395	16.77
Investors	384	16.31
Celebrities	360	15.29
Gamers	120	5.10
Employees	51	2.17
Children	42	1.78
Students	22	0.92
Everyone	10	0.42
Marg ppl	4	0.17
Total	2,355	100

By this definition, <0.2 percent of articles explicitly invited people from historically marginalized groups to enter the metaverse. In terms of invited institutions, most news coverage (88 percent) framed large corporations, such as Walmart and American Express, as the foremost institutional users of the metaverse.<sup>45,46</sup> All remaining institutions were invited to the metaverse in 1 to 3 percent of articles (Tables 1 and 2).

Consumers and large institutions were most frequently invited into the metaverse, and the purpose of these invitations is revealed through coding of each article’s theme and framing. The main theme of 54 percent of articles was “monetizing the metaverse.” These articles frame the metaverse as an economic endeavor, from the creation and selling of virtual properties<sup>47</sup> to investment strategies<sup>48</sup> to “Creating a Winning Brand Presence in the Metaverse.”<sup>49</sup>

The second most common theme—spanning 25 percent of articles—was simply introducing the metaverse. The third most popular theme was “Facebook and the metaverse”: 10 percent of all articles focused on Facebook’s role in metaverse development. Five percent of articles focused on the ethical implications of the metaverse. In terms of framing, 86 percent of articles were descriptive: giving a neutral or positive overview of the metaverse, whereas 11 percent of articles employed a critical framing and raised ethical questions (Tables 3 and 4).

Most media coverage framed the metaverse as a corporate space designed for consumers. People without buying power and marginalized people were rarely included in media coverage. Most coverage described the metaverse in a descriptive, not critical, way, with a minority of articles attending to its potential ethical implications.

Given that Mark Zuckerberg’s announcement punctuated the period during which we analyzed these data, we elected to conduct a temporal analysis of media coverage (Fig. 2).

TABLE 2. INVITED INSTITUTIONS

	<i>Frequency</i>	<i>Percent</i>
Mid-large corporations	286	88.27
Employers	12	3.70
Government	9	2.78
Nonprofits	7	2.16
Small businesses	6	1.85
Universities	4	1.23
Total	324	100

TABLE 3. THEME

	<i>Frequency</i>	<i>Percent</i>
Monetizing the metaverse	285	54.18
Introducing metaverse	136	25.86
Facebook and the metaverse	56	10.65
Ethics in the metaverse	27	5.13
The arts	9	1.71
Gaming	5	0.95
Education	4	0.76
Employment	4	0.76
Total	526	100

TABLE 4. FRAMING

	<i>Frequency</i>	<i>Percent</i>
Descriptive	454	86.31
Critical	57	10.84
Mixed	15	2.85
Total	526	100

This revealed that media coverage heightened immediately after the Zuckerberg announcement (November 2021). The articles published shortly after the Zuckerberg announcement largely focused on introducing the metaverse. However, the articles published between January and March focused more on the economic potential of the metaverse, including how brands and companies were utilizing it.

**Discussion**

Although the Metaverse is still under construction, and we cannot ascertain how inclusive it may become, media coverage gives us clues. Our analysis revealed that media re-

porting about the metaverse largely framed it as a platform for buyers and sellers, rather than a space for disseminating knowledge, educating the public, and disrupting societal inequities. Framing the metaverse as a space for some individuals and institutions, and not explicitly inviting others, could impact metaverse engagement. For example, previous research finds that the way new media frames issues affect how widely it is shared,<sup>50</sup> how much it is trusted,<sup>51</sup> and purchasing intentions.<sup>52</sup> Thus, it is essential to understand which groups of people are being “invited in” to the metaverse through media coverage and which are being excluded.

