



## Exploring WhatsApp as Teaching and Learning Activities during Covid-19/New Normal era: A Semiotic Technology Analysis

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**ABSTRACT:** In the landscape of modern education, the integration of technology, particularly within language learning, has gained substantial scholarly attention. Among digital platforms, WhatsApp has undergone a notable transformation, evolving from a basic messaging application to a versatile social hub. Its role expanded significantly during the Covid-19 pandemic, becoming a pivotal tool for online teaching and learning activities, prevalent not only in higher education but also across secondary levels. While existing studies have predominantly focused on user interaction within WhatsApp, limited attention has been directed toward the technical aspects or the application's usage in the teaching and learning process. This research aims to comprehensively explore WhatsApp's potential as a facilitator for English language studies, employing a semiotic multimodal analysis approach guided by Poulsen's seminal work on semiotic technology. The study delves into WhatsApp's intricate network of semiotic resources, semiotic regimes, and interactions, unveiling the complex interplay between language elements, multimodal features, and cultural aspects within this digital realm. Through the lens of semiotics, multimodal studies, and social semiotics, this investigation endeavors to offer a holistic understanding of WhatsApp's use as an educational tool, shedding light on its multifaceted role in contemporary educational contexts.

**KEY WORDS:** Covid-19/New normal, Multimodal analysis, Online learning, Semiotic Technology, Social Media, WhatsApp.

### INTRODUCTION

In modern education, the fusion of technology and language learning has garnered significant attention from scholars (Chapelle, 2001; Warschauer, 2000). Digital platforms have transformed the landscape of language learning, highlighting the increasing significance of technology in facilitating language acquisition. WhatsApp, initially a basic messaging app, has evolved into a versatile hub for social interaction (Levy, 2009; Thurlow & Brown, 2003; Weda et al., 2023). During the Covid-19 pandemic, it became a prominent tool for online teaching and learning, extensively used not only in higher education but also in secondary level education (Suryana et al., 2021; Rahman & Weda, 2018.; Amalia et al., 2022). Both teachers and students prefer WhatsApp over platforms like Google Classroom or Zoom (Munir et al., 2021; Atmojo, & Nugroho, 2020; Febrianto et al., 2020). For instance, research by Supeno et al. (2019) revealed that among 120 students surveyed, 100 favored WhatsApp as the most accessible and affordable online learning platform (Supeno et al., 2019). While these studies have all contributed to the study of WhatsApp as media learning for online teaching and learning activities during Covid-19/new normal era, each field have only contributed to the "user interaction" of WhatsApp. Little attention were given to the technical or the use of WhatsApp itself in the process of teaching and learning. Therefore, this study aims to comprehensively explore WhatsApp's potential as a facilitator for English language studies using a semiotic multimodal analysis approach (Kress & van Leeuwen, 2001; Poulsen, 2021; Rahman et al., 2019). Guided by Poulsen's seminal work on semiotic technology, this investigation delves into the intricate network of semiotic resources, semiotic regimes, and interactions within WhatsApp's digital landscape. The objective is to unveil the complex interplay between language elements, multimodal features, and cultural aspects within this digital realm, shedding light on its role as an educational tool for language learning. By synthesizing insights from semiotics, multimodal studies, and social semiotics (Kress, 2010; Jewitt & Kress, 2003; Sukmawaty et al., 2022), this study endeavors to offer a comprehensive understanding of the use WhatsApp as an online tool for learning. The aim is to illuminate the interconnectedness between WhatsApp's multimodal features and the intricate process of language learning in contemporary educational contexts.



