



Bridging Language and Technology through Semiotic Technology

Muhammad Taufik Al Hakim Yaumi; Fathu Rahman; Harlinah Sahib

Hasanuddin University, Makassar, Indonesia

E-mail: muhtaufikalhakimy@gmail.com

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Abstract

This groundbreaking study redefines the contours of social media analysis by introducing Semiotic Technology as a pivotal, yet often overlooked, object of study. In response to the traditional focus on language and semiotics, this research pioneers a comprehensive exploration of the intricate interplay between language, semiotics, and technology within the social media landscape. By incorporating the study of Semiotic Technology, the aim is to offer a more holistic understanding of contemporary communication dynamics, shedding light on the transformative role of technology in shaping meaning within the digital era. This research used literature review approach to analyze the data. Through a nuanced examination of digitally mediated resources, this study contributes to bridging existing gaps in social media research, emphasizing the integral role of technology in shaping social and cultural contexts.

Keywords: *Digital Communication; Language; Multimodality; Semiotic Technology; Social Media*

Introduction

The studies on semiotics have led to a deeper understanding of signs, symbols, and their meanings in various contexts. Researchers have been able to unravel the complexities of communication, language, and culture through the application of semiotic analysis. One area of innovation in semiotics is the development of new frameworks and theoretical models. Researchers have expanded on the work of semiotic pioneers such as the founding father of linguistics and semiotics, Ferdinand de Saussure - signifier and signified - (Saussure, 2011) building upon their foundations and introducing new concepts and approaches. These frameworks provide researchers with tools to analyze and interpret various forms of communication, including verbal and non-verbal language, art, literature, and media. Additionally, the increased attention on semiotics has led to the exploration of new fields of study. Semiotics is being applied in various disciplines, including linguistics (Saussure, 1986), anthropology (Turner & Bruner, 1986), sociology (Leeuwen, 2005), psychology (Vygotsky, 2012), marketing, and media studies (Barthes,

2015). This interdisciplinary approach has broadened the scope of semiotic research and has resulted in a more comprehensive understanding of how signs and symbols shape our world.

In recent years, semiotics, the study of signs and their meanings, has seen a big change. In the past, signs directly represented what they meant (Wicaksono et al., 2021; Jariah et al., 2022; Rahman & Weda, 2019; Sukmawaty et al., 2022). For example, the color blue was seen as calm and peaceful. But today, things are different. Signs, like the color blue in Instagram filters, now represent feelings like sadness even though there's no direct connection between them. This change is at the core of what we're studying in modern semiotics. It's about how signs work in a world where meanings are more about what society agrees on and what different cultures think. Furthermore, this gap between what a sign looks like and what it means is a fascinating aspect of semiotics today. It's like a doorway into understanding how we communicate and express ourselves in a world full of digital signs and symbols. This study delves into the evolving connection between signs and their meanings by exploring contemporary research on language in today's applications.

This shift from direct sign-meaning relationships has not only transformed the way we communicate but has also introduced new symbols and signs, fundamentally altering how we express ourselves. Emojis, which is ubiquitous digital symbols, serve as a compelling example. Arafah and Hasyim's (2019) research underscores the significance of emojis in conveying emotions and intentions in our messages. Their study enriches our understanding of the dynamic interplay between semiotics and technology, shedding light on the evolving nature of digital communication. Not only exploring the emojis part of communication, Hasyim and Arafah (2023) later grouping the communication style in social media into three model of communication, verbal and verbal language (sign) communication, verbal and nonverbal communication, and nonverbal-nonverbal communication.

In recent academic studies concerning the utilization of signs and symbols in the digital era, we have accumulated a substantial body of knowledge about contemporary communication. Nevertheless, a noticeable gap emerges, especially in understanding how technology plays a crucial role in the creation of meaning. While these studies delve into how we employ symbols and ideas to communicate, they frequently do not fully explain the complex process of comprehending things in the digital world. The role of technology, which is exceedingly significant in this process, has not received the close scrutiny it deserves (Poulsen & Kvåle, 2018). Poulsen & Kvåle claim that the challenge at hand is the difficulty in distinguishing what people communicate on social media from the technical aspects that aid in their expression. (2018) Take Instagram, for example. It's not merely about sharing photographs; it also entails utilizing tools like filters and hashtags to convey intentions. Hence, a comprehensive exploration of these digital tools and platforms used for communication is of utmost importance. This endeavor not only bridges existing gaps in our current research but also unveils the profound influence of technology on the way we make sense of things in the digital realm. By addressing this knowledge gap, we can gain a more profound understanding of the intricate process of creating meaning in the dynamic digital landscape, particularly within the context of social media, where it is not always straightforward to distinguish text from technology.

As we delve into the study of contemporary communication, it becomes increasingly evident that technology plays a pivotal role in shaping the way we understand and create meaning in the digital era. This is precisely where the concept of Semiotic Technology, as introduced by scholars like Poulsen & Kvåle (2018), comes into play. Semiotic Technology offers a comprehensive framework to examine the intricate relationship between language, meaning, and technology, particularly in the context of digital media and social platforms. It addresses the challenge of distinguishing human communication from the technological elements that facilitate it, which is often complex in the realm of social media. Take Instagram, for example, where sharing photos involves not only visual content but also the use of tools like filters and hashtags to convey intentions. By exploring these digital tools and platforms used for

communication, Semiotic Technology not only bridges existing gaps in our research but also highlights the profound influence of technology on the way we make sense of things in the digital landscape. In this dynamic environment, Semiotic Technology provides a unique lens through which we can gain a deeper understanding of the intricate process of meaning-making, where text and technology are inextricably intertwined.

Research Method

This research will employ a Literature Review approach to analyze the existing scientific research conducted by various scholars, as it provides valuable insights to address the research questions (Fink, 2019). The Semiotic Technology articles will be presented in a descriptive format, following the structure proposed by Fink (2019), which encompasses key analyses, including the review's purpose, methods, results, conclusions, and limitations.

In terms of research methodology, a descriptive qualitative approach will be used. This approach involves collecting rich data related to semiotic technology, moving from specific observations to broader generalizations. The data will be inductively classified and evaluated, drawing from a range of previous semiotic technology research.

To underpin this research, the study will introduce Poulsen and Kvåle's theory of semiotic technology, which introduces seven dimensions within a social semiotic framework for the examination of social media technology. These dimensions encompass the multimodal, practice, social, media, material, historical, and critical aspects (Poulsen et al., 2018).

Regarding data collection techniques, this research will primarily rely on a document study approach. Various documents related to semiotic technology and mobile learning will be gathered and assessed based on their relevance to the current study. To source these documents, the researcher will explore journal articles and research materials available on platforms such as Universitas Hasanuddin's digital library (repository.unhas.ac.id), Google-based searches including Google Scholar, and the Indonesian National Library's database.

In the search process, two approaches will be used with general descriptors like "Semiotic Technology," "Application," and "Software." Additionally, subtopics under the descriptors, including "Semiotic and Technology" and "Application," will be combined to yield a variety of relevant resources. The data will then be classified based on sub-descriptors, such as definitions, developmental history, and characteristics, following the classification method developed by Fink (2019).

This research thus aims to bridge language and technology through semiotic technology, emphasizing the significance of technology as a critical object of study, often overlooked when investigating the interplay of social media and language.

Result and Discussion

The Current State of Semiotic and Language Studies

Numerous researchers have explored the role of social media in communication, including elements like emojis, selfies, and GIFs (Arafah & Hasyim, 2019; Highfield & Leaver, 2016; Hasan & Idrees, 2020). However, while they've used semiotic analysis to study language variations in communication, they haven't given as much attention to the role of technology (Jovanovic & Leeuwen,

2018). In today's digital age, where technology plays a vital and ubiquitous role in communication, we need to introduce a new perspective. Technology is intertwined with our daily interactions, influencing how we communicate in profound ways. As suggested by Poulsen and Kvåle (2018), this shift recognizes the crucial role technology plays in shaping our communication in the digital era, prompting the need for a third object of study.

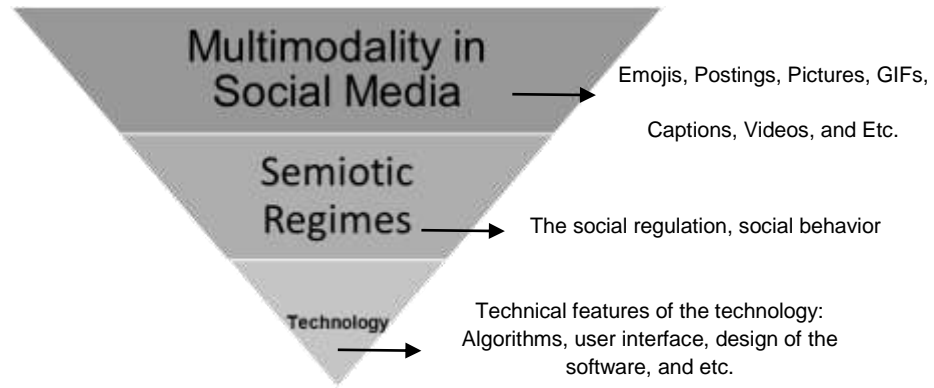


Figure 1. The graphical interpretation of the current language, social media, and technology studies.

In the realm of social media research, a critical aspect often overlooked is the role of technology. While many studies focus on communication and its various forms within social media, one study stands out for its inclusion of technology as a central element of inquiry. Jovanovic and Leeuwen (2018) set out to delve deep into the intricacies of communication in social media, specifically by analyzing multimodal communication. Their exploration delves into the unique features of this form of communication on social media, elucidating how these features are harnessed to create meaning and convey social actions. Jovanovic and Leeuwen argue that this type of communication is reshaping the way we interact and connect with one another. They emphasize the significance of understanding these changes to fully grasp the impact of social media on our society. What sets their work apart is that it not only dissects the challenges presented by multimodal communication on social media but also accounts for the technological dimensions inherent in social media platforms. This broader perspective adds a fresh dimension to the analysis of social media communication. In their research, Jovanovic and Leeuwen assert that adopting a social semiotic approach to studying social media can provide a unique lens through which to analyze this evolving landscape. They highlight the idea that social media platforms offer users an array of semiotic resources to craft meaning and convey social actions. These resources are continually evolving and adapting to the changing landscape of social media.

In the context of studying social media from a semiotic perspective, it's essential to recognize the pivotal role that technology plays in our digital age. Nowadays, technology is omnipresent in our daily communication, and this presence significantly impacts how we interact on social media platforms like Twitter. More than merely a tool, technology has the power to transform the way we communicate. Consider Twitter as an example. This social media platform imposes a character limit on each tweet, encourages the use of hashtags, and incorporates emojis. These technological features aren't just additions; they shape how messages are constructed and interpreted. Each social media platform comes with its unique set of features and constraints, and Twitter is no exception. The character limit on tweets forces users to be concise and creative, while hashtags allow them to categorize their content and join broader conversations. Emojis, on the other hand, add emotional nuances to messages.

Furthermore, the design and layout of the platform itself affect how messages are presented and understood. All these technological elements contribute to the overall meaning-making process on

Twitter. If we disregard the role of technology, we miss a substantial part of how Twitter functions as a communication space. To illustrate this, think of tweeting as more than just typing words. It involves utilizing a combination of textual and visual elements, character limits, and the platform's unique features. All these factors collectively shape the messages we send and receive. By acknowledging the significance of technology in our analysis, we gain a deeper understanding of how Twitter and other social media platforms influence the way we communicate and make sense of information. It's like fitting a missing piece into the puzzle of understanding social semiotics in the digital era, ensuring a more comprehensive view of the intricate processes at play.

The Beginning of Gani's Involvement in the Diplomatic Struggle

In today's digital age, where technology plays a vital role in communication, we need to introduce a new perspective. This perspective, called "semiotic technology," considers the interplay between language, semiotics, and technology (Poulsen & Kvåle, 2018). By integrating technology into our analysis, we gain a deeper understanding of how these elements work together in modern communication. This shift recognizes the crucial role technology plays in shaping how we communicate in the digital era.

We often study language and social media, focusing on these as our primary objects of analysis. However, technology is an inseparable part of the equation, frequently serving as the medium through which we interact. As communication increasingly relies on various technological platforms and tools, it's essential to consider technology as a vital third dimension in our studies. Researchers have long recognized this, and as we explore this dynamic interplay between language, semiotics, and technology, we can gain deeper insights into how these components seamlessly merge in modern communication.

Semiotic technology refers to a technology that is designed for meaning-making and has meaning-making potentials built into the technology through various semiotic modes (e.g., layout, texture, color, sound, etc.). When studying social semiotics, there is no pure theory since it is not a field of study that can stand up by itself (Leeuwen, 2004). More specifically, it is a field that requires applications of other specific instances or problems. For instance, if social semiotics and technology are combined, it is not sufficient to only use social semiotics concepts and methods but also needs to engage in technical aspects.