This study found that after a period of time when media coverage focused on introducing the metaverse (after Zuckerberg’s announcement), there was consistent media framing of the metaverse as a space for corporate profit-making open primarily to those who buy and sell: consumers and investors. This is a marked departure from coverage of the early Internet, which was primarily represented as a space for nonmonetized peer-to-peer interaction among computer enthusiasts and hobbyists.<sup>53</sup>

In this corporate-dominated context, potential metaverse users are almost always framed as consumers or investors. Only 10 out of 526 articles (<0.5 percent) represent users as nonconsumers. What struck us most about this finding is its contrast from rhetoric about the Internet, which was framed as an emancipatory technology through which individuals could free themselves from their embodied experiences.<sup>54</sup> Today, there is scarce media coverage on the metaverse’s potential to reduce inequality, enhance freedom, or improve civic life.

Despite user reports of racism, sexual assault, and homophobia in the metaverse, news media coverage rarely referenced any of these issues (for an exception, see Bokinni<sup>10</sup>). Although 11 percent of articles took a critical stance toward the metaverse in general (e.g., “Interest In NFTs And The Metaverse Is Falling Fast”),<sup>55</sup> only 5 percent of articles focused on the many ethical and moral concerns the Metaverse

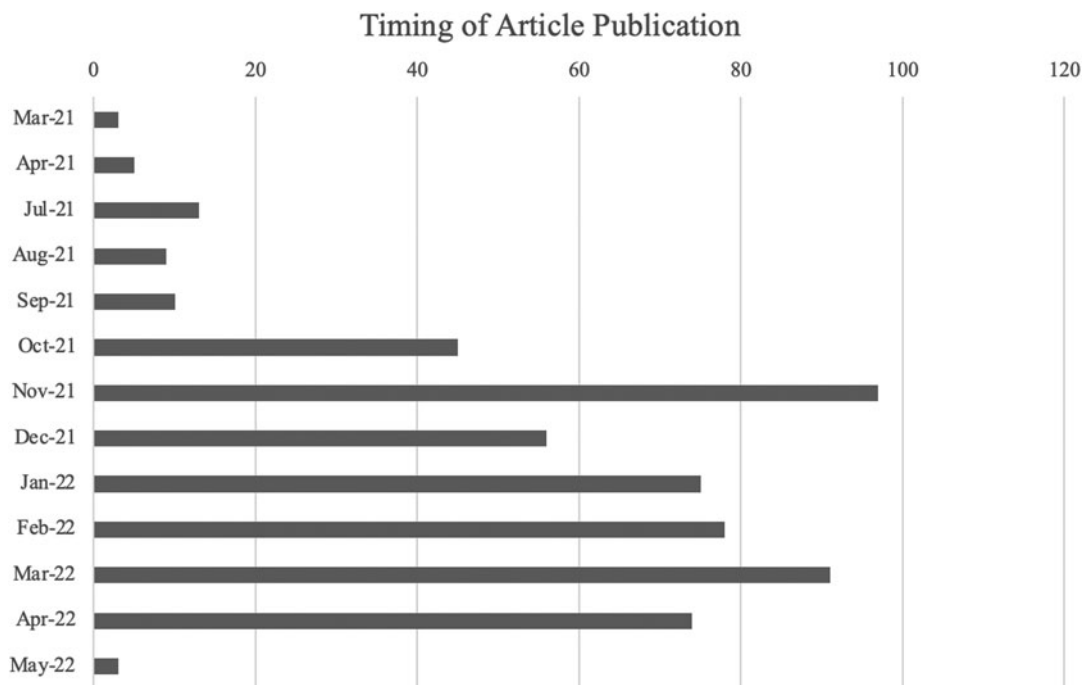


FIG. 2. Timing of article publication.

presents. Users currently report that there are inadequate processes for reporting violations, a lack of action to remove abusive users, and few protections for children entering the Metaverse.<sup>56</sup>

Content moderation on the Internet is difficult, and in the metaverse it may be even more challenging. A report by SumOfUs indicates that content moderation is already lagging behind in the Metaverse, exposing users to harms as serious as avatar-based gang rape.<sup>57</sup> Online harassment disproportionately affects those marginalized by race, gender, and sexuality,<sup>58</sup> yet these individuals were explicitly referenced in just 4 out of 526 articles. Our results indicate that, during the period when the metaverse became a household name, the news media disproportionately covered its commercial potential.