## SEMIOTIC TECHNOLOGY

### Semiotic Technology

Studies on semiotic technology have explored various applications, with researchers employing interdisciplinary methods and theories such as platform studies, discourse analysis (Zhao & Zappavigna, 2018; Zhao & van Leeuwen, 2014; Djonov & van Leeuwen, 2018), communication and media studies (Adami, 2018), social semiotics (Poulsen, Kvåle, van Leeuwen, 2018), and multimodality (Poulsen, 2018, 2021). Semiotic technology, as a concept, refers to technological platforms facilitating diverse communication and interaction means among individuals. (Poulsen et al., 2018) It encompasses any technology designed for meaning-making, embedding potential for creating meaning through various semiotic modes like layout, texture, color, sound, and more. As an object of study, semiotic technology focuses on understanding the embedded semiotic resources within technological platforms, their utilization in both semiotic and broader societal contexts, and the historical evolution and narratives surrounding these technologically mediated resources within the realm of technology (Poulsen, 2021; Muchtar et al., 2023; Andini et al., 2022). While researchers in the field of semiotic technology have extensively elucidated the framework for studying social media as semiotic technology, particularly in classroom discourse (Zhao & Zappavigna, 2014), their focus has predominantly centered on applications explicitly designed for teaching and learning discourse within classroom settings. However, amidst the shift to online learning in Indonesia during the COVID-19 pandemic, educators have resorted to utilizing applications they are most acquainted with, such as WhatsApp, as the primary medium for teaching and learning. This shift in discourse sparks heightened interest in the study of semiotic technology because WhatsApp, renowned primarily as a messaging app, is now being used predominantly as a teaching and learning platform. Consequently, this transition is expected to yield intriguing insights into the discourse and artifacts employed by teachers to adapt the platform's functionalities in a semiotic context, considering its transformation from a messaging tool to a pivotal educational resource.

Therefore, there is an urgent need for research contributing to the field of education by critically analyzing the usage of applications in online study, emphasizing the significance of a social semiotic approach in comprehending how technology is utilized to generate and convey meaning in educational settings. This research would provide valuable insights into the negotiation of meaning between software designers, teachers, and also student across diverse social contexts and elucidate its impact on the construction and transmission of knowledge within the classroom.

### Existing research on WhatsApp as a platform for online learning

The existing research on WhatsApp has primarily focused on understanding the perceptions of both students and teachers, along with evaluating its effectiveness in facilitating communication activities within the application. Recent studies have extensively discussed user communications within WhatsApp from a multimodal perspective (Hasyim & Arafah, 2022, 2023), examined the perceptions of students and teachers from an educational perspective (Hendrawaty et al., 2021; Budianto & Arifani, 2021), and assessed the application's efficacy (Hartatik & Lestari, 2021).

While these studies offer valuable insights, they have predominantly overlooked the technological aspects of WhatsApp, specifically addressing how its features were used and technical functionalities in supporting the teaching-learning process. The perception and experiences of WhatsApp users can vary based on the students' circumstances, indicating the necessity for a fresh perspective in these studies. Therefore, there is a pressing need to delve into the technical functionalities of WhatsApp and its role in accommodating the teaching-learning dynamics, offering a new dimension to our understanding of its use in educational settings.

## METHODOLOGY

This research used semiotic technology approach to study how WhatsApp incorporates semiotic resources for accommodating teaching-learning activities during online classroom. Semiotic technology study involves looking at how technology, like apps or digital tools, is used to create and convey meanings in our everyday lives. (Poulsen et al., 2018, 2021) explores how semiotic resources such as symbols, images, sounds, and other multimodal elements in these technologies help us understand and communicate information. To analyze the potential of WhatsApp as learning platform, this study will utilize seven interrelated and mutually informing dimensions of multimodal framework studying social media developed by Poulsen and Kvåle to find out how WhatsApp were used and the ability of WhatsApp to perform in online learning. The seven dimensions are Multimodality, Practice, The social, Medium, The material, The historical, and The critical.



These dimensions are crucial for understanding how social media technology enables the making, enacting, and managing of meaning. The framework takes a holistic approach to social media technology, considering its design, use, and impact on broader social, cultural, and historical practices. By analyzing social media technology through these seven dimensions, the framework provides a comprehensive understanding of the complex interplay between technology, meaning-making practices, and social contexts.

This research utilize a Literature Review approach to scrutinize research endeavors by various scholars, thereby contributing to addressing the research inquiries (Fink, 2019). Descriptive analysis will present the Semiotic Technology articles in a detailed and explanatory manner. Following Fink's perspective (2010, 2019), descriptive analysis encompasses critical analyses focusing on: 1) the review's objective, 2) the employed methodologies, 3) the obtained outcomes, 4) the resulting conclusions, and 5) the inherent limitations.

