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Data Journalism Practices in Post-Pandemic Hyperlocal Media in Central Sulawesi: A Case Study of Nexteen Media and Tutura.id

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ABSTRACT

This study investigates the transformative practices of data journalism in Indonesian hyperlocal media post-COVID-19, focusing on Nexteen Media and Tutura.id in Central Sulawesi. Through in-depth interviews with editorial leaders, data journalists, and data visualization staff, this study examines the development of these practices. Findings suggest that both outlets leveraged the pandemic to innovate with data-driven reporting. Nexteen Media developed interactive data visualizations to engage younger audiences, while Tutura.id prioritized verified, narrative data reporting to enhance credibility. Both maintained traditional news values, such as geographic proximity and novelty, to attract audience attention. Despite challenges like limited data access and insufficient technical skills, both outlets remain committed to advancing data journalism. This research fills a gap in the literature on data journalism in Indonesian hyperlocal media. Theoretically, it affirms the relevance of traditional news values in the digital era. Practically, it recommends technical skills training and advocacy for open data access to strengthen credibility and impact in local journalism.

INTRODUCTION

The practice of data journalism has evolved rapidly with the integration of big data and digital technology in news reporting (Hammond, 2017; Lewis & Westlund, 2015). This form of journalism uses data as the core material for storytelling, employing analysis and visualization techniques to present information clearly and informatively (Clark & Rodríguez, 2021). Interactive visualizations have also enhanced reader engagement and expanded audiences (Zhang et al., 2023).

During the COVID-19 pandemic, data journalism played a critical role in filling information gaps, exposing policy inconsistencies, and conveying scientific information in an engaging manner (Bisiani et al., 2023; Hasanah et al, 2023; Pentzold et al., 2021; Salvo, 2020). The State of Data Journalism 2021 survey report by European Data Journalism shows a significant increase in its adoption globally since the pandemic (Desai et al., 2021).

In Indonesia, hyperlocal media like Nexteen Media and Tutura.id in Central Sulawesi exemplified this trend. Nexteen Media, initially a supplement of Radar Sulteng targeting teenage readers, now operates independently, presenting data through infographics on social media. Tutura.id, established by Stepmagz, transformed into a digital news outlet, visualizing daily COVID-19 data from government social media posts. Both outlets have improved data literacy in their communities by presenting accessible and engaging data-driven content.

In Indonesia, hyperlocal media like Nexteen Media and Tutura.id in Central Sulawesi exemplified this trend. Nexteen Media, initially a supplement of Radar Sulteng targeting teenage readers, now operates independently, presenting data through infographics on social media. Tutura.id, established by Stepmagz, transformed into a digital news outlet, visualizing daily COVID-19 data from government social media posts. Both outlets have improved data literacy in their communities by presenting accessible and engaging data-driven content. This important role is also reflected in the experience of data journalism practices in national media in Indonesia (Yusuf & Ahmad, 2023).

While existing studies on journalists' adoption of and media's discourse around data-driven journalism have primarily focused on Western contexts (Mutsvairo, 2019; X. Zhang & Chen, 2022) and its growth in Indonesian national media (Asprilla & Maharani, 2019a), the growth of online media (Dimas Rachmatsyah & Askurifai Baksin, 2023), the post-truth era (Imawan, 2018), and as an innovation (Kusumawati, 2023), there is limited research on its development in Indonesian hyperlocal media post-COVID-19.

News journalism aims to provide relevant and verified public knowledge about current events (Tandoc et al., 2021). In the context of data journalism, news values are crucial for ensuring that data-driven stories are both engaging and accurate. However, there is still a lack of discussion on how these news values are applied in data journalism practices, highlighting the need for further exploration and understanding in this area.

Previous studies have focused on media with access to open data during the pandemic (Arias-Robles & López López, 2021; X. Zhang & Chen, 2022). However, research on the development of data journalism in Indonesian hyperlocal media in the post-COVID-19 era remains limited. The transformation of data journalism practices in hyperlocal settings—particularly regarding the application of news values and post-pandemic challenges—has yet to be thoroughly explored. This study addresses this gap by analyzing the transformation of data journalism, the application of news values, and the challenges faced by hyperlocal media in Central Sulawesi.

