

Public Attitudes Toward ChatGPT in Türkiye: Evidence from Instagram Sentiment Analysis

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Abstract: ChatGPT has rapidly emerged as one of the most widely used generative AI applications globally, and its adoption has expanded considerably in Türkiye. As individuals increasingly rely on ChatGPT for information, education, creativity, and problem-solving, understanding public perceptions of this technology has become essential for both academic research and policy development. However, systematic empirical evidence on how Turkish users perceive and emotionally respond to ChatGPT remains limited. This study examines public attitudes toward ChatGPT in Türkiye through sentiment analysis of Instagram user-generated content shared between 2022 and 2025. By analysing captions, comments, and replies related to ChatGPT, the research seeks to identify prevailing emotional patterns in online discourses. The study employs sentiment classification techniques to determine whether public discourse is predominantly positive, negative, or neutral. By utilizing social media as a primary data source, this research contributes to a deeper understanding of how emerging AI technologies are perceived within the Turkish context. The findings contribute to academic discussions on human-AI interaction and provide empirical evidence for future research on public perceptions of generative AI.

Keywords: ChatGPT, Sentiment Analysis, Social Media, Public Perception, Generative AI

1. Introduction and Background

In recent years, rapid advancements in artificial intelligence have led to the widespread integration of generative AI applications into everyday life. In this context, systems based on large language models such as ChatGPT have assumed a significant role in information access, education, content creation, and problem-solving processes. The rapidly growing global user base demonstrates that these technologies are not merely technical innovations but also integral components of broader societal transformation (Dwivedi et al., 2023). In Türkiye, increasing digitalization and the extensive use of social media have contributed to a noticeable rise in interest toward ChatGPT. This trend highlights the importance of examining users' perceptions and attitudes toward such technologies.

Public attitudes toward emerging technologies play a crucial role in their adoption and sustainable use. Particularly in the context of artificial intelligence systems, factors such as trust, concern, and expectations play a direct role in shaping users' experiences (Glikson & Woolley, 2020). Social media platforms provide rich and dynamic data sources where individuals spontaneously express their opinions, emotions, and experiences regarding such technologies. Accordingly, the analysis of user-generated content has emerged as a powerful approach for understanding public perception (Zhou et al., 2014). Despite the rapidly growing adoption of ChatGPT and other generative AI applications, empirical evidence regarding public perceptions of these technologies remains limited in non-Western contexts. Existing studies have primarily focused on English-language platforms, Western societies, or technology-oriented user groups, leaving important questions regarding cultural differences in AI acceptance unanswered. Nevertheless, the available literature provides valuable insights into general public attitudes toward ChatGPT and highlights several recurring patterns across different contexts.

Studies examining public perceptions of ChatGPT have generally reported predominantly positive sentiments. Analyses of Twitter/X data conducted by R et al. (2023), Talan et al. (2023), Tounsi et al. (2023), Erfina and Alamsyah (2023), Koonchanok et al. (2024), Gazaz and Ayyaz (2024), and Demirel et al. (2025), using datasets ranging from 5,000 to 1.1 million posts, consistently found that positive attitudes toward ChatGPT were more prominent than negative ones. Positive sentiments were commonly associated with trust, anticipation, productivity, and practical benefits, whereas concerns mainly focused on academic integrity, the potential decline of critical thinking skills, privacy, cybersecurity, and the misuse of AI technologies. In contrast to these global trends, Zhou et al. (2024) identified a predominantly negative attitude (55.92%) in an analysis of 28,122

Chinese web comments. Their findings highlighted social, technological, and educational concerns, with "improvement", "company", and "technology" emerging as the most prominent discussion topics.

Furthermore, existing evidence is derived predominantly from Twitter/X datasets and English-language environments, with only limited research examining Turkish-language content (e.g., Gazaz & Ayvaz, 2024). In contrast, Instagram—a platform characterized by distinct interaction patterns, communication styles, and audience demographics—remains substantially underexplored. To address this gap, the present study investigates public attitudes toward ChatGPT in Türkiye through sentiment analysis of Instagram captions, comments, and replies shared between 2022 and 2025. The analysis identifies dominant emotional trends in online discourse by classifying user-generated content as positive, negative, or neutral. Beyond describing the distribution of sentiments, the study explores the keywords associated with different sentiment categories, providing further insight into how ChatGPT is discussed on Instagram in Türkiye.