**RESULT AND DISCUSSION**

Social media (thus WhatsApp), initially designed for social communication, has proven adaptable for educational purposes (Gonulal, 2019). While applications like Instagram were not explicitly mentioned by Gonulal, WhatsApp and Instagram share the appeal of mobility and accessibility, making them popular among students and educators (Gonulal, 2019). This portability and accessibility align with the concept of Universal Design mobile application, as described by Ranger (2007), ensuring that mobile learning tools are accessible to a broad range of users.

**Table 1.** Key features of WhatsApp in 2023. Adapted from Poulsen & Kvale (2018)

Technical Function		Semiotic Function	
Feature Category	Functions	Mode of Representation	Meaning Potentials
Messaging	Text messaging, group chats, voice messages	Two speech bubbles, Microphone, Camera, Phone, and Video Icons (Representamen) (Burks & Peirce, 1949)	Symbolize ongoing conversations between users, recording voice messages, sending media, initiating calls, and starting video calls.
Media Sharing	Sending photos, videos, GIFs, documents, and locations	Paperclip icon, Square shape icon akin to a sticky note with a folded corner at the bottom right corner.	The square-shaped sticker icon symbolizes supplementary content or additional information linked to the conversation, akin to adding a note or emphasizing the use of stickers.
Voice and Video Calls	Individual and group voice and video calls	Represented by icons depicting a phone receiver and a video camera.	Represent the functionality within WhatsApp that allows users to initiate voice conversations or video chats with their contacts in real-time.



Status Updates	Sharing temporary photos, videos, or text as status updates	Circular icon resembling a person's silhouette	Representation of transient or temporary information. symbolizes a fleeting or short-lived sharing of moments, activities, or updates among users within their WhatsApp network.
WhatsApp Web/Desktop	Accessing WhatsApp from a computer's web browser	The icon for WhatsApp Web/Desktop is typically a simple representation of a computer monitor or screen with a phone icon or WhatsApp logo inside it.	This icon essentially embodies the accessibility, versatility, and extended reach of WhatsApp by facilitating its use on larger screens or through desktop applications, enhancing the overall user experience.
End-to-End Encryption	Securing messages and calls for privacy	The End-to-End Encryption icon typically symbolizes a lock.	Indicate privacy and security in communication.

The details illustrated in figure 1 present a comprehensive overview of the numerous functions within the WhatsApp messaging application. It divides into two main categories: the technical attributes and their functions within WhatsApp. Moreover, it delves into the Semiotic Function, detailing how icons symbolize and their intended meanings. This table was modified from Poulsen's and Kvåle's framework titled "Semiotic analysis of selected tool in the Instagram image editing interface" (2018), focusing on the technical and semiotic characteristics of various features.

The most commonly used functions among teachers and students on WhatsApp are Messaging, Media Sharing, and Voice and Video Calls (Ramdhani, 2021). These functions are referred to as Semiotic Resources in the context of semiotics (Leeuwen, 2005). According to Van Leeuwen (2005), semiotic resources are vital for examining social semiotics (thus Semiotic Technology). He describes semiotic resources as actions and "artefacts" people use to communicate, including facial expressions, gestures, and technological tools. Building upon this concept, Zhao and van Leeuwen (2014) elaborate that a semiotic artefact is a tangible or virtual object that combines various semiotic modes and media to convey meaning along with other forms of semiotic resources.

1. Multimodal dimension

When discussing the different aspects of communication explained by Poulsen and Kvåle (2018), it's crucial to highlight the Resource and Semiotic Regimes of the application. These Semiotic Regimes, outlined by Leeuwen (2005) and elaborated further by Zhao (2014) and Poulsen and Kvåle (2018), denote regulations for how symbols are used in an app's design. These regulations are embedded within social media technology, often established by software developers rather than users. Users usually cannot alter these rules. WhatsApp's appearance and functions are intentionally crafted by developers to be user-friendly. The design, known as Material Design and developed by Google, gives WhatsApp a neat and contemporary look. Material Design incorporates vivid colors, distinct typography, and uncomplicated layouts. This design enables users to effortlessly exchange text messages, voice messages, photos, videos, and files. Additionally, the app facilitates group conversations, voice and video calls, and status updates (Material Design, 2023).

