

Center of Language and Cultural Studies

LINGUA

Jurnal Bahasa, Sastra, dan Pengajarannya https://lingua.soloclcs.org/index.php/lingua

ISSN: 1979-9411 EISSN: 2442-238X

Month, Vol, No	: September, Vol.21 No.02
DOI	: doi.org/10.30957/lingua.v21i2.1051
Received	: January, 2025
Accepted	: January, 2025
Published	: February, 2025

From Texting to Tweeting: The Transformation of Written Language in the Digital Era

Eva Muti'ah¹, Basrowi², Khaeruman³

Bina Bangsa University, Indonesia Email: arsymutia9@gmail.com

Abstract

The development of digital technology has brought significant changes in the way humans communicate, especially in written form. This article discusses the transformation of written language from short messages (texting) to the use of social media such as Twitter, which demands a more concise, creative and interactive communication style. Using a sociolinguistic approach, this research explores how technical constraints, such as the number of characters in a post, as well as social dynamics in the digital world, influence the structure and use of language. Research findings show that social media encourages the development of new forms of written language, such as abbreviations, acronyms, the use of emoji's, and code-switching between languages. Apart from that, the phenomenon of viral in social media also contributes to the spread and normalization of new terms in various linguistic communities. In a broader context, these changes not only impact individual communication patterns but also influence language standards in educational, journalistic and professional domains. The implications of this transformation include the need for a deeper understanding of language adaptation in the digital realm and its impact on people's literacy competencies. Apart from that, this research also highlights the importance of linguistic policies that can balance digital language innovation and preserving standard language rules. Thus, this study provides insight into how the digital era has changed the way humans communicate in writing and how these changes continue to evolve as technology advances.

Keywords: written language transformation, social media, digital sociolinguistics, online communication, language change

Copyright and License

②

Authors retain copyright and grant the journal right of first publication with the work simultaneously licensed under a <u>Creative Commons Attribution-ShareAlike 4.0</u> <u>International License</u>.

Citation (APA):

Muti'ah, E, Basrowi, dkk (2024). From Texting to Tweeting: The Transformation of Written Language in the Digital Era, *LINGUA:Jurnal Bahasa*, *Sastra*, *Dan Pengajarannya*, 21(2),200-211. https://doi.org/10.30957/lingua.v21i2.1051

Introduction

The development of digital technology has fundamentally changed the way humans communicate, especially in the form of written language. From the era of short messages (SMS) to social media such as Twitter, Instagram, and TikTok, the way individuals express themselves through text has undergone a significant transformation. Social media encourages the use of more concise, expressive and interactive language, often relying on abbreviations, acronyms, emoji's and other visual elements. This phenomenon shows that written language in the digital world not only functions as a communication tool but also as a form of identity and cultural expression (Dwivedi et al., 2023)

One of the most striking changes in digital written language is the shift from a formal and structured communication format to a more flexible and contextual language style. Platforms like Twitter with strict character limits encourage users to develop efficient ways of communicating, whether through the use of short words, symbols, or multimodality such as GIFs and memes. This phenomenon also reflects how technology forms new communication patterns that differ from the norms of traditional written language taught in educational institutions (Akdogan & Anbar, 2025)

Apart from technical factors, social interactions in digital media also influence the evolution of language. The viral of a term or phrase, amplified by social media algorithms, accelerates the adoption and spread of new forms of language in online communities. Terms such as "savage," "receh," or "gaskeun" in Indonesia, for example, developed through the dynamics of digital communities before finally being adopted in everyday communication. This phenomenon shows how the boundaries between spoken and written language are increasingly blurred in digital contexts (Rizvanović et al., 2023)

This transformation of written language also has an impact on various sectors, including education, journalism and professional communication. Educators face the challenge of balancing understanding digital language innovations and maintaining academic literacy standards. In the world of journalism, a more concise and interactive writing style is becoming increasingly dominant, in line with the trend of social media-based news consumption. Therefore, understanding these changes is crucial in adapting effective communication strategies in the digital era (Kim & Bruhn, 2023)

By looking at these developments, it is important to analyze how social media mediates changes in written language and what the implications are for societal communication. This study aims to explore patterns and trends in the transformation of written language in the digital era and identify factors that contribute to these changes. Thus, this research can provide broader insight into how language continues to develop as technology advances (Reedy, 2023).