This study contributes to the literature in two ways. First, it extends research on public perceptions of generative AI beyond predominantly Western and English-language contexts. Second, it broadens the empirical scope of AI perception research by examining Instagram, a comparatively understudied social media platform. Overall, the findings contribute to academic discussions on human–AI interaction and provide a foundation for future research on public perceptions of generative AI.

Accordingly, the study addresses the following research questions:

RQ1. What is the overall sentiment toward ChatGPT on Instagram in Türkiye?

RQ2. How does sentiment vary across captions, comments, and replies?

RQ3. Which keywords are associated with positive, negative, and neutral sentiments toward ChatGPT?

2. Methodology

We conducted a sentiment analysis of Instagram user-generated content shared between 2022 and 2025 to examine public attitudes toward ChatGPT in Türkiye. The rapid growth of social networking platforms has stimulated research on methods for analysing user-generated content and extracting meaningful information from online interactions. Among these methods, sentiment analysis has become one of the most widely used approaches for identifying the opinions, emotions, and attitudes expressed in textual data. As a subfield of natural language processing (NLP), sentiment analysis aims to determine the polarity of a text, typically classifying it as positive, negative, or neutral. Because public opinion has long played an important role in decision-making, sentiment analysis has attracted considerable attention in both academia and industry and has continued to evolve over the past two decades. Depending on the level of analysis, sentiment analysis can be performed at the document, sentence, phrase, or aspect level. Figure 1 illustrates these different levels of sentiment analysis (Wankhade et al., 2022).

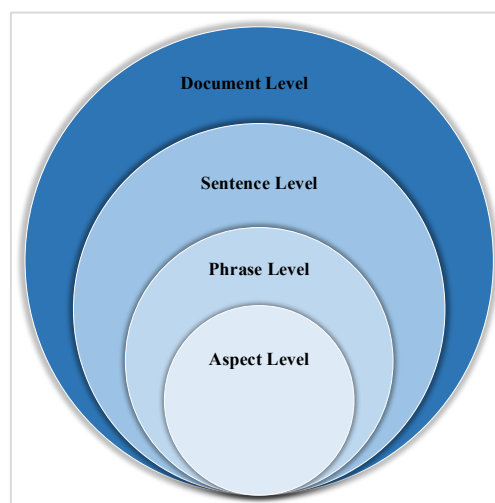


Figure 1: Levels of Sentiment Analysis

Source: Adapted from Wankhade et al. (2022).

The sentiment analysis process involves collecting textual data (e.g., reviews and social media posts), pre-processing the data (e.g., removing stop words and punctuation), applying classification models (e.g., rule-based, machine learning, or deep learning approaches), and interpreting the results to understand stakeholders' opinions and attitudes. The overall workflow of sentiment analysis is illustrated in Figure 2.

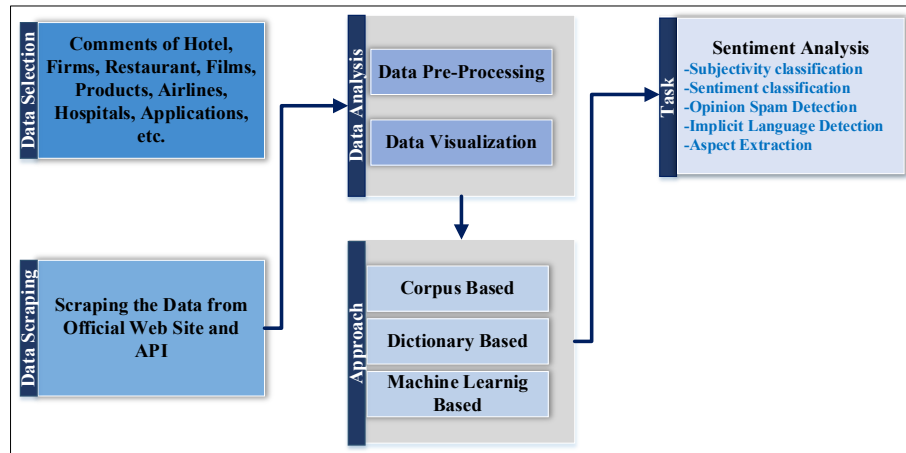


Figure 2: The General Outlines of Sentiment Analysis

Source: Adapted from Wankhade et al. (2022).

Sentiment analysis comprises several tasks, including subjectivity classification, sentiment classification, opinion spam detection, implicit language detection, and aspect extraction (Figure 2). In the present study, sentiment classification was employed to examine public attitudes toward ChatGPT in Türkiye.