News values are critical in ensuring data-driven stories are engaging and credible. Galtung and Ruge (1965) identified factors such as drama, conflict, geographic proximity, relevance, and timeliness as key determinants in news selection (Harcup, 2023). In data

journalism, these values guide journalists in producing accurate and locally relevant content that meets journalistic integrity standards (Ekström et al., 2022). However, the application of news values in hyperlocal data journalism, particularly post-COVID-19, is rarely discussed. This study uses Galtung and Ruge's news values framework to analyze how hyperlocal media like Nexteen Media and Tutura.id select and present data-driven stories, ensuring alignment with audience needs and journalistic standards.

Hyperlocal media, such as Nexteen Media and Tutura.id, serve specific audiences with tailored information needs (Jati, 2023; Kim et al., 2024; Negreira-Rey & López-García, 2021) Post-pandemic, these media face challenges like limited data access, resource constraints, and insufficient technical skills, which hinder data-driven news production (Stalph et al., 2023). The reliance on self-taught learning further exacerbates these issues (Bisiani et al., 2023). Additionally, the rise of big data has introduced concerns like clickbait and the automation of news production (Tong, 2022), challenging journalistic objectivity and accountability (Mutsvairo, 2019).

This study aims to analyze the transformation of data journalism practices, the opportunities and challenges encountered, and the application of news values in hyperlocal media post-COVID-19, using Nexteen Media and Tutura.id as case studies. It addresses three questions: (1) How has data journalism transformed hyperlocal media post-pandemic? (2) How are news values reflected in data-driven news production? (3) What are the main challenges faced by hyperlocal media in implementing data journalism? By filling the gap in research on Indonesian hyperlocal media, this study provides insights into the adoption and application of news values in data journalism post-pandemic.

RESEARCH METHOD

This study adopts a qualitative research approach with a case study method, focusing on Nexteen Media and Tutura.id in Central Sulawesi. These outlets were selected due to their pioneering roles in data journalism within the region, as evidenced by their innovative data-driven reporting and impactful visualizations (Jati, 2023; Kim et al., 2024). Nexteen Media is recognized for its interactive data-driven news stories targeting younger audiences, while Tutura.id excels in in-depth data analysis and narrative-driven visualizations (Negreira-Rey & López-García, 2021).

The research was conducted from July to September 2024 in Palu City and Sigi Regency. In total, we conducted seven interview sessions, each lasting approximately 60 to 120 minutes. These included two rounds of interviews (offline and online) with the editors-in-chief of Tutura (AS) and Nexteen (NS), as well as single interviews with two data journalists and one data visualization specialist. The informants were selected to provide diverse perspectives relevant to the study.

Data were analyzed using thematic analysis, following (Braun & Clarke, 2022) six-step process: (1) data familiarization through transcription and review, (2) initial coding of relevant data segments, (3) theme generation based on recurring patterns, (4) theme review for coherence, (5) theme definition and naming, and (6) verification through triangulation with

document analysis to ensure validity. Ethical standards were upheld by obtaining informed consent from all participants and media organizations, with participant identities kept confidential unless explicit consent for publication was provided.

RESULTS AND DISCUSSION

The COVID-19 pandemic prompted a transformation in data journalism practices at Nexteen Media and Tutura.id, two hyperlocal media outlets in Central Sulawesi, particularly in data collection, presentation, and audience engagement. This transformation was particularly evident in how they collected and presented data, leveraging innovative technologies and platforms to reach their local audiences.

1.   Transformation of Data Journalism Practices

Nexteen Media, which had already adopted data journalism before the pandemic, utilized this approach to distinguish itself in a highly competitive media industry. Editor-in-Chief Soima (NSU) explained that data journalism became their hallmark, especially since it remained rare at the local level. Previously reliant on data from sources like the Central Statistics Agency (BPS), the pandemic pushed Nexteen Media to explore online data sources. Restrictions during the pandemic led them to adapt by using secondary data, audience polling, and virtual interviews. According to Soima, the pandemic was a "blessing in disguise."

As a pre-pandemic adopter, the transformation shifted from traditional sources like the Central Statistics Agency to online data, audience polling, and virtual interviews during pandemic restrictions. This enabled the production of interactive infographics and short videos for its e-paper and social media platforms like TikTok and Instagram Reels, tailored to young audiences. Editor-in-Chief Soima noted that this approach distinguished Nexteen by offering visually appealing content over lengthy narratives.