This research is important considering the increasingly dominant role of social media in everyday life, both in personal, professional and academic communication. The transformation of written language that occurs in digital media not only has an impact on the way individuals communicate but also on how linguistic norms develop at a broader social level. Without a deep understanding of these dynamics, there is a risk of imbalance between digital language development and literacy standards that are still based on traditional models. Therefore, this research contributes to bridging the gap between language changes that occur naturally in digital spaces and the need to maintain strong literacy skills in various domains of life (Ravi & Yuan, 2024).

Apart from that, this research also has relevance in language and education policy, where educational institutions and linguistic authorities need to adapt the curriculum to remain relevant to current developments. By understanding how language develops in digital contexts, policymakers can design more adaptive and inclusive literacy strategies. The implications of this research are not only limited to academic aspects but also have an impact on the world of business, media and social interactions in general, making it a relevant and urgent study to carry out (Wahid, 2024)

Theoretical Review

Sociolinguistics Theory

Sociolinguistic theory is a branch of linguistics that examines the relationship between language and society, as well as how social factors influence language variation and change. One of the main figures in sociolinguistics, language is not a static entity but rather develops according to the social context of its users. Factors such as age, gender, social class, ethnic background, and community interactions can shape the way an individual speaks or writes. In a digital context, this theory helps understand how social media users adapt their language according to the norms and communication styles of a particular online community (Invernici et al., 2024).

One of the important concepts in sociolinguistics is register and language variation. Register refers to the style of language used in a particular situation, while language variation shows how individuals adapt language use based on social factors. In social media, for example, someone might use formal language on a professional platform like LinkedIn but use casual, informal language on Twitter or Instagram. In addition, the emergence of new terms or slang in digital communication can be analyzed using the concept of code-switching, where users often switch between standard language, slang, or a mixture of languages in one conversation depending on their audience (Lacárcel et al., 2024).

Sociolinguistic theory also includes the concept of speech community, which describes a group of individuals who share certain linguistic norms. In the digital world, online communities such as fandoms, discussion forums, or social media groups have unique communication styles that reflect their identity and culture. Sociolinguistic studies can analyze how language is used to construct group identity and how linguistic norms in these communities develop over time. Therefore, this theory is very relevant in understanding language dynamics in the digital era, where cross-cultural interactions and linguistic changes occur rapidly (Toprak & Turan, 2024).

Digital Literacy Theory

Digital literacy theory discusses individuals' abilities to understand, use, and adapt to digital technology in the context of communication and social interaction. Digital literacy not only includes technical skills such as using devices and applications, but also includes a broader understanding of how technology impacts the production, distribution and consumption of information. digital literacy is a set of social practices that reflect the way

individuals interact with texts, images and other digital media. In a linguistic context, digital literacy plays an important role in how one writes, reads, and communicates effectively on social media and other digital platforms (Matrane et al., 2023).

One of the main aspects of digital literacy is the ability to navigate various digital communication formats, such as written text, video, audio, emoji, and GIFs. Communication in social media is not only based on words but also involves visual and symbolic elements that enrich the meaning of the message. For example, in platforms like Twitter, character count limits encourage users to use abbreviations, symbols, or emoji's as a means of expression. This shows that digital literacy is not only about understanding language in its conventional form but also in the multimodal form that is developing in the digital era (Subramanian et al., 2023).

Apart from that, digital literacy is also related to critical awareness of information and communication norms in the digital world. The ability to assess the credibility of sources, understand ethics in communication, and avoid misinformation are increasingly important parts of digital literacy. In online communication, individuals must be able to recognize the context of the conversation, understand digital culture, and adapt language use to suit the audience and platform used. Thus, digital literacy theory helps explain how individuals develop language skills in an ever-changing digital environment and how they navigate communication challenges in a fast and dynamic information age (Kalyan, 2024).

Methodology

The methodology used in this research is a narrative literature review where this method aims to carry out a more intensive understanding and study of phenomena and knowledge relevant to the topic. In addition, this approach has the potential to cover weaknesses in concepts or theories that are worthy of further research. Another aim of this research emphasizes the description of language changes in the digital era, apart from that this research also uses based studies *library research* or library research on library literature and previous research documents (Kaur et al., 2023).

Result and Discussion

The Evolution of Written Language in the Digital Era

In the digital era, written communication patterns have experienced significant changes due to developments in technology and social media. If previously written language was more synonymous with the formal style found in letters, official documents and academic publications, now written communication tends to be faster, shorter and more informal. This is influenced by the presence of platforms such as instant messaging (WhatsApp, Telegram) and social media (Twitter, Instagram, TikTok), which encourage the use of more concise and direct language. The results show that the use of abbreviations,

acronyms, and symbols is increasing as a way to adapt to character limitations and the need for more efficient communication (Chauhan et al., 2024).

Social media has become one of the main factors shaping changes in written language. Users often adapt their language style according to the platform they are using. For example, on Twitter, the limited number of characters encourages the use of more concise language, more creative abbreviations, and the use of hashtags to group information. On the other hand, platforms such as Instagram and TikTok emphasize visual language with the use of emoji's, memes and GIFs as part of communication. This phenomenon shows that written language in the digital era no longer only relies on words, but also on multimodal elements that enrich the meaning of the message (Xu et al., 2024).

The research results also show that digital communities have an important role in the evolution of written language. Each online community, such as a particular fandom, discussion group, or forum, often develops distinctive terms, jargon, and communication styles that only its members understand. This creates a dynamic linguistic ecosystem, where new words emerge and evolve rapidly. For example, viral terms that appear on social media often become part of everyday language within a short time. Apart from that, the phenomenon of code-switching or language mixing is also increasingly common, especially in multilingual communities who often interact in digital spaces (Daradkeh et al., 2024).

The evolution of written language in the digital era brings its own challenges in digital literacy. The ability to read and write in a digital environment includes not only understanding text, but also interpreting symbols, emoji's, and broader communication contexts. Without adequate digital literacy, individuals can experience difficulties in understanding the meaning of communication or even get caught up in the spread of misinformation. Therefore, it is important for digital media users to have adaptive literacy skills in order to communicate effectively in an ever-evolving digital world (Ali et al., 2023).

Overall, the results of this research show that the evolution of written language in the digital era is not only influenced by technology, but also by the social and cultural dynamics of digital media users. This change reflects the flexibility of language as a communication tool that continues to develop according to the needs of modern society (Luger, 2024).

The Influence of Technology on Language Structure and Style

Digital technology has brought significant changes in the structure of written language. In online communication, users tend to adapt more concise and efficient forms of language to suit technical constraints such as the number of characters on Twitter or the speed of communication in instant messaging applications. The research results show that shortening words, using abbreviations, and eliminating punctuation are common practices in digital conversations. For example, the word "thank you" is often shortened to "thank you" or "thx", while long phrases in English such as "by the way" become "btw". This pattern reflects how technology influences the syntax and morphology of language, making it more flexible and adaptive to the needs of rapid communication (Kumar, 2024).

Apart from structural changes, technology also creates new language styles that are more expressive and multimodal. The use of emojis, GIFs, memes and stickers is becoming an integral part of digital communication, replacing or complementing words to convey certain emotions and nuances. Research shows that users often combine text with these visual elements to provide additional context to the message they send. For example, in online conversations, the use of smiley face emojis or thumbs up signs can replace verbal expressions such as "good" or "agree." In addition, the language style in social media often prioritizes a relaxed, humorous and creative conversational tone, which is different from the formal language style in traditional communication (Carroll et al., 2024).

Technology is not only changing the way language is used but also driving language diversification in online communication. Internet users from various linguistic and cultural backgrounds often create hybrid forms of language through the phenomena of code-mixing and code-switching. The mixture of languages in one sentence, such as "How was your weekend? So fun, right?", reflects the growing linguistic flexibility in digital communication. Additionally, online communities often develop distinctive terms and jargon that then spread widely via digital platforms. Examples of this phenomenon can be found in internet slang, such as "LOL" (Laugh Out Loud) or "santuy" (a variation of "casual"), which emerged and developed along with digital trends (Das et al., 2024).

The research results show that digital technology not only influences the way people communicate but also has the potential to change the direction of language development in the future. With the increasing number of technology-based interactions, new linguistic norms are starting to form, which can have an impact on written language in the long term. This creates both challenges and opportunities for the world of education and digital literacy, where individuals need to understand the differences between formal and informal language styles and use them appropriately according to the communication context (Khanduja et al., 2024).

Overall, technology has been a catalyst for change in the structure and style of language, creating a more dynamic, expressive and inclusive form of communication. With continued technological developments, the evolution of language will be increasingly influenced by digital innovation and patterns of social interaction in virtual spaces (Ihnaini et al., 2024).

Sociolinguistics and Digital Communication

Sociolinguistics studies the relationship between language and society, including how language variation develops in particular social contexts. In digital communication, language variations become increasingly complex due to cross-cultural and cross-geographical interactions facilitated by the internet. Research results show that the language used on social media and other digital platforms often reflects the group identity, habits and social norms of a particular online community. For example, Twitter users tend to use more concise and explicit language compared to Facebook users who are more descriptive in writing statuses. Additionally, regional dialects and slang frequently appear in digital conversations, indicating that technology is not only spreading standard languages but also amplifying linguistic diversity (Dwivedi et al., 2023).

Digital communication allows individuals to express their social identities through language choices, writing styles, and the use of visual elements such as emojis and memes. In sociolinguistic research, language styles are often associated with particular social groups, including differences based on age, gender, profession, or hobby community. For example, young people more often use abbreviations, acronyms and internet slang such as "LOL", "GG" (Good Game), or "bestie", while professional communication on platforms such as LinkedIn tends to use more formal and structural language. This phenomenon shows that digital technology creates a flexible communication space where individuals can adapt their language style according to the social context they face (Akdogan & Anbar, 2025).

Digital communities have an important role in changing and spreading language innovation. New words, phrases, and even communication styles can spread quickly through social media, creating linguistic trends that impact everyday language. Sociolinguistic studies show that the internet accelerates the process of language change which usually takes a longer time in oral communication. For example, terms like "santuy" (relaxed) or "receh" (funny things with a light meaning) were initially popular in online communities before eventually being used in everyday conversation outside the digital world. In addition, the phenomena of code-switching and code-mixing are also increasingly common, especially in bilingual and multilingual communities, where users often mix languages to increase communication effectiveness (Rizvanović et al., 2023).

Changes in digital communication have major implications for sociolinguistic studies, especially in understanding how language develops and adapts to technology. One of the main challenges is how these new linguistic norms affect digital literacy and communication skills in various contexts. With the increasing use of more informal language on digital platforms, there are concerns that users will have difficulty distinguishing between formal and informal language, especially in academic and professional contexts. Therefore, it is important to raise awareness about language variations and social norms in digital communication so that users can adapt well in various situations (Kim & Bruhn, 2023).

Overall, digital communication has accelerated language change and created new spaces for more dynamic social interactions. Sociolinguistic studies in digital contexts help understand how language is used, develops, and adapts to society's needs in the modern technological era (Ravi & Yuan, 2024).

Implications for Future Language and Communication

The development of digital technology has brought about significant changes in the way language is used and developed. Digital communication accelerates the process of language evolution, where new words, acronyms and informal writing styles spread more quickly and are accepted by the wider community. On social media platforms such as Twitter, TikTok, and Instagram, linguistic trends can emerge and change in a short time, creating new dynamics in communication. The research results show that digitalization makes it easier for more concise and interactive language variants to emerge, such as the use of emojis and memes that replace verbal expressions in online conversations. The implication of this phenomenon is that language will continue to adapt to meet the needs of fast, global and visual-based communication (Wahid, 2024).

Technological advances have not only changed the form of language but also the norms of its use in various communication contexts. In informal communication, more relaxed and slang-based language is becoming more common, while in formal communication, the use of standard language is maintained despite some adjustments to digital developments. Studies show that there is a shift in linguistic norms, where the boundaries between formal and informal language are increasingly blurred, especially in work and academic environments. For example, the use of abbreviations and a more direct communication style are starting to be accepted in business communications via email and instant messaging. However, the challenge that arises is how to maintain good linguistic standards so that they remain relevant in professional and academic communication in the future (Invernici et al., 2024).

The role of artificial intelligence (AI) in communication is growing, influencing the way humans interact with language. AI-based virtual assistants, chatbots and translation systems have changed communication patterns by providing easier access to different languages and communication styles. Research shows that AI can help in understanding and translating language more accurately, but on the other hand it can also lead to the homogenization of language if users rely more on automated systems to communicate. In addition, the existence of AI that can generate text automatically raises questions about originality and creativity in the use of language. Therefore, there needs to be a balance between the use of technology and maintaining linguistic identity so that linguistic diversity is maintained (Lacárcel et al., 2024).

Another implication of language changes due to technology is the increasing need for digital literacy. Future generations must have skills not only in understanding traditional language but also in navigating and interpreting increasingly complex digital communications. Digital literacy includes an understanding of how language is used on various platforms, how to distinguish valid information from what is not, and how to adapt communication style to the appropriate context. With the increasing amount of text-based and audiovisual communications, the ability to read and write in digital formats is becoming increasingly important. Therefore, education must adapt by providing a deeper understanding of digital language so that individuals can communicate effectively and responsibly (Toprak & Turan, 2024).