2.1 Data Collection and Pre-processing

The initial step in sentiment analysis is data collection. Textual data can be obtained from various online sources, including social media platforms, news websites, e-commerce websites, online forums, weblogs, and other web-based platforms, often through web scraping techniques, as illustrated in Figure 2. To document the data collection procedure, we developed the flowchart shown in Figure 3, which illustrates the process used to identify and select the hashtags, posts, comments, and replies included in the analysis. Specifically, the selection process consisted of four phases: specification, checking, suitability, and inclusion.

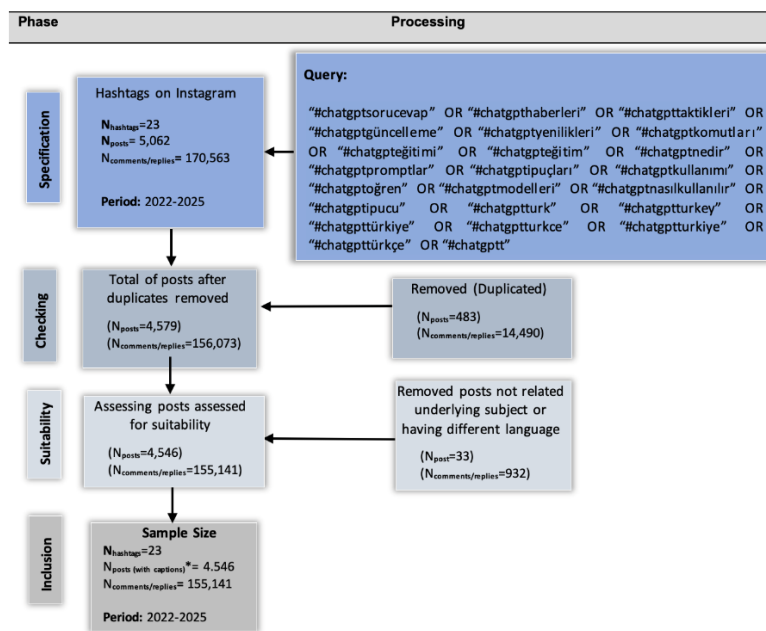


Figure 3: Flow Chart for Data Collection

(*): All posts in the sample have a caption.

Source: Adapted from Moher et al. (2009).

Specification: In the first stage, we developed a hashtag-based search query consisting of the following hashtags: "#chatgptsorucevap" OR "#chatgpthaberleri" OR "#chatgpttaktikleri" OR "#chatgptgüncelleme" OR "#chatgptyenilikleri" OR "#chatgptkomutları" OR "#chatgpteğitimi" OR "#chatgpteğitim" OR "#chatgptnedir" OR "#chatgptpromptlar" OR "#chatgptipuçları" OR "#chatgptkullanımı" OR "#chatgptöğren" OR "#chatgptmodelleri" OR "#chatgptnasılkullanılır" OR "#chatgptipucu" OR "#chatgptturk" OR "#chatgptturkey" OR "#chatgpttürkiye" OR "#chatgptturkce" OR "#chatgptturkiye" OR "#chatgpttürkçe" OR "#chatgptt". The search targeted Instagram content related to ChatGPT in Türkiye and covered the period from 2022 to 2025. This process yielded 23 hashtags, 5,062 posts, and 170,563 comments and replies.

Checking: In the second stage, the collected dataset was standardized. Duplicate posts (483) were identified and removed based on the permalink (platform shortcode) assigned to each post. The resulting dataset comprised 4,579 posts and 156,073 comments and replies.

Suitability: In the third stage, the posts were screened to determine whether they were relevant to the research topic and written in Turkish. A total of 33 irrelevant posts were excluded, resulting in a dataset of 4,546 posts and 155,141 comments and replies.

Inclusion: In the final stage, the dataset consisted of 23 hashtags, 4,546 posts (including captions), and 155,141 comments and replies collected between 2022 and 2025 for pre-processing.

During pre-processing, 20,977 comments and replies were excluded from the analysis because they consisted of five or fewer characters, contained only emojis or abbreviations, or included profanity. Subsequently, stop words, punctuation marks, and other non-informative textual elements were removed. Descriptive statistics of the final sample are presented in Table 1.