"Our media focuses on serving young readers, and data journalism differentiates us amidst the rising adoption of this practice by national media. Our younger audience prefers data visualizations over lengthy textual narratives. We adopted a style influenced by national outlets like Tirto.id," (NSU, 17, July 2024)

Nexteen has a dedicated data team, including data graphic and social media specialists, for producing data journalism content. This content is typically presented as infographics on their e-paper website and social media accounts. According to Soima, by employing more interactive and varied data visualizations, Nexteen Media was able to sustain and grow during the pandemic. She mentioned that their engaging and light approach helped them remain relevant to young audiences accustomed to quick and visually appealing information.

Tutura.id was founded during the pandemic and swiftly adopted data journalism to deliver in-depth, fact-driven reports. Editor-in-Chief Andi (ABJ), with his prior experience from platforms like Salingsilang.com, prioritized narrative-driven reporting to differentiate from event-driven local media.

Andi brought extensive experience in the field. He had a background in data journalism from platforms like Salingsilang.com and Beritagar.com. Additionally, he was the former leader

of the community-based and homeless media Stepmagz, which targeted young readers. At Tutura.id, Andi introduced data journalism to support the outlet's mission of delivering in-depth reports.

As a new hyperlocal media outlet, Tutura.id aims to distinguish itself from the event-driven and clickbait tendencies of local media in Central Sulawesi. In its identity statement, Tutura.id clearly asserts, "Our reporting prioritizes facts and data, and we constantly strive to offer fresh perspectives or viewpoints in understanding events and phenomena."

Andi believes that data journalism will help their newsroom present newsworthy information, including novelty, objectivity, and geographic proximity to Palu, distinguishing it from other local media.

"I envision the benefits of data-driven reporting for both the public and policymakers in this city. Take traffic accident statistics, for instance. With data journalism, we can analyze high-risk locations, peak accident hours, and involves vehicle types. Such information raises public awareness" (ABJ 10, August 2024)

Although Andi's personal interest significantly influenced Tutura.id's adoption of data journalism, it has not been easy to encourage journalists, most of whom have a background in journalism education, to take an interest in and practice this approach. Interestingly, those who are interested tend to come from different disciplines. For example, journalist Robert (RD), a graduate of Agricultural Science at Tadulako University, soon embraced this approach. While self-taught in data journalism, Robert focuses on data-driven reporting, particularly on topics such as deforestation in Central Sulawesi and government budget transparency. According to Robert, his stories on such issues have gained significant reader attention.

Robert frequently used data as a reporting basis, learning independently from national media such as Katadata.com, Tirto.id, and Tempo. Currently, he employs data to verify sources' claims. He stated that his colleagues are not interested due to a lack of skills and education. They understand that data journalism is time consuming. It requires meticulous cleaning and crafting of data into digestible narratives. He also acknowledges the challenge of finding unique angles and spends days turning data into impactful stories. Fortunately, Robert earns higher compensation for producing data journalism at his workplace.

2. Application of News Values

Data journalism practices at both media outlets are strongly influenced by the application of news values, which guide topic selection and data processing. Nexteen Media integrated geographic proximity and audience interest to guide topic selection and visualization design, ensuring relevance for young readers. Soima emphasized that these criteria countered misinformation by prioritizing local context.

At Tutura.id, data journalism practice focused on novelty, objectivity, and geographic proximity, with Andi stressing rigorous data verification: "We include sources to enable public scrutiny" (ABJ, 10 August 2024). Robert echoed this, noting that unbiased data was critical for sensitive topics like budget transparency. Robert stated that presenting unbiased data is

especially crucial when the reporting is related to sensitive issues like public budget management, aligning with the values of clarity and objectivity.

Nexteen Media and Tutura.id have also embraced new distribution platforms to enhance their news dissemination efforts. Saribanon (SL), the infographic designer at Tutura.id, plays a key role in transforming data from their website into visually engaging content for social media platforms. This approach has led to increased audience engagement, particularly through responsive interactions in comments. Noer (MNA), Nexteen Media's social media specialist and videographer explained in an interview at the newsroom in July 2024 that they have expanded to app-based platforms popular among younger audiences, such as TikTok and Instagram Reels. They deliver news through data-driven infographics and short videos, which has boosted interaction with their audience.

3.   Comparison of Data Journalism Practices

Nexteen Media and Tutura.id exhibit distinct approaches to data journalism, reflecting their unique strategies for engaging audiences and leveraging available resources. In terms of approach, Nexteen Media prioritizes interactive visualizations, such as infographics and short videos, to captivate younger audiences. This strategy employs dynamic visual elements, such as animated charts depicting youth unemployment rates, to deliver information in an accessible and engaging manner. In contrast, Tutura.id emphasizes narrative-driven, rigorously verified reporting to enhance credibility. Tutura.id distinguishes itself from the clickbait tendencies prevalent among local media, ensuring factual and authoritative content.

Regarding distribution, Nexteen Media utilizes app-based platforms, including TikTok and Instagram Reels, to achieve broad audience reach. Content such as 10-second videos summarizing local health statistics is designed to maximize engagement and shareability among younger users. Conversely, Tutura.id employs Instagram for interactive posts and WhatsApp for direct, personalized updates to community groups, fostering deeper connections with local audiences in Palu and surrounding areas.

In terms of team structure, Nexteen Media relies on a dedicated data team comprising graphic designers and social media specialists, facilitating collaborative and efficient content production. This team consistently produces high-quality, visually appealing data-driven content. Tutura.id, however, depends on individual efforts, primarily from self-taught journalists like Robert, who single-handedly produce complex reports despite limited resources. This reliance on individual contributors highlights Tutura.id's resource constraints but underscores the commitment of its journalists to delivering impactful content.

These differences illustrate how Nexteen Media and Tutura.id adapt data journalism to their respective audience needs and resource capacities. Nexteen leverages technology and teamwork to engage a broad youth audience, while Tutura.id focuses on depth and credibility to build strong community ties.

Both outlets faced limited public data access, skill gaps, and resource constraints. Robert highlighted, "When accessing government offices, we often find no data available or face confidentiality issues" (RD, 30 September 2024). Andi and Soima highlighted the lack of

training and unfamiliarity with data journalism among local journalists, necessitating self-taught learning. Andi noted, "Data journalism is unfamiliar to many journalists, requiring substantial education" (ABJ, 10 August 2024). Despite these barriers, both remained committed to data journalism, producing factual reports that attracted specific audiences interested in transparency and environmental issues.

This study reveals significant adoption and innovation in data journalism at Nexteen Media and Tutura.id, highlighting their enhanced audience engagement, adherence to news values, and challenges in hyperlocal contexts. These findings align with and extend existing literature, providing deeper insights into hyperlocal data journalism in Indonesia.

The transformation of data journalism practices at Nexteen Media and Tutura.id, driven by the COVID-19 pandemic, mirrors global trends where data journalism has evolved from a niche practice to a core newsroom function (Kalender, 2024). Kalender's (2024) study on British newspapers notes that data journalism teams enhance news production by integrating innovative techniques, similar to Nexteen's use of interactive visualizations and Tutura.id's narrative-driven reporting. This adoption reflects the accelerated importance of data journalism during the pandemic, as observed by Desai et al. (2021), who documented increased global uptake, paralleling the innovative strategies of both outlets to engage local audiences.

Studies have shown that despite these challenges, the COVID-19 pandemic has accelerated the adoption and importance of data journalism (Auväärt, 2022; Córdoba-Cabús, 2020; Desai et al., 2021; Salvo, 2020; Yusuf & Ahmad, 2023). However, for some, data journalism presents opportunities for innovation and enhances the field's reputation. As hyperlocal media outlets, both Nexteen Media and Tutura.id have benefited and gained recognition from their data journalism content. These observations align with the practices of national media in Indonesia, such as Majalah Tempo. According to research by Asprilla & Maharani, (2019), Tempo employs data journalism in its investigative reporting to emphasize differentiation and support their vision of media digitization. It is also corroborated by Bisiani et al. (2023) who concluded that data journalists acknowledge the positive impact of data journalism on the field's reputation.

Nexteen Media prioritizes data visualization using infographics and short videos to engage younger audiences and enhances accessibility to complex information.These findings show support Pentzold et al. (2021) that data visualizations enable journalists to act as intermediaries of knowledge and to convey complex issues effectively. This innovative approach not only enhances audience engagement but also democratizes access to complex information, making it more digestible for a wider audience. This approach aligns with the concept of engagement, which is metaphorically described as "striving to be present to provide benefits" (Cahyani, 2020). Similarly, Tutura.id's emphasis on verified, narrative-driven reporting to maintain credibility addresses misinformation, supporting Tong, (2024), assertion that rigorous data verification fosters trust. Tutura.id's approach, such as analyzing traffic accident data, sets a standard for responsible journalism, reinforcing Ekström et al.'s (2022) observation that local media prioritize geographic proximity and relevance in content creation.

The challenges faced by these hyperlocal media outlets, such as limited access to public data and resource constraints, echoing Kusumawati's (2023) findings on mainstream Indonesian media like Harian Kompas, where adoption hinges on leadership and resource alignment. The adoption of new methods is significantly affected by the decisions of influential figures, like the editor-in-chief, the compatibility of the innovation with the company's values and requirements, and the employees' familiarity with the new journalistic approach (Kusumawati, 2023).

Unlike studies focusing on media with open data access (Camaj et al., 2022; Fahmy & Attia, 2021; Stalph et al., 2023), this research highlights how Nexteen and Tutura.id innovate by developing alternative data sources, such as audience polling and secondary data, to overcome local data limitations. This adaptive strategy represents a novel contribution to hyperlocal data journalism literature.

The self-taught experiences of data journalists at Nexteen Media and Tutura.id underscore the need for formal training, as emphasized by Heravi & Lorenz (2020), who argue that data journalism requires robust support and resources. Heravi and Lorenz (2020) state that "Data journalism should be seen as a core methodological approach in contemporary journalism." For that reason, it requires greater support, resources, and training from management for further development.

Robert's agricultural science background illustrates Zhu and Du's (2018) finding that non-journalism disciplines often adapt more effectively to data journalism due to their analytical skills. His success at Tutura.id shows how expertise beyond journalism can strengthen reporting. This underscores the need for outlets like Nexteen and Tutura.id to recruit talent from diverse academic fields, as science graduates often gain more practical experience than journalism students (Zhu & Du, 2018).

Nexteen's team-based approach contrasts with Tutura.id's more individual-focused efforts, supporting López-Hernández et al.'s (2023) finding that collaborative training is essential to address skill gaps. teamwork is considered important in journalism programs but is not specifically taught, leading to individualism and competition among students (López-Hernández et al., 2023). De la Fuente et al. (2022) further advocate for comprehensive training programs, which could enhance both outlets' capacity to sustain data journalism practices.

By integrating news values like proximity and objectivity, Nexteen and Tutura.id enhance content quality and audience reach, similar to national outlets like Tempo (Asprilla & Maharani, 2019). It shows that data journalism not only distinguishes these outlets but also enhances the quality of their content. By using digital technology advancements, both outlets have expanded their audience reach and enhanced credibility through data-driven reporting. However, addressing data access and skill constraints through training and advocacy remains critical for sustaining their pioneering efforts in Central Sulawesi's hyperlocal media landscape.

This study extends the application of Galtung and Ruge's (1965) news values theory to the context of Indonesian hyperlocal media, demonstrating how values such as geographic proximity, novelty, and objectivity shape data journalism practices in digital settings. By showing how Nexteen Media and Tutura.id integrate these values to produce locally relevant,

credible content, the research affirms the enduring relevance of traditional news values in hyperlocal data journalism. This framework provides a foundation for future studies exploring how news values adapt to digital and hyperlocal contexts, particularly in resource-constrained environments like Indonesia.

The findings offer actionable insights for hyperlocal media seeking to strengthen data journalism practices. To address technical skill gaps, outlets like Nexteen Media and Tutura.id should pursue collaborative training programs with universities, media and journalist associations or national media to build data analysis and visualization capacities. Lobbying local governments for open data policies, such as accessible public datasets on health or budgets, can mitigate data access barriers. Additionally, forming newsroom partnerships with other hyperlocal outlets can facilitate resource sharing, such as data tools or expertise, enhancing content quality. These strategies can strengthen credibility and impact, enabling hyperlocal media to deliver high-quality, data-driven journalism despite infrastructural constraints.

The study is limited by its focus on two hyperlocal media outlets in Central Sulawesi, which may not be representative of other regions or countries. Future research could include a wider range of media outlets across Indonesia or internationally for broader insights. The reliance on qualitative methods may also introduce bias, and incorporating quantitative research could yield more generalizable results.

CONCLUSION

This study demonstrates that the COVID-19 pandemic accelerated the adoption of data journalism in hyperlocal media outlets like Nexteen Media and Tutura.id in Central Sulawesi. Both outlets leveraged innovative data-driven reporting through visualizations and in-depth analysis, despite challenges such as limited data access and technical skill constraints. Nexteen Media prioritized interactive visualizations to engage younger audiences, while Tutura.id focused on verified, narrative-driven reporting to ensure credibility. Both upheld traditional news values, including geographic proximity and novelty, to attract audience attention. This research fills a gap in the literature on data journalism in Indonesian hyperlocal media, highlighting the critical role of technical skills and open data access in sustaining these practices.

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