Given that roughly half of the articles in our analysis focused on monetization of the metaverse, it is possible that current media coverage may deter those without buying power from participating. This may limit the scope and diversity of user engagement and restrict the potential social good of the metaverse. Further research is needed to understand who is being incentivized to become an early adopter, which barriers to entry affect potential users, and what the risks of entry are for those from marginalized groups.

As the metaverse becomes populated, users' experiences should be systematically evaluated to understand where additional development is needed within the metaverse. The results of this study encourage further research about which individuals and groups are being included in the development of this new virtual world. This study also shows that much can be learned about the Metaverse by analyzing media representation. Scholars can and should look beyond the virtual world itself, to understand how it is perceived offline and how that might influence its uptake.

### Limitations

Although this study has many strengths, it is not without its limitations. Notably, the one-year timeframe we selected for analyzing news on the metaverse was punctuated by Meta's announcement and introduction into the metaverse. This decision, although deliberate, may limit the generalizability of these findings. Furthermore, it is possible that elements of media coverage of major events (such as the Zuckerberg announcement) are unaccounted for in our analysis. Notably, when major events happen, multiple media outlets tend to report similar information.

Although our temporal analysis allowed us to evaluate when most news articles were published, we do not have the tools available to us to analyze the interconnections between stories. Finally, given that the metaverse is in its early stages and has struggled financially, it is possible that the overemphasis on capital was a deliberate attempt to generate revenue for the metaverse. However, we stress that although profits are essential to business, so too is inclusion.

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### Authors' Contributions

Conceptualization, investigation, and writing—original draft by S.M. Analysis and writing—review and editing by J.A.S. Writing—review and editing, formal analysis, and supervision by A.A.E. Investigation and data curation by S.A.

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### References

1. Milmo D. Entering the metaverse: The digital future Mark Zuckerberg is steering us toward. *The Guardian*, 2021. Available from: <https://www.theguardian.com/technology/2021/oct/28/facebook-mark-zuckerberg-meta-metaverse> [Last accessed: June 5, 2023].
2. Browning K, Isaac M. Apple is stepping into the metaverse. Will anyone care? *New York Times*, 2023. Available from: <https://www.nytimes.com/2023/06/02/technology/apple-metaverse-vr.html> [Last accessed: June 5, 2023].
3. Muchmore M. What is Microsoft's metaverse strategy? *PCMag*, 2022. Available from: <https://www.pcmag.com/news/what-is-microsofts-metaverse-strategy> [Last accessed: June 5, 2023].
4. Nair S. Is the metaverse an economic equalizer? Leaders and futurists weigh in at Dubai Metaverse Assembly. *Fast Company*, 2022. Available from: <https://fastcompany.com/news/is-the-metaverse-an-economic-equalizer-leaders-and-futurists-weigh-in-at-dubai-metaverse-assembly> [Last accessed: December 25, 2022].
5. Kshetri N. Six benefits that the metaverse offers to colleges and universities. *The Conversation*, 2022. Available from: <https://theconversation.com/six-benefits-that-the-metaverse-offers-to-colleges-and-universities-188950> [Last accessed: December 25, 2022].
6. Statista. Leading benefits of the metaverse worldwide in 2021. 2022. Available from: <https://www.statista.com/statistics/1285117/metaverse-benefits> [Last accessed: December 25, 2022].
7. Qiu CS, Majem A, Khan S, Watson M. Transforming health through the metaverse. *J R Soc Med* 2022;115(12): 484–486; doi: 10.1177/01410768221144763.
8. Ford TJ, Buchanan DM, Azees A, et al. Taking modern psychiatry into the metaverse: Integrating augmented, virtual, and mixed reality technologies into psychiatric care. *Front Digital Health* Doi:
9. Sudan R, Petrov O, Gupta GG. Can the metaverse offer benefits for developing countries? *World Bank Blogs*, 2022. Available from: <https://blogs.worldbank.org/digital-development/can-metaverse-offer-benefits-developing-countries> [Last accessed: December 25, 2022].
10. Bokinni Y. A barrage of assault, racism and rape jokes: My nightmare trip into the metaverse. *The Guardian*, 2022. Available from: <https://www.theguardian.com/tv-and-radio/2022/apr/25/a-barrage-of-assault-racism-and-jokes-my-nightmare-trip-into-the-metaverse> [Last accessed: December 25, 2022].

11. Franks MA. The Desert of the Unreal: Inequality in Virtual and Augmented Reality. *UCD L Rev* 2017;51:499.
12. Barlow JP. A Declaration of the Independence of Cyberspace. Electronic Frontier Foundation, 1996. Available from: <https://www.eff.org/cyberspace-independence> [Last accessed: December 25, 2022].
13. Brison S, Gelber K, (eds). *Free Speech in the Digital Age*. Oxford University Press: Oxford; 2019.
14. Eubanks V. *Digital Dead End: Fighting for Social Justice in the Information Age*. MIT Press: Cambridge, MA, USA; 2011.
15. Eaton AA, McGlynn C. The psychology of nonconsensual porn: Understanding and addressing a growing form of sexual violence. *Policy Insights from the Behavioral and Brain Sciences* 2020;7(2):190–197; doi: 10.1177/2372732220941534.
16. boyd d, Marwick A. Networked privacy: How teenagers negotiate context in social media. *N Media Soc* 2014;16:7; doi: 10.1177/1461444814543995.
17. Burns V, Eaton AA. #GirlsFightBack: How girls are using social network sites and online communities to combat sexism. In: *The Young Are Making Their World: Essays on the Power of Youth Culture*. (Kiuchi Y, Villarruel F. eds.) McFarland Press: Jefferson, NC, USA; 2016; pp. 20–45.
18. Brock AL. *Distributed Blackness: African American Cybercultures*. New York University Press: New York, NY, USA; 2019.
19. Cottom TM. Black Cyber Feminism: Intersectionality, Institutions, and Digital Sociology. In: *Digital Sociologies*. (Daniels J, Gregory K, Cottom TM. eds.) Polity Press: Bristol; 2017; pp. 211–232.
20. Pullen C. *Queer Youth and Media Cultures*. Palgrave Macmillan: New York, NY, USA; 2014.
21. Noble SU. *Algorithms of Oppression: How Search Engines Reinforce Racism*. NYU Press: New York, NY, USA; 2018.
22. Benjamin R. *Race After Technology: Abolitionist Tools for the New Jim Code*. Polity: Cambridge; 2019.
23. Royal C. Framing the internet: A comparison of gendered spaces. *Soc Sci Comput Rev* 2008;26(2):152–169; doi: 10.1177/0894439307307366.
24. Luo Y, Burley H, Moe A, Sui M. A Meta-Analysis of News Media's Public Agenda-Setting Effects, 1972–2015. *Journal Mass Commun Q* 2019;96(1):150–172; doi: 10.1177/1077699018804500.
25. Giles DC, Shaw RL. The psychology of news influence and development of Media Framing Analysis. *Soc Personal Psychol Compass* 2009;3(4):375–393; doi: 10.1111/j.1751-9004.2009.00180.x.
26. Riffe D, Lacy S, Fico F, Watson B. *Analyzing Media Messages: Using Quantitative Content Analysis in Research* (4th ed.). Routledge: London; 2019.
27. Braun V, Clarke V. Using thematic analysis in psychology. *Qual Res Psychol* 2006;3(2):77–101; doi: 10.1191/1478088706qp063oa.
28. Saldaña J. *The Coding Manual for Qualitative Researchers*. Sage: London; 2016.
29. Christie C. Content analysis. In: *Encyclopedia of Social Psychology*. (Baumeister R, Vohs K. eds.) Sage: Thousand Oaks, CA, USA; 2007; p. 176.
30. D'Agostino M, Sabharwal M, Levine H. A conceptual content analysis of 75 years of diversity research in public Administration. *Rev Public Pers Admin* 2018;38(2):248–267; doi: 10.1177/0734371X16671368.
31. Weaver DA, Bimber B. Finding news stories: A comparison of searches using Lexisnexis and Google News. *Journal Mass Commun Q* 2008;85(3):515–530; doi: 10.1177/107769900808500303.
32. Fereday J, Muir-Cochrane E. Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *Int J Q Methods* 2006;5(1):80–92; doi: 10.1177/16094069060050107.
33. Puppis M. Analyzing Talk and Text I: Qualitative Content Analysis. In: *The Palgrave Handbook of Methods for Media Policy Research*. (Van den Bulck H, Puppis M, Donders K, Van Audenhove L. eds.) Palgrave Macmillan: Cambridge; 2019.
34. Bengtsson M. How to plan and perform a qualitative study using content analysis. *Nursing Plus Open* 2016;2:8–14; doi: 10.1016/j.npls.2016.01.001.
35. Elo S, Kyngäs H. The qualitative content analysis process. *J Adv Nurs* 2008;62:107–115; doi: 10.1111/j.1365-2648.2007.04569.x.
36. McHugh ML. Interrater reliability: The kappa statistic. *Bioch Med* 2012;22(3):276–282.
37. Chmielewski D. U.S. Reality TV Star Paris Hilton Launches Metaverse Business on Roblox. Reuters. Available from: <https://www.reuters.com/business/media-telecom/us-reality-tv-star-paris-hilton-launches-metaverse-business-roblox-2021-12-28> [Last accessed: June 5, 2023].
38. Fantozzi J. McDonald's and Panera Bread File Trademarks for NFTs in the Metaverse 2022. Nation's Restaurant News. Available from: <https://www.nrn.com/technology/mcdonalds-and-panera-bread-file-trademarks-nfts-metaverse> [Last accessed: June 5, 2023].
39. Holdeman E. Where Technology is Headed in the Metaverse. GovTech, 2021. Available from: <https://www.govtech.com/em/emergency-blogs/disaster-zone/where-technology-is-headed-in-the-metaverse> [Last accessed: June 5, 2023].
40. Oppenheimer A. The Metaverse Will Change the World's Economy—And Make It More Unequal. Miami Herald. Available from: <https://www.miamiherald.com/news/local/news-columns-blogs/andres-oppenheimer/article255583281.html> [Last accessed: June 5, 2023].
41. Isaac M. Smart Glasses Made Google Look Dumb. Now Facebook Is Giving Them a Try. New York Times, 2021. Available from: <https://www.nytimes.com/2021/09/09/technology/facebook-wayfarer-stories-smart-glasses.html> [Last accessed: June 5, 2023].
42. Garner S. Timberland enters the metaverse with gamified digital experience celebrating its original yellow boot. Footwear News, 2022. Available from: <https://footwearnews.com/shoes/outdoor-footwear/timberland-metaverse-launch-timbstrails-1203238004> [Last accessed: June 5, 2023].
43. Huff L. Justin Bieber Is Going Into The Metaverse for a Live Virtual Concert—Watch the Trailer. Entertainment Weekly, 2021. Available from: <https://ew.com/music/justin-bieber-metaverse-virtual-concert-trailer> [Last accessed: June 5, 2023].
44. Kiefer B. Nike Asked Kids to Build a Metaverse World Inspired by Its Classic Air Max Sneaker. Ad Week, 2022. Available from: <https://www.adweek.com/creativity/nike-asked-kids-to-build-a-metaverse-world-inspired-by-its-classic-air-max-sneaker> [Last accessed: December 26, 2022].

45. Thomas L. Walmart is quietly preparing to enter the metaverse. CNBC, 2022. Available from: <https://www.cnbc.com/2022/01/16/walmart-is-quietly-preparing-to-enter-the-metaverse.html> [Last accessed: December 26, 2022].
46. Adams J. American Express journeys into the metaverse. American Banker, 2022. Available from: <https://www.americanbanker.com/payments/news/american-express-journeys-into-the-metaverse> [Last accessed: December 26, 2022].
47. Frank R. Metaverse real estate sales top \$500 million, and are projected to double this year. CNBC, 2022. Available from: <https://www.cnbc.com/2022/02/01/metaverse-real-estate-sales-top-500-million-metametric-solutions-says.html> [Last accessed: December 26, 2022].
48. Klebnikov A. Here Are Morgan Stanley's Top Stock Picks for Investing in the Metaverse. Forbes, 2021. Available from: <https://www.forbes.com/sites/sergeiklebnikov/2021/11/16/here-are-morgan-stanleys-top-stock-picks-for-investing-in-the-metaverse/?sh=296708f65017> [Last accessed: December 26, 2022].
49. Bower A. Creating a Winning Brand Presence in the Metaverse: Insights From Vans and Roblox. Ad Week, 2021. Available from: <https://www.adweek.com/brand-marketing/create-winning-brand-presence-metaverse-insights-from-vans-and-roblox> [Last accessed: December 26, 2022].
50. Valenzuela S, Piña M, Ramírez J. Behavioral effects of framing on social media users: How conflict, economic, human interest, and morality frames drive news sharing. *J Commun* 2017;67(5):803–826; doi: 10.1111/jcom.12325.
51. Lindgren E, Lindholm T, Vliegenthart R, et al. Trusting the facts: The role of framing, news media as a (trusted) source, and opinion resonance for perceived truth in statistical statements. *Journal Mass Commun Q* 2010; doi: 10.1177/10776990221117117.
52. Shan L, Diao H, Wu L. Influence of the framing effect, anchoring effect, and knowledge on consumers' attitude and purchase intention of organic food. *Front Psychol* 2020;11(2022); doi: 10.3389/fpsyg.2020.02022.
53. McIlwain Charlton D. *Black Software: The Internet and Racial Justice from the Afronet to Black Lives Matter*. Oxford University Press: Oxford; 2020.
54. Fuchs C. The utopian internet, computing, communication, and concrete utopias: Reading William Morris, Peter Kropotkin, Ursula K. Le Guin, and P.M. in the Light of Digital Socialism. *TripleC: Communication, Capitalism & Critique. Open Access J Global Sustainable Inform Soc* 2020; 18:146–186; doi: 10.31269/triplec.v18i1.1143.
55. Tassi P. Interest in NFTs and the Metaverse Is Falling Fast. *Forbes*, 2022. Available from: <https://www.forbes.com/sites/paultassi/2022/03/10/interest-in-nfts-and-the-metaverse-is-falling-fast/?sh=6b57ba071ebb> [Last accessed: December 26, 2022].
56. Dwivedi YK, Hughes L, Baabdullah AM, et al. Metaverse beyond the hype: Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy. *Int J Inform Manag* 2022;66:102542; doi: 10.1016/j.ijinfomgt.2022.102542.
57. Soon W. A researcher's avatar was sexually assaulted on a metaverse platform owned by Meta, making her the latest victim of sexual abuse on Meta's platforms, watchdog says. *Business Insider*, 2022. Available from: <https://www.businessinsider.com/researcher-claims-her-avatar-was-raped-on-metas-metaverse-platform-2022-5> [Last accessed: December 26, 2022].
58. Pew Research Center. *The State of Online Harassment*. 2022. Available from: <https://www.pewresearch.org/internet/2021/01/13/the-state-of-online-harassment> [Last accessed: December 26, 2022].

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