Table 1: Descriptive Statistics of the Sample

Description	Statistics
Timespan	2022-2025
<i>Number of</i>	
Posts	4,546
<i>Text block — comment</i>	93,839
<i>Text block — reply</i>	40,325
<i>Total comment and reply</i>	134,164
Grand Total	138,710

2.2 Tools for Sentiment Analysis

The sentiment analysis was performed in Python 3.14.3 using the Turkish BERT model (Yildirim, 2024). The BERT models provide an accuracy and positive outcomes for text classification in sentiment analysis (Chiorrini et al., 2021). The analysis environment incorporated widely used libraries, including pandas for data handling, transformers and torch for sentiment classification, and matplotlib and seaborn for data visualization. Additionally, the wordcloud library was used for lexical visualization, while the analysis outputs were exported to Microsoft Excel format using openpyxl.

3. Results

To examine public attitudes toward ChatGPT in Türkiye through sentiment analysis of Instagram user-generated content shared between 2022 and 2025, we used the Turkish BERT model (Yildirim, 2024). Figure 4 presents the sentiment analysis results, categorized as positive, negative, and neutral. The results are reported using both frequency counts and percentage distributions.

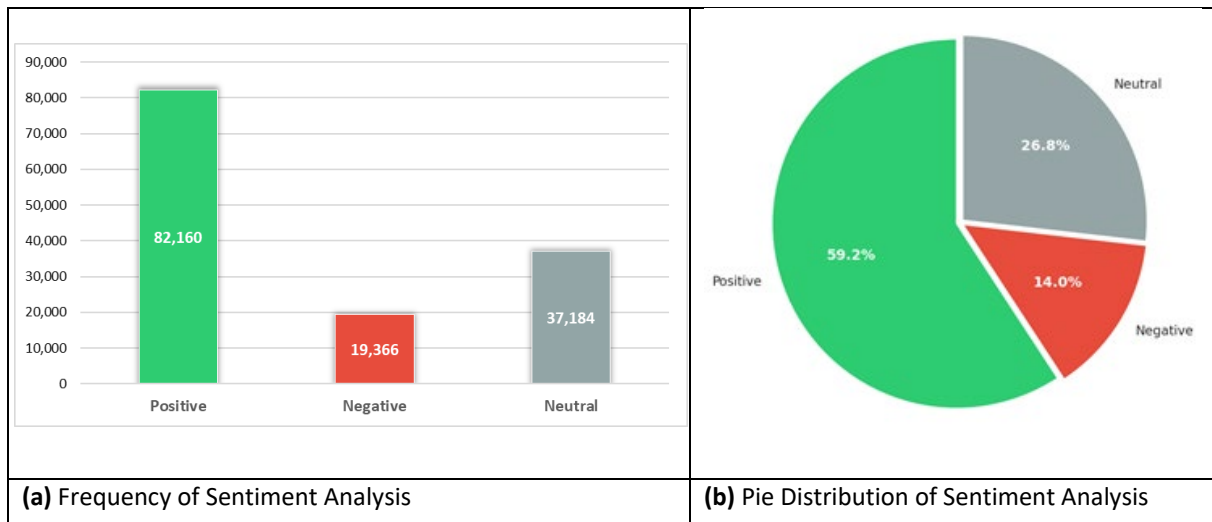


Figure 4: The Frequency of Pie Distribution of Sentiment Analysis

Figure 5 presents the sentiment distribution across three sources—captions, comments, and replies—using a 100% stacked horizontal bar chart to illustrate the relative proportions of positive, negative, and neutral sentiments within each category.