Overall, the implications for the future of language and communication reflect how technology is shaping the way humans interact, both in everyday life and in professional settings. With digitalization, shifting language norms, and the influence of artificial intelligence, the main challenge faced is how to maintain a balance between technological innovation and language diversity so that it remains relevant and functional in various global communication contexts (Matrane et al., 2023).

Conclusion

Language changes in the digital era show how technology has significantly shaped human communication patterns. Digitalization has accelerated the evolution of language, allowing the emergence of new linguistic variations, such as the use of emoji's, abbreviations and memes as part of everyday communication. In addition, the boundaries between formal and informal language are increasingly blurred, especially in work and academic environments.

Artificial intelligence (AI) also plays a big role in changing the way humans interact with language, whether through automatic translation, chatbots, or virtual assistants. Although AI makes cross-language communication easier, there are concerns about the homogenization of language and loss of linguistic creativity due to reliance on technology.

Another challenge that arises is the importance of digital literacy. The ability to understand and adapt to the dynamics of digital communication is the key for future generations to be able to communicate effectively and responsibly on various platforms. Therefore, a balance is needed between the use of technology and the preservation of linguistic diversity to ensure that digital innovation continues to support the development of inclusive and adaptive communication.

Implication

1)Education and Digital Literacy, increasing digital literacy must be a priority in the world of education. The curriculum needs to adapt to developments in digital communications, teaching students how to understand and interpret language in various online contexts, as well as distinguish between valid and invalid information. 2) Digital Communication Regulations and Ethics, With the boundaries between formal and informal communication increasingly blurring, guidelines or regulations are needed in the use of language in the digital world, especially in professional and academic environments. Organizations and institutions need to set communication standards that remain flexible but maintain clarity and professionalism. 3) Utilizing AI with a Humanist Approach, Artificial intelligence must be developed by considering linguistic and cultural aspects so as not to eliminate the richness of language. A more humanistic approach in the development of AI technology can help maintain language diversity and linguistic identity in the digital era. 4) Preserving Linguistic Diversity Although technology allows the rapid spread of languages, there is a risk that some minority languages may become marginalized. Therefore, efforts need to be made to support the use of local and regional languages in digital communication in order to maintain linguistic diversity.

References

- Akdogan, Y. E., & Anbar, A. (2025). More than just sentiment: Using social, cognitive, and behavioral information of social media to predict stock markets with artificial intelligence and big data. *Borsa Istanbul Review*, 24(S2), 61–82. https://doi.org/10.1016/j.bir.2024.12.003
- Ali, A. R., Siddiqui, M. A., Algunaibet, R., & Ali, H. R. (2023). A Large and Diverse Arabic Corpus for Language Modeling. *Procedia Computer Science*, 225, 12–21. https://doi.org/10.1016/j.procs.2023.09.086
- Carroll, P., Singh, B., & Mangina, E. (2024). Uncovering gender dimensions in energy policy using Natural Language Processing. *Renewable and Sustainable Energy Reviews*, 193(January), 114281. https://doi.org/10.1016/j.rser.2024.114281
- Chauhan, A., Sharma, A., & Mohana, R. (2024). A Pre-Trained Model for Aspect-based Sentiment Analysis Task: using Online Social Networking. *Procedia Computer Science*, 233, 35–44.

- https://doi.org/10.1016/j.procs.2024.03.193
- Daradkeh, S., Zibin, A., & Al-Badawi, M. (2024). A linguistic analysis of English nativised lexes and their perception by online gamers in Jordan. *Ampersand*, 13(April), 100182. https://doi.org/10.1016/j.amper.2024.100182
- Das, B., Ragothaman, K., Kesari, R. T., & Sudarshan, T. S. B. (2024). The tale of two sides in the 2019 anti-CAA protest—An analytical framework. *International Journal of Information Management Data Insights*, 4(2), 100300. https://doi.org/10.1016/j.jjimei.2024.100300
- Dwivedi, Y. K., Kshetri, N., Hughes, L., Slade, E. L., Jeyaraj, A., Kar, A. K., Baabdullah, A. M., Koohang, A., Raghavan, V., Ahuja, M., Albanna, H., Albashrawi, M. A., Al-Busaidi, A. S., Balakrishnan, J., Barlette, Y., Basu, S., Bose, I., Brooks, L., Buhalis, D., ... Wright, R. (2023). "So what if ChatGPT wrote it?" Multidisciplinary perspectives on opportunities, challenges and implications of generative conversational AI for research, practice and policy. *International Journal of Information Management*, 71(March). https://doi.org/10.1016/j.ijinfomgt.2023.102642
- Ihnaini, B., Abuhaija, B., Mills, E. A., & Mahmuddin, M. (2024). Semantic similarity on multimodal data: A comprehensive survey with applications. *Journal of King Saud University Computer and Information Sciences*, 36(10), 102263. https://doi.org/10.1016/j.jksuci.2024.102263
- Invernici, F., Bernasconi, A., & Ceri, S. (2024). Exploring the evolution of research topics during the COVID-19 pandemic. *Expert Systems with Applications*, 252(PA), 124028. https://doi.org/10.1016/j.eswa.2024.124028
- Kalyan, K. S. (2024). A survey of GPT-3 family large language models including ChatGPT and GPT-4. *Natural Language Processing Journal*, 6(December 2023), 100048. https://doi.org/10.1016/j.nlp.2023.100048
- Kaur, R., Gabrijelčič, D., & Klobučar, T. (2023). Artificial intelligence for cybersecurity: Literature review and future research directions. *Information Fusion*, 97(March). https://doi.org/10.1016/j.inffus.2023.101804
- Khanduja, N., Kumar, N., & Chauhan, A. (2024). Telugu language hate speech detection using deep learning transformer models: Corpus generation and evaluation. *Systems and Soft Computing*, 6(June), 200112. https://doi.org/10.1016/j.sasc.2024.200112
- Kim, Y., & Bruhn, J. (2023). Introduction: Aesthetics of new technological humanities. *New Techno Humanities*, *3*(2), 73–81. https://doi.org/10.1016/j.techum.2024.03.001
- Kumar, H. (2024). Virtual worlds, real opportunities: A review of marketing in the metaverse. *Acta Psychologica*, 250(October 2024), 104517. https://doi.org/10.1016/j.actpsy.2024.104517
- Lacárcel, F. J. S., Huete, R., & Zerva, K. (2024). Decoding digital nomad destination decisions through user-generated content. *Technological Forecasting and Social Change*, 200(August 2023). https://doi.org/10.1016/j.techfore.2023.123098
- Luger, J. (2024). 'Where #freedom and #patriotism live:' Linking digital media to far-right geographies. *Political Geography*, *114*(January), 103195. https://doi.org/10.1016/j.polgeo.2024.103195
- Matrane, Y., Benabbou, F., & Sael, N. (2023). A systematic literature review of Arabic dialect sentiment analysis. *Journal of King Saud University Computer and Information Sciences*, 35(6), 101570. https://doi.org/10.1016/j.jksuci.2023.101570

- Ravi, K., & Yuan, J. S. (2024). Ideological orientation and extremism detection in online social networking sites: A systematic review. *Intelligent Systems with Applications*, 24(October), 200456. https://doi.org/10.1016/j.iswa.2024.200456
- Reedy, P. (2023). Interpol review of digital evidence for 2019–2022. *Forensic Science International: Synergy*, 6(January), 100313. https://doi.org/10.1016/j.fsisyn.2022.100313
- Rizvanović, B., Zutshi, A., Grilo, A., & Nodehi, T. (2023). Linking the potentials of extended digital marketing impact and start-up growth: Developing a macro-dynamic framework of start-up growth drivers supported by digital marketing. *Technological Forecasting and Social Change*, 186(February 2022). https://doi.org/10.1016/j.techfore.2022.122128
- Subramanian, M., Easwaramoorthy Sathiskumar, V., Deepalakshmi, G., Cho, J., & Manikandan, G. (2023). A survey on hate speech detection and sentiment analysis using machine learning and deep learning models. *Alexandria Engineering Journal*, 80(August), 110–121. https://doi.org/10.1016/j.aej.2023.08.038
- Toprak, A., & Turan, M. (2024). Automated thematic dictionary creation using the web based on WordNet, Spacy, and Simhash. *Data and Information Management*, *October*, 100088. https://doi.org/10.1016/j.dim.2024.100088
- Wahid, S. H. (2024). Exploring the intersection of Islam and digital technology: A bibliometric analysis. *Social Sciences and Humanities Open*, 10(March), 101085. https://doi.org/10.1016/j.ssaho.2024.101085
- Xu, Q. A., Jayne, C., & Chang, V. (2024). An emoji feature-incorporated multi-view deep learning for explainable sentiment classification of social media reviews. *Technological Forecasting and Social Change*, 202(March), 123326. https://doi.org/10.1016/j.techfore.2024.123326