However, the design and functionalities of WhatsApp aren't directly adjustable by individual users. Due to its widespread usage among students and educators in Indonesia, its intended use sometimes transforms into a makeshift learning management system, especially during the transition from the Covid-19 period to the new normal. This shift alters WhatsApp's traditional role from a platform primarily for multimodal communication to an educational tool. This adaptation aligns with van Leeuwen's concept of



Semiotic Regimes (2005, 2008), particularly the notion of Tradition. Tradition refers to implicit rules influenced by cultural norms and practices. For instance, specific content may be more acceptable on certain social media platforms due to cultural expectations. While app developers have a significant influence on usage patterns, societal norms also have the power to modify these practices. WhatsApp's embedded features support Interactive Multimodal Platforms (Georgakopoulou & Spilioti, 2015).

## 2. Practice dimension

WhatsApp, an app for sending text, voice messages, images, and videos to others using the same app, sees varied use based on situations and users involved. Some prefer it for personal chats, while others use it professionally. For education, WhatsApp's ability to support diverse communication forms within chats or threads is crucial. Herring's ideas on Interactive Multimodal Platforms (IMPs) (Georgakopoulou & Spilioti, 2015) align with this, emphasizing different media—audio, video, or graphics—in interactions beyond text. WhatsApp stands as an example of an IMP on mobile devices by facilitating diverse media exchanges within a single conversation. Hence, teachers and students in Indonesia favored WhatsApp for teaching and learning due to its versatile communication features.

## 3. The social dimension

The practice dimension of WhatsApp involves understanding how the app is employed across various contexts, shaping the meanings it embodies. Among the features often used by students and educators are video calls, voice calls, group messaging, voice messages, document sharing, polls, and quizzes. Group chats, a significant social construct within WhatsApp, facilitate the organization of social communities, allowing negotiations regarding norms like privacy, etiquette, and social conduct. This functionality enables teachers to engage students within WhatsApp groups while maintaining expected classroom behaviors. Additionally, status updates, although infrequently used for learning activities, enable users to share multimedia and text, influencing social identities and cultural practices among students and teachers. Lastly, WhatsApp's voice and video call features, alongside document sharing, polls, and quizzes, enable real-time synchronous communication and interactive learning experiences. These synchronous interactions mimic traditional face-to-face teaching practices, fostering seamless teacher-student communication and collaborative learning.

## 4. Media dimension

WhatsApp, usually known for messaging, has become crucial for education in Indonesia during COVID-19. It's more than a chatting app now. It mimics traditional teaching methods using texts, voice notes, and video calls. This app helps teachers explain well and students learn better. It's a big change from how teaching was done before. Teachers and students use WhatsApp for many things, like talking in real-time, working together on projects, sending assignments, and getting feedback quickly.

WhatsApp has different ways to show things visually, like emojis, stickers, and sharing videos or pictures, which helps teachers teach better and students understand more. It's transformed how education works, making remote learning possible. But in Indonesia, some problems like internet issues and cultural differences affect how well it works. Teachers need to adjust their methods to deal with these challenges.

In short, WhatsApp's flexible features and easy ways to communicate have become essential for education during the pandemic. It's not just a messaging app anymore. It links real and online classes, changing how teaching happens and making learning more interactive and accessible for everyone.

## 5. Material dimension

WhatsApp was widely used as an educational tool during the COVID-19 period in Indonesia and had various aspects that made it helpful for teaching and learning. In terms of the Material Dimension, WhatsApp being available on phones made a big impact. People could use it privately on their mobiles, and this affected how teachers and students interacted, especially as mobile screens are small and allowed for both online and offline activities. Talking about the Media Dimension, WhatsApp's different features, like messages, calls, and sharing documents, were crucial for sharing educational stuff. Teachers and students could talk, share, and learn together using these tools. Group chats were also important for setting rules and privacy among learners and teachers. Considering Social Construction, group chats were key for setting rules and sharing information. While WhatsApp updates were not used much for education, they sometimes helped share important educational news. Looking at Semiotic Technology, WhatsApp's way of letting people chat and talk in real-time was vital for remote learning. This helped keep teaching similar to face-





to-face classes during online sessions.

## 6. Historical dimension

WhatsApp became a vital tool for education during the COVID-19 pandemic in Indonesia. It shifted from its original use for personal chats to becoming a way for teachers and students to keep learning during school closures. This change happened quickly and allowed for remote teaching. WhatsApp's flexibility was key in this switch. Its features like group chats, file sharing, video calls, and voice messages were used by teachers to conduct classes, share materials, and communicate with students. This helped keep lessons going despite the pandemic. This shift shows how WhatsApp changed its role in education in a short time. It adapted well to the new needs of teachers and students during a challenging period. It wasn't just about communication. WhatsApp became a platform for learning too. It moved beyond chatting to support real-time teaching. Its use of various media like text, images, and videos helped in these educational interactions. The app's easy access through phones was important. It allowed private connections and made learning possible both online and offline. This adaptability helped keep education going despite the challenges posed by the pandemic. At last, WhatsApp quickly transformed into an essential tool for education during the COVID-19 era in Indonesia. Its ability to adapt, its change in how it's used for education, and its accessibility through mobile devices made a big difference in keeping education going during tough times.

## 7. The critical dimension

WhatsApp became very important for education during COVID-19 in Indonesia. It changed from a regular messaging app to a tool for teaching and learning. Teachers used its features like group chats, sharing files, and video calls to teach and interact with students. This change showed how flexible WhatsApp could be for education in different situations. Its use on phones helped keep learning going, allowing private talks and connecting people in different ways for education. WhatsApp's big role during the pandemic showed how it evolved to help with teaching and learning. Its different tools were very useful for teachers to teach and communicate with students. The app worked well in many kinds of educational situations and was available on phones, making it a good choice for learning. WhatsApp's support for education during COVID-19 was because it changed from a regular app to a helpful tool for teaching and learning. Teachers and students used it in different ways, and it was available on phones, making it useful for learning.

## CONCLUSION

The integration of WhatsApp into educational contexts during the COVID-19 pandemic in Indonesia marked a significant shift in its role from a conventional messaging application to an indispensable tool for teaching and learning. While prior research primarily focused on user interaction within WhatsApp, this study delved deeper into the technical aspects and functionalities of WhatsApp itself in facilitating language education. The exploration was guided by a semiotic multimodal analysis approach, illuminating the intricate network of semiotic resources and interactions within WhatsApp's digital landscape.

Through the lens of semiotic technology, this study unveiled WhatsApp's evolution and adaptability, showcasing its transformation into an essential educational platform. WhatsApp's flexibility in accommodating diverse communication forms—text, voice messages, images, videos, and calls—was pivotal in enabling interactive and dynamic teaching-learning experiences. The app's functionalities, categorized into different dimensions, demonstrated its multifaceted role as an educational facilitator, transcending its conventional usage.

The discussion of WhatsApp across seven dimensions - Multimodality, Practice, Social, Media, Material, Historical, and Critical - provided a comprehensive understanding of its impact on language learning. WhatsApp's role as an Interactive Multimodal Platform, its adaptability in diverse contexts, and its support for synchronous learning experiences were highlighted within the Multimodal dimension. The app's embedded design, semiotic resources, and functionalities were explored within the context of Semiotic Regimes and Tradition, shedding light on its transformation into an educational tool. Additionally, WhatsApp's various features, such as group chats, media sharing, and status updates, fostered social interactions and enhanced teaching-learning dynamics within the Social dimension.

The Material dimension emphasized WhatsApp's accessibility through mobile devices, enabling seamless educational continuity and diversified learning opportunities. Furthermore, the app's historical evolution during the pandemic showcased its swift adaptation and pivotal role in sustaining education in challenging times. WhatsApp's critical dimension highlighted its transformative journey from a conventional messaging app to an invaluable educational resource, proving its efficacy and



adaptability in meeting the evolving needs of educators and students.

In summary, WhatsApp's pivotal role in education during the pandemic underscored its evolution from a communication tool to a versatile educational platform. Its seamless integration of various modalities, accessibility, and adaptability made it instrumental in ensuring the continuity of language learning amidst unprecedented challenges. As WhatsApp continues to evolve, its dynamic functionalities and adaptability remain essential in shaping contemporary language education paradigms in Indonesia and beyond.

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