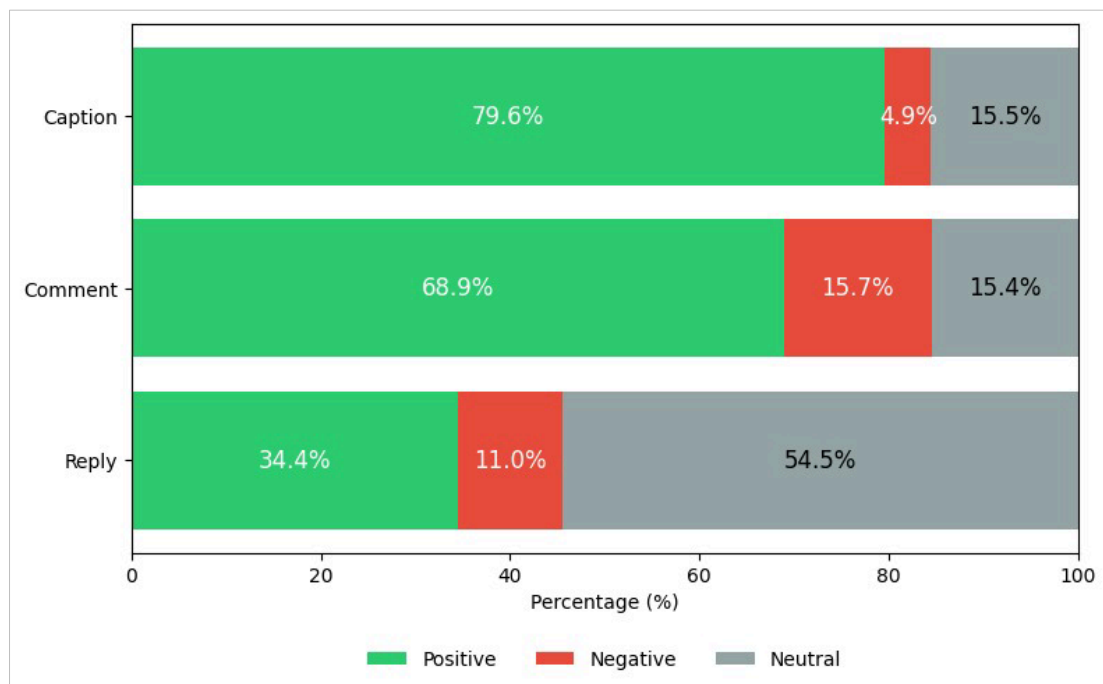


Figure 5: The Results of Sentiment Analysis by Source

Figure 5 shows that primary content (captions) is predominantly positive. As user interaction becomes more direct, moving from general comments to specific replies, the percentage of neutral sentiment increases, whereas the percentage of positive sentiment decreases. Although replies exhibit a lower percentage of positive sentiment than captions, they also show a lower percentage of negative sentiment than comments.

Figure 6 presents a linguistic analysis of the dataset through two visualizations: a horizontal bar chart displaying the frequencies of the 30 most frequent terms and a word cloud illustrating their relative prominence.