The concept of Semiotic Technology as mentioned in previous studies tend to incorporate interdisciplinary research. In other words, researchers incorporate other field of studies to conduct their research. As Van Leeuwen (2004) stated, semiotic research is not a purely theoretical endeavor. It can only be specifically developed if combined with other theories to analyze a phenomenon. In this case, Semiotic Technology incorporates Technology to analyze new phenomena. Therefore, technology become the object of social semiotic research. This area of research stems from the work of social semiotics which has three foci of research, that is (1) To outline semiotic resources in the technology of meaning-making; (2) To learn how semiotic technology is used in semiotic practices or social practices; (3) to examine the histories, narratives, and discourses of technologically mediated resources. (Halliday, 1978; Hodge & Kress, 1988).

a. Understanding Multimodality in Social Media

According to Poulsen & Kvåle (2018), the analysis of multimodal dimension is one of the most essential of social semiotics, thus becoming important when studying the social media. Multimodality refers to the use of various modes of communication, such as text, images, sound, and video, in social media content. It explores how these modes combine to convey meaning (Leeuwen 2005; Kress, 2010; Zhao et al., 2017). In essence, the analysis within the multimodality in social media involves a deep exploration of the semiotic resources and regimes in social media, (Leeuwen, 2005) and also recognizing the role of technology as both a resource and a regulator of communication practices (regimes). (Poulsen et al., 2018) Semiotic resources encompass the tools and actions we use for communication. These resources can be

created using our bodies, like speaking and gestures, or they can be produced using various technologies, such as pens, computers, fabrics, and more (Leeuwen, 2005). Semiotic regimes refer to the social mechanisms or sets of rules that regulate the use of semiotic resources in various communication practices. These regimes play a significant role in shaping how meaning is produced and interpreted within a given social or cultural context. This approach helps researchers understand how meaning is created and interpreted in the context of digital communication and the influence of social media technologies on these processes.

Poulsen and Kvåle (2018) emphasize that when we extend the study of multimodality to social media as semiotic technology, we are essentially delving into the analysis of digitally mediated resources employed in social media. This involves a comprehensive examination of the semiotic resources that users engage with when creating and sharing content on digital platforms. These resources encompass a wide array of elements, including but not limited to text, images, emojis, filters, and other features that enable users to convey meaning and engage with their audience. By scrutinizing these digitally mediated resources, researchers can gain a deeper understanding of how social media functions as a semiotic technology, shaping the way people communicate and interact in the digital age. This approach allows us to explore the dynamic interplay between language, semiotics, and technology in the realm of social media, contributing to a more holistic comprehension of this ever-evolving communication landscape.

b. Beyond the Language of Social Media

When studying social media, researchers often want to find out what communication is happening within social media. This analysis often analyzes the multimodal communication within social media and also the practices that happened inside social media without acknowledging the technology aspects of social media itself. When understanding social media as semiotic technology, not only seeing the cultural and social dimensions of the social media, but incorporating the role of the technology in shaping those dimensions. This could perhaps change how the analysis and adding new perspective in to it.

Take for example in a traditional semiotic analysis of emojis in WhatsApp, one might focus on the symbols themselves—what each emoji represents, their potential meanings, and how users employ them for emotional expression. This approach would largely center on the linguistic and symbolic aspects of communication. Taking a semiotic technology perspective, we would expand the analysis to consider how the technology of WhatsApp influences the use and interpretation of emojis. This involves examining features like the emoji keyboard layout, the ease of access to emojis, and how the platform updates impact emoji availability. Additionally, we might explore how the platform's design encourages certain patterns of emoji usage, such as the recent emojis section or suggested emoji predictions. This broader view recognizes the role of the technological interface in shaping the semiotic resources available for communication. By incorporating technology into the analysis, we move beyond simply decoding symbols and delve into understanding how the platform itself actively participates in the creation and interpretation of meaning through emojis.

Examining the technological aspects of an application becomes crucial for unraveling the intricate threads that weave our social fabric. Poulsen et al. emphasize that the very design of social media technology intricately influences how we interact, structuring our social engagements in both form and expression (2018). Through a technological lens, we unravel the dynamics of communication mediation, gaining insights into the symbiotic relationship between us and our technological counterparts. This comprehension is pivotal, fostering the development of effective communication strategies and the crafting of technologies attuned to our evolving needs.

Furthermore, Poulsen's insights extend to the nexus of technology, identity, social status, and community of practice. Changes in technology mirror shifts in these fundamental aspects of our social

existence. Thus, dissecting the technological dimensions of an application unveils its impact on the tapestry of our social and cultural practices.

Poulsen and Kvåle (2018) examine the difficulties in analyzing social media technologies and present a social semiotic framework to overcome these difficulties. The framework enables a deep examination of the multimodal meaning potentials of digital social media technology, linking them to the production of multimodal texts and semiotic practices while taking the function of technology into account. The framework is divided into seven categories: multimodality, practice, social aspect, medium, materiality, historical context, and critical viewpoints. While the framework is relevant to a variety of semiotic technologies, it is primarily designed for researching social media technologies, with examples from Instagram supplied. The purpose of creating this framework is to better understand how social media technology enables the invention, enactment, and management of meaning.

Table 1: The seven dimensions of semiotic technology framework developed by Poulsen and Kvåle

Dimensions	Description
Multimodality	Examining the use of multiple modes of communication (e.g., text, images, videos) within the technology
Practice	Understanding the social practices and behaviors associated with the use of the technology
The Social	Analyzing the social dynamics, interactions, and relationships facilitated by the technology
Medium	Investigating the specific characteristics and affordances of the technological medium
The Material	Considering the materiality of the technology, including its physical aspects and technological infrastructure
The Historical	Exploring the historical context and development of the technology, as well as its impact over time
The Critical	Examining the critical perspectives on the technology, including power dynamics, inequalities, and socio-cultural implications

Source: Adapted from seven dimensions of semiotic technology study by Poulsen and Kvåle 2018 (Edited)

From a social semiotic standpoint, the framework that is used by Poulsen and Kvåle is considered to be a comprehensive and diverse approach to researching social media technologies. By incorporating seven interconnected elements such as multimodality, practice, the social component, medium, materiality, historical context, and critical viewpoints, the framework aims to provide a comprehensive understanding of how meaning is formed and maintained within social media platforms. The incorporation of these factors enables a comprehensive examination of social media as a semiotic technology, taking into account both technological features as well as the social and cultural context in which it operates. This approach acknowledges the significance of a variety of factors, including the use of multiple modes of communication, the role of social practices, the influence of the technology itself, the materiality of digital technology, the historical context, and critical perspectives that shed light on power dynamics and social implications.

The framework's use of Instagram as an example shows that the framework can be used to evaluate specific social media platforms. Its goal is to contribute to the theoretical foundations and analytical tools of social semiotics in order to better comprehend the function of social media technologies in meaning-making processes. The framework also appears to be a valuable contribution to the study of social media technology, providing a structured and comprehensive approach that can improve our understanding of how

social media platforms enable the creation and management of meaning in a multimodal and socio-cultural context.

Conclusion

In the ever-evolving landscape of digital communication, the integration of semiotics and technology offers a lens through which we can unravel the complexities of meaning-making in the digital era. This journey has taken us through an exploration of Semiotic Technology, a paradigm that recognizes the intricate dance between language, semiotics, and technology in shaping our communication on social media platforms.

As we delved into the multifaceted dimensions of Semiotic Technology, guided by the framework articulated by Poulsen and Kvåle, a comprehensive understanding emerged. This framework, with its seven interconnected elements, proved to be a valuable tool for dissecting the nuances of meaning production and management within social media technologies. From multimodality to historical context, from the social aspect to critical viewpoints, the framework provided a structured approach to comprehend the intricate interplay of technology, language, and sociocultural dynamics.

The discussion extended beyond the mere analysis of emojis or multimodal communication, encompassing a holistic examination of how technology actively participates in the creation and interpretation of meaning. Recognizing technology as a vital third dimension in our studies allowed us to bridge the gap between human communication and the technical elements that facilitate it. Platforms like Twitter and WhatsApp became not just mediums for communication but intricate systems that shape the very nature of our interactions.

Our exploration highlighted the necessity of acknowledging the technological aspects when studying social media as Semiotic Technology. This is not merely an academic exercise; it is a crucial step towards understanding the profound influence of technology on our social and cultural practices. The ever-present nature of technology in our daily lives underscores the need for a paradigm that embraces the symbiotic relationship between semiotics and technology.

In conclusion, this journey through Semiotic Technology opens new avenues for research and understanding in the realm of digital communication. It is an invitation to researchers, scholars, and enthusiasts to further explore the dynamic interplay between language, semiotics, and technology, recognizing that our digital expressions are not isolated symbols but intricate threads woven into the fabric of a technologically mediated society.

As we move forward, this exploration encourages a continued dialogue on how Semiotic Technology can enrich our comprehension of the evolving semiotic landscape in the digital era. It is a testament to the adaptive nature of semiotics, ever-responsive to the technological forces that shape the way we communicate, express, and make meaning in the fascinating tapestry of the digital age.

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