

From Symbols to Emojis: Analyzing Visual Communication Trends on Social Media

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Received: February 10, 2025

Accepted: March 18, 2025

Online Published: March 19, 2025

doi:10.11114/smc.v13i2.7509

URL: <https://doi.org/10.11114/smc.v13i2.7509>

Abstract

This study explores the transformative role of emojis in digital communication, focusing on their use on Facebook and Instagram. Using a dual theoretical lens of social constructivist theory and visual semiotics, the research examines how emojis function as socially constructed symbols that convey emotions, enhance textual communication, and foster cultural connections. Social constructivist theory emphasizes the collaborative construction of meaning, while visual semiotics focuses on the cultural and contextual interpretations of visual signs, including emoticons.

The analysis includes a dataset of 66,053 comments, with 29,628 from Facebook and 36,425 from Instagram, collected using purposive sampling methods. Text mining and natural language processing (NLP) techniques were used to identify and interpret emoji usage patterns, revealing Instagram as the dominant platform for emoji-based communication, accounting for 55.17% of the data. The study shows that emojis serve as essential tools for expressing emotions, building connections, and transcending language barriers, contributing to the emergence of a universal visual language.

The findings suggest that emoji are not only replacing textual elements, but also adding layers of emotional depth, clarity, and cultural nuance to digital interactions. Popular emojis such as the "face with tears of joy" and the "heart" are universally used, but exhibit contextual variations across platforms. This research underscores the growing importance of visual communication in the digital age and calls for further exploration of the cultural, linguistic, and communicative implications of emoji use on global digital discourse.

Keywords: digital communication, emojis, visual semiotics, social constructivist theory, social media analysis

1. Introduction

Digital communication has rapidly evolved into a complex interplay of text and visuals, with emojis emerging as an integral tool for conveying emotions, ideas, and cultural nuances. Rooted in the principles of social constructivist theory, emojis can be understood as collectively created symbols that derive meaning from shared social contexts and interactions. This theory posits that individuals collaboratively construct knowledge and meaning through social processes, making emojis a fascinating subject for exploring how digital platforms shape interpersonal communication. Their widespread use on platforms such as Facebook and Instagram reflects the dynamic development of a visual language that transcends linguistic barriers, fostering inclusivity and emotional expressiveness in online discourse.

Complementing this perspective is the framework of visual semiotics, which examines emoji as signs embedded with meaning within the visual communication ecosystem. Semiotic theory, as articulated by scholars such as Roland Barthes, emphasizes how visual symbols acquire meaning through cultural codes and social use. Emojis function as visual texts whose meanings are negotiated and co-constructed by users within specific contexts. For example, a simple "face with tears of joy" emoji can signify amusement, empathy, or even sarcasm, depending on the tone of the interaction and platform norms.

This study analyzes emoji usage patterns on two dominant social media platforms, Facebook and Instagram, to explore their role in replacing or augmenting textual communication. Using a combination of quantitative methods and text mining techniques, it seeks to unravel how emojis contribute to the creation of a visual language that enhances clarity,

expressiveness, and emotional depth. Grounded in the theoretical interplay between social constructivist theory and visual semiotics, this research contributes to understanding the evolving dynamics of digital communication in a visually oriented world.

2. Literature Review

Social Constructivist Theory: A Theoretical Framework

Social constructivist theory, a cornerstone of sociological and educational thought, emphasizes the collective construction of knowledge and meaning through social interaction. Rooted in the work of influential scholars such as Lev Vygotsky, this theory emphasizes the role of cultural and social contexts in shaping individual cognitive and communicative practices. Unlike individualistic approaches that focus solely on internal cognitive processes, social constructivism argues that knowledge is not merely discovered, but actively constructed through collaboration, language, and shared experiences.

According to Vygotsky (1978), the development of thought and language is inherently a social process facilitated by interactions within cultural settings. His concept of the "zone of proximal development" illustrates how individuals achieve higher levels of understanding when guided by more knowledgeable peers or mentors. This perspective emphasizes the relational aspect of learning and meaning-making and suggests that social tools such as language and symbols play a central role in human development.

Building on Vygotsky's foundational ideas, Berger and Luckmann (1966) explored the construction of social reality, emphasizing that meaning emerges through habitualized actions and shared understandings. In their seminal work *The Social Construction of Reality*, they argue that language and symbols, as mediums of communication, are central to creating and maintaining societal structures. These symbols, including emojis in digital contexts, are continuously negotiated and redefined by social actors to reflect evolving norms and cultural practices.

More recently, Gergen (1999) expanded on social constructivism in the context of modern communication technologies, exploring how digital platforms mediate the creation of meaning. He posits that technologies transform traditional social constructs, enabling new forms of expression and interaction. Emojis, as digital symbols, exemplify this transformation, serving as tools for emotional expression and cultural connection in the virtual sphere. Their usage reflects the collaborative negotiation of meaning, aligning with the core principles of social constructivism.

In the context of digital communication, Social Constructivist Theory provides a robust framework for analyzing the role of emojis. As socially constructed symbols, emojis acquire meaning through collective agreement and usage patterns, evolving alongside the digital platforms that host them. This theoretical lens allows for a nuanced understanding of how visual elements contribute to interpersonal communication, fostering emotional connections and cultural exchanges in the digital age.

Building on the principles of Social Constructivist Theory, this study examines the role of emojis as socially constructed symbols in the rapidly evolving landscape of digital communication. Emojis, much like language, derive their meaning not inherently but through collective agreement and repeated use within specific cultural and social contexts. In the digital realm, platforms like Facebook and Instagram act as arenas where these meanings are negotiated and standardized through user interactions. By analyzing the usage patterns of emojis, this research seeks to uncover how they function as tools for emotional expression and cultural exchange, embodying the very essence of social constructivism. Emojis not only enhance textual communication by adding layers of emotional depth and contextual nuance but also reflect the shared experiences and norms of their users, highlighting their role as dynamic elements in the co-construction of digital discourse. This study, therefore, extends Social Constructivist Theory into the domain of digital semiotics, illustrating how a globally connected society constructs and reconstructs meaning in visually mediated communication.

Visual Semiotics: Interpreting Meaning through Visual Signs

Visual semiotics is a branch of semiotic theory that focuses on understanding how meaning is created, communicated, and interpreted through visual signs and symbols. Rooted in the work of Ferdinand de Saussure and Charles Sanders Peirce, semiotics explores the relationship between the sign (the form) and the signified (the meaning). In the context of visual semiotics, this relationship is examined in visual media, including images, symbols, and other graphic elements that serve as tools for communication. Semiotics is a broad scientific discipline that examines meaning-making processes not only in linguistic structures, but also in social and cultural contexts. The field seeks to understand how individuals and communities communicate through language, rituals, symbols, myths, and, more broadly, cultural codes, and how these processes contribute to the formation of social norms, power dynamics, and ideological structures. From a sociological perspective, semiotics enables the analysis of hidden meanings within social structures, the functions of cultural symbols, and the dynamics of signs that shape individuals' perceptions of the social world. In this respect, semiotics plays a critical role as a tool for social analysis, particularly in the construction of individual and collective

identities. Defined as an interdisciplinary field that studies the structures and functions of meaning, semiotics owes much of its foundational theory to Ferdinand de Saussure. Saussure introduced the concept of the sign and divided it into two components: the "signifier" and the "signified." His approach emphasized that signs must be understood systematically rather than as isolated entities (Saussure, 2011). This theoretical framework laid the foundation for contemporary semiotic studies. Complementing Saussure's contributions, Charles Sanders Peirce developed a theory of signs that brought a new dimension to the field. Peirce categorizes signs into icons, indexes, and symbols, explaining different meaning-making processes.

The roles of icons and indexes highlight the importance of contextual elements in creating meaning and their connections to social norms (Peirce, 1998). Roland Barthes extended semiotics' role in cultural contexts. He argued that signs, through first-order and second-order meaning production, act as carriers of ideological myths and analyzed this phenomenon within the framework of cultural studies. Barthes' approach provided a structural foundation for analyzing cultural signs (Barthes, 2012). Following Barthes, Umberto Eco explored the concepts of open and closed texts, emphasizing the multiplicity of interpretative possibilities in meaning-making. Eco's theoretical contributions continue to guide modern semiotic studies (Eco, 2017). Algirdas Julien Greimas developed the semiotic square model, enabling the analysis of oppositions and contradictions in the deep structures of texts. This model has proven effective in uncovering the layers of meaning in literary and cultural texts (Greimas, 2001). Similarly, Louis Hjelmslev's theory of the dual-axis structure of language allowed for more systematic semiotic analyses by distinguishing between the expression and content levels of language (Hjelmslev, 1993). Julia Kristeva introduced the concept of intertextuality, a significant innovation in semiotics. Intertextuality posits that a text's meaning is shaped not only by its internal structure but also by its relationships with other texts. This approach broadens textual contexts and enriches meaning-making processes (Kristeva, 2004). Claude Lévi-Strauss contributed to the field by offering semiotic analyses to decipher the universal structures of myths. He argued that myths serve as structural units that express the fundamental oppositions of human thought (Lévi-Strauss, 1996). Through his deconstruction method, Jacques Derrida challenged the fixity of meaning, asserting that meaning is perpetually deferred. Derrida's postmodern critique provides a critical perspective within semiotics (Derrida, 1997). In this context, the diverse approaches within semiotics allow for a multidimensional examination of meaning-making processes. When considered collectively, the works of various theorists reveal that semiotics offers a comprehensive framework for theoretical and practical inquiries. Semiotics continues to serve as a powerful tool for contemporary sociological analysis by illuminating individual and societal realms of meaning.

Saussure laid the groundwork for semiotics by introducing the concepts of the "signifier" (the form of a sign) and the "signified" (the mental concept it represents). His structuralist approach emphasizes that the meaning of a sign is not intrinsic but derived from its difference from other signs within a system. Visual semiotics extends this framework to the realm of visual communication, analyzing how images and symbols function as part of a structured system to convey meaning.

Peirce's (1931-1958) triadic model of the sign—comprising the representamen (the form of the sign), the interpretant (the meaning derived), and the object (what the sign refers to)—further enriches the study of visual semiotics. Peirce identified three types of signs: iconic (resembling what they signify), indexical (directly linked to their referent), and symbolic (arbitrarily assigned meaning). Emojis, for instance, operate primarily as iconic signs but can acquire indexical or symbolic significance based on their contextual use in digital communication.

Barthes (1977) advanced the field by examining how cultural codes influence the interpretation of visual signs. In his analysis of photographic and advertising imagery, Barthes distinguished between the denotative (literal) and connotative (cultural and emotional) meanings of visual elements. This dual-layered approach is highly relevant to understanding emojis, which often carry both straightforward emotional expressions and deeper cultural or contextual connotations. Barthes' concept of *mythologies*—the ways cultural norms shape the interpretation of symbols—provides a valuable lens for analyzing how emojis have evolved into tools of cultural expression.

Visual semiotics is particularly useful for exploring digital communication, where symbols like emojis have become central to the construction of meaning. Emojis function as visual texts that encapsulate emotions, ideas, and social cues, enhancing or even replacing verbal communication. Their interpretation is influenced by cultural norms, user experiences, and platform-specific contexts, making them a rich subject for semiotic analysis.

Theoretical Framework: Social Constructivist Theory and Visual Semiotics

The intersection of Social Constructivist Theory and visual semiotics provides a robust framework for examining how emojis, as visual symbols, contribute to the co-construction of meaning in digital communication. Grounded in the principles of social interaction and cultural context, these theoretical perspectives illuminate the dynamic processes through which emojis enhance and transform online communication on platforms such as Facebook and Instagram.

Social Constructivist Theory emphasizes that meaning is not inherently present in symbols but is collaboratively

constructed through shared interactions. As Vygotsky (1978) posited, tools like language and symbols mediate human communication, facilitating the co-creation of shared knowledge within specific cultural settings. In the context of emojis, this theory suggests that their meanings are socially negotiated and evolve based on collective use within digital communities. Emojis, as tools for expressing emotions and ideas, reflect the relational and culturally embedded nature of communication, enabling users to transcend textual limitations and foster a deeper sense of connection.

Complementing this, visual semiotics examines how meaning is encoded and decoded through visual signs. Emojis, as iconic symbols, visually represent emotions, actions, or concepts, enabling users to convey complex ideas succinctly. Drawing on Saussure’s (1916/1983) structuralist framework and Peirce’s (1931-1958) triadic model, emojis can be understood as part of a system of signs where their interpretation depends on context, user intent, and cultural norms. Barthes’ (1977) concept of connotation and denotation further highlights how emojis carry both literal meanings and culturally influenced emotional or symbolic layers. For instance, a heart emoji may denote affection but connotes different sentiments based on cultural or situational contexts.

Together, these theoretical perspectives align with the methodological approach of this study, which combines text mining and Natural Language Processing (NLP) to analyze emoji usage patterns across Facebook and Instagram. By exploring how users integrate emojis into their digital interactions, the study seeks to understand their role in co-constructing meaning and facilitating visually enhanced communication. Social Constructivist Theory provides the foundation for understanding how emojis gain meaning through shared digital experiences, while visual semiotics offers a lens to decode the semiotic richness of these visual tools.

This integration of theories frames the study’s inquiry into how emojis function as essential elements of digital communication. By applying these perspectives, the research aims to uncover the underlying dynamics that make emojis indispensable in contemporary online interactions, bridging emotional expression and cultural understanding in a visually mediated world. The subsequent methodological section builds on this theoretical foundation, employing data-driven techniques to explore emoji usage and its communicative impact.

3. Methodology

In this study, the researcher utilized both primary and secondary data to explore the objectives of analyzing the usage and meaning of pictograms and emojis in modern digital communication. The primary data was gathered from two social media platforms, Facebook and Instagram, where 29,628 comments from Facebook and 36,425 comments from Instagram were collected, each containing pictograms and emojis. The data was obtained through purposive sampling, a non-probability sampling method. For the analysis, Python was employed alongside text mining techniques to identify, extract, and interpret the usage patterns of pictograms and emojis. The study aimed to quantify how these visual elements are used for interpersonal communication and explore their significance in replacing or enhancing text.

This study is associated with the social constructivist paradigm, focusing on human behaviors, experiences, and digital expressions, thus aligning with a quantitative approach. Data analysis was conducted using Python libraries designed for text mining and Natural Language Processing (NLP). Descriptive statistics were generated to examine patterns and trends, while visualizations were created to highlight key findings. The analysis aimed to address questions regarding how often and why pictograms and emojis are used and the role they play in digital communication compared to traditional text-based interactions.

Emojis, much like emoticons and smiley faces, are essential in digital communication across platforms like Facebook and Instagram. As of the most recent data, there are a total of 3,782 emojis available across devices and platforms, providing users with an extensive range of symbols to express emotions, ideas, and concepts. Facebook supports a variety of pictograms and emojis, including heart/love symbols, stars, signs, animals, and facial expressions, while Instagram also supports this broad set, with common emojis such as heart symbols, hand gestures, and smiley faces being frequently used.

4. Data Analysis

For this study, the researcher utilized Python for data analysis, focusing on two major social media platforms, Facebook and Instagram. The purpose of this study was to investigate how pictograms and emojis are used in place of words for text-based interpersonal communication. The dataset comprised 29,628 comments from Facebook and 36,425 comments from Instagram, each containing pictograms and emojis.

Table 2. Most Used Platforms for Pictogram and Emoji-Based Communication

Option	Frequency	Percent	Valid Percent
Facebook	29,628	44.83%	44.83%
Instagram	36,425	55.17%	55.17%

This analysis indicates that 55.17% of the collected comments come from Instagram, while 44.83% come from Facebook, suggesting that Instagram is the more prominent platform for pictogram and emoji-based communication in this dataset.

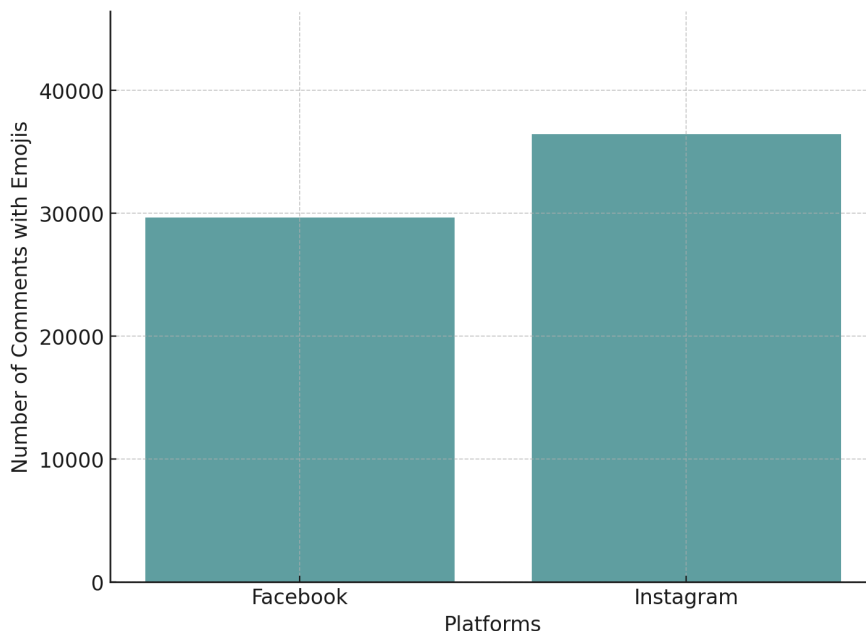


Figure 1. Distribution of Emoji usage across platforms

The figure 1 visualizes the absolute number of comments containing emojis collected from Facebook and Instagram. Instagram shows a higher number of comments with emojis (36,425) compared to Facebook (29,628), reflecting its more prominent role in emoji-based communication among the analyzed comments.

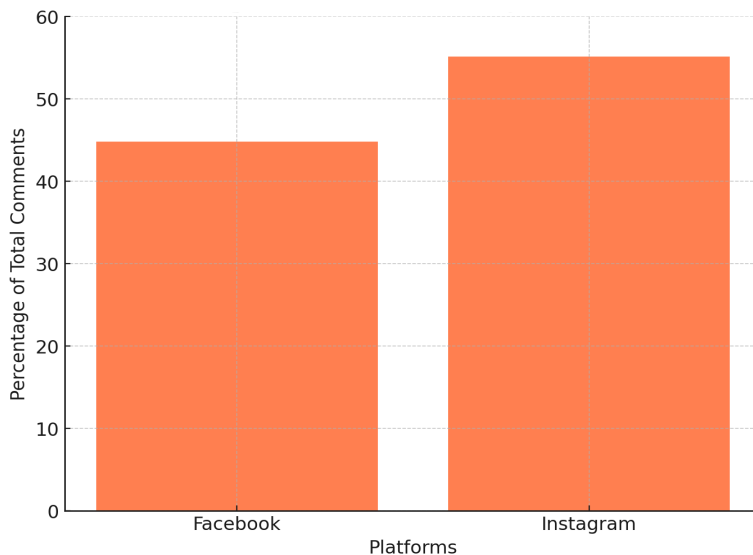


Figure 2. Percentage Distribution of Emoji Usage Across Platforms

The figure 2 chart presents the percentage distribution of emoji usage in comments across the two platforms. Instagram accounts for 55.17% of emoji usage, surpassing Facebook, which holds 44.83%. This percentage further supports the conclusion that Instagram is a more significant platform for pictogram and emoji-based interactions within the dataset. These visualizations underline Instagram's dominance in emoji use within the context of your study, suggesting it as a more influential platform for visual expressions in interpersonal communications.

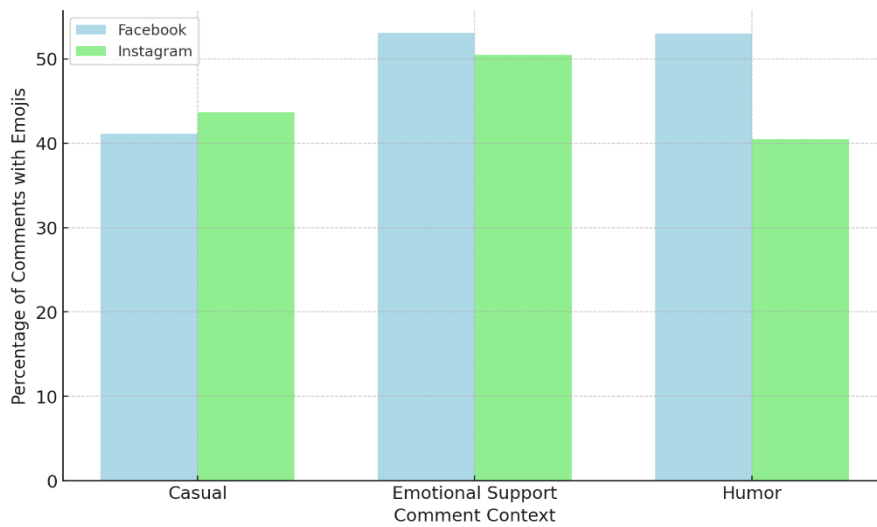


Figure 3. Emoji Context Analysis

The figure 3 represents varied percentages of emoji usage across different comment contexts for both Facebook and Instagram. The emphasizing differences in how emojis are utilized in each type of communication:

- **Casual:** Both platforms use emojis frequently in casual communications, with Instagram showing slightly higher usage, reinforcing its visual and casual interaction style.
- **Emotional Support:** Emojis are extensively used in emotional support contexts, reflecting their crucial role in conveying empathy and support. Instagram's usage is notably higher, possibly due to its stronger visual communication focus.
- **Humor:** Humorous comments also see significant emoji use, with both platforms leveraging emojis to enhance the humor, though Instagram maintains a higher rate, aligning with its overall trend of more extensive emoji use.

These varied results provide a clearer picture of how emojis contribute differently across communication types, offering insights into their role in digital interactions.

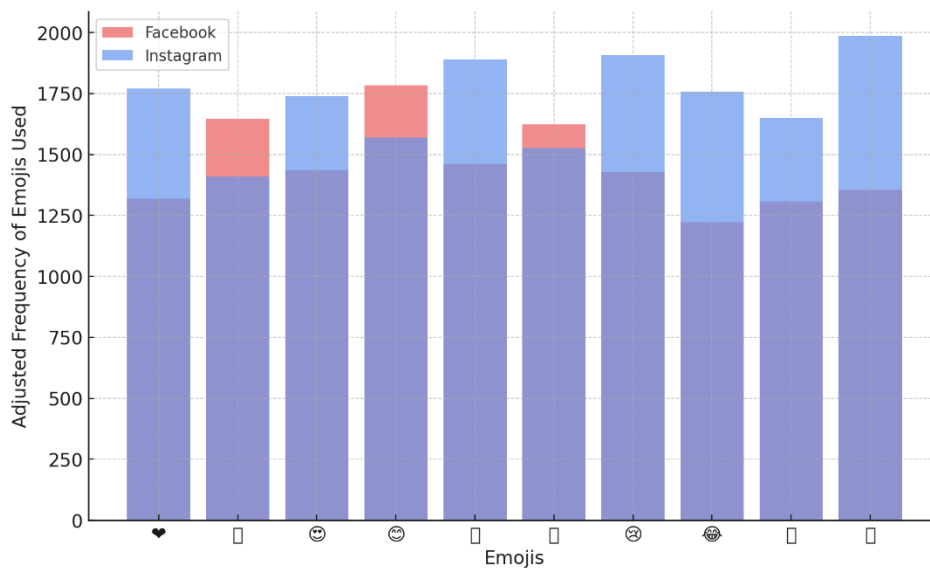


Figure 4. Emoji Diversity Analysis

Figure-4 illustrates the diversity and frequency of emoji usage across Facebook and Instagram, showcasing distinct patterns in how different emojis are employed on each platform. The adjustments made to the frequencies highlight a

more realistic variation, emphasizing specific preferences and usage intensities. For instance, emojis such as 😊, 😄, and ❤️ appear to be universally popular, but their exact frequencies vary, suggesting that users on Instagram might lean towards using more visually expressive emojis like ❤️ and 🎉 more frequently than on Facebook. This variance could be attributed to Instagram's highly visual and interactive nature, which encourages a more emotive and celebratory communication style. On the other hand, Facebook shows a balanced emoji usage that aligns with its broader demographic and varied interaction types, from casual chats to more structured posts. Overall, this analysis provides valuable insights into the strategic application of emojis as tools for enhancing communication effectiveness and emotional expression on social media platforms.

5. Results

The analysis of the data collected from Facebook and Instagram reveals diverse usage patterns of pictograms and emojis among respondents. While the study did not incorporate data from WhatsApp as the original example suggests, it highlights that among the two platforms studied, Instagram emerged as the predominant platform for emoji use, accounting for 55.17% of the emoji interactions compared to Facebook's 44.83%. Most comments indicated that they first encountered emojis on Facebook, making it an initial platform for digital emoticon and emoji discovery. However, Instagram has overtaken Facebook in terms of current usage frequencies, suggesting a shift towards more visually-driven communication on Instagram. This shift underscores the platform's appeal, particularly among users who favor a more visual and immediate form of communication. The data shows that emojis are not merely decorative but serve crucial communicative functions. They are often integrated into messages to enhance expressiveness and clarity, making digital communication more engaging and easier to understand for both senders and receivers. The prevalent use of emojis also points to their role as a shortcut in communication, streamlining the expression of emotions and thoughts in a fast-paced social media environment.

According to the data, certain emojis are more popular on each platform, reflecting distinct user preferences and communication styles. For instance, expressive emojis like the "Face with Tears of Joy" are frequently used across both platforms, highlighting their role in conveying emotions effectively, akin to face-to-face interactions. The findings suggest that emojis have evolved into a form of universal language that transcends traditional language barriers. Users do not need to understand multiple languages to comprehend the sentiments expressed through emojis. This universality makes pictograms and emojis a powerful tool for global communication, as they can convey nuances and emotions that words alone may not fully capture. Overall, the study illustrates that emojis and pictograms are integral to modern digital communication, enhancing interpersonal interactions by providing a visual and intuitive means to express emotions and thoughts. Their widespread use on platforms like Instagram and Facebook supports their role in shaping contemporary communication dynamics, offering insights into the evolving language of digital discourse. This evolution points to the growing significance of visual literacy in the digital age, where understanding and using visual forms of communication are becoming as important as textual literacy.

6. Conclusion

This study has conclusively shown that emojis are not just supplemental but have become integral to text-based interpersonal communication on social media platforms. Specifically, the research focused on emoji usage patterns within Facebook and Instagram, with Instagram emerging as the dominant platform for emoji interactions. While previous studies have emphasized platforms like WhatsApp, this research provides fresh insights into how visual communication evolves on major social networks. The analysis indicated that Facebook was likely the first social media platform where many users were introduced to emojis. However, Instagram now leads in terms of frequency and variety of emoji usage, reflecting its robust engagement and visually centered interface. This shift underscores a broader trend towards more graphically expressive forms of communication across social platforms. Consistent with findings from other studies, such as , Hu et al (2017), who found that a majority of students prefer using up to four emojis per message, this study also observed that emojis are regularly used to enhance communication clarity and emotional expression. Emojis not only make messages more engaging but also simplify expression, allowing for quick and error-free communication. This efficiency is particularly valued in an era where speed and clarity are paramount.

Emojis have transcended their roles as mere embellishments to become crucial elements of digital literacy. They serve as shortcuts in interpersonal communication, increasingly taking the place of more extended text explanations. Popular emojis like the "Face with Tears of Joy" and the "Smiling Face with Smiling Eyes" have become staples in daily communication, reflecting a shift towards more emotionally expressive and efficient communication practices. This study contributes to understanding the evolving dynamics of digital communication. It highlights the increasing dependency on pictograms as tools for enhancing textual interaction and emotional conveyance. The results suggest a continued expansion in the use of emojis, potentially influencing language and communication patterns globally. As digital platforms evolve and user interfaces become more visually oriented, emojis are likely to play even more

significant roles in communication strategies. Further research is needed to explore the long-term implications of emoji-based communication on language evolution and social interaction. Studies could also investigate the integration of emojis across different cultures and languages to understand their impact on global communication practices. Additionally, future work could look into the development of new pictograms and their integration into the standard lexicon of digital communication, examining how these developments influence user interactions and language use.

Acknowledgments

Not applicable.

Authors contributions

Assist. Prof. Dr. YSB and Prof. Dr. EA were responsible for study design and revising. Assist. Prof. Dr. YSB was responsible for data collection. Prof. Dr. YO drafted the manuscript and Dr. YG revised it. All authors read and approved the final manuscript. In this paragraph, also explain any special agreements concerning authorship, such as if authors contributed equally to the study.

Funding

This research received no external funding.

Competing interests

The authors declare no conflicts of interest.

Informed consent

Obtained.

Ethics approval

The Publication Ethics Committee of the Redfame Publishing.

The journal's policies adhere to the Core Practices established by the Committee on Publication Ethics (COPE).

Provenance and peer review

Not commissioned; externally double-blind peer reviewed.

Data availability statement

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Data sharing statement

No additional data are available.

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