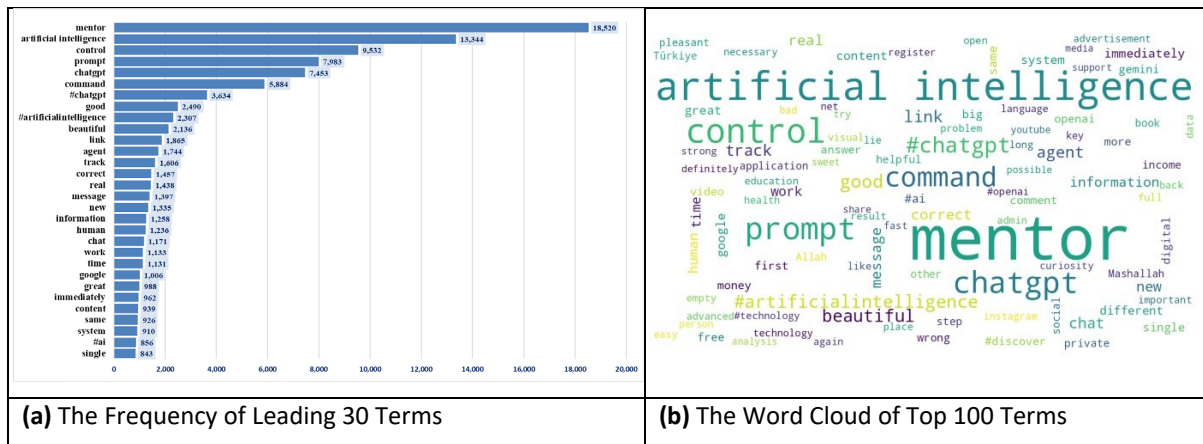


Figure 6: The Frequency of the Leading 30 Terms of The Word Cloud Top 100 Terms

The combination of these two visualizations indicates that the analysed content is strongly centered on artificial intelligence interaction and mentorship. Notably, the term "mentor" is by far the most frequently occurring word in the dataset, appearing 18,520 times (Figure 6(a)). This substantial frequency suggests that Turkish Instagram users predominantly perceive and engage with ChatGPT as a mentor, educational assistant, or advisor, rather than merely as a conventional chatbot. Terms such as "control" (9,532), "prompt" (7,983), and "command" (5,884) frequently appear in the dataset, reflecting a strong emphasis on active AI management and user interaction (Figure 6(a)). Their high frequency indicates that discussions are primarily concerned with the practical aspects of using AI, particularly how to guide its behaviour and control its outputs. As expected, core domain-specific terms, including "artificial intelligence" (13,344), "chatgpt" (7,453), and the hashtags "#chatgpt" (3,634) and "#artificialintelligence" (2,307) are also highly prominent, confirming that the dataset is closely aligned with the intended research focus. Furthermore, the frequent occurrence of positive adjectives such as "good" (2,490), "beautiful" (2,136), and "great" (988) provides additional linguistic evidence supporting the predominantly positive sentiment identified in the previous analysis. Finally, terms including "agent" (1,744), "message" (1,397), "information" (1,258), and "human" (1,236) highlight the conversational and information-driven nature of these interactions, suggesting that users frequently discuss the interface between human queries and AI-generated responses.

Figure 7 provides a detailed breakdown of the 30 most frequent terms in the dataset, showing their proportional distribution across three sources: captions, comments, and replies.

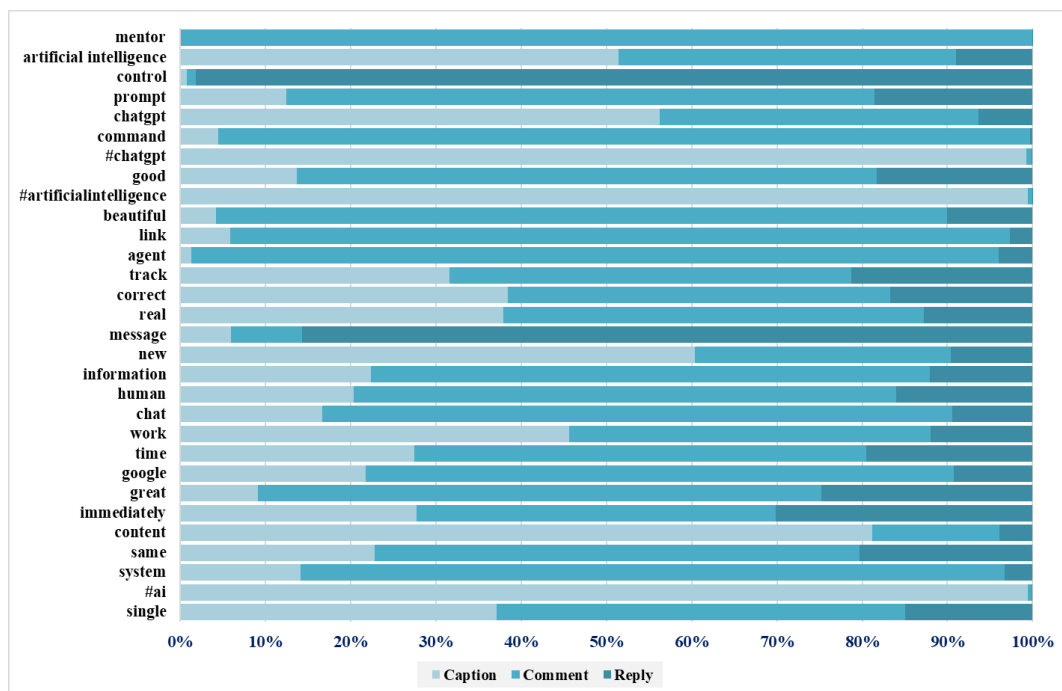


Figure 7: Leading 30 Terms Stacked Bars by Source

Figure 7 suggests a functional division in how these terms are used across different interaction types. Captions primarily serve to label and categorize content. Hashtags such as "#chatgpt", "#artificialintelligence", and "#ai" are found almost exclusively in captions. Likewise, core terms such as "chatgpt" and "artificial intelligence" are most prevalent in this category, indicating that captions primarily define the subject matter of posts. Comments function as the primary space for user-driven instructions, feedback, and mentorship. Notably, "mentor"—the most frequently occurring term in the entire dataset—appears almost exclusively in comments. Other instructional terms, such as "command" and "prompt", together with evaluative words like "good", also occur predominantly in this category, reflecting users' engagement in providing guidance, requesting assistance, and assessing AI-generated content. Replies, in contrast, are characterized by more direct, task-oriented interactions. The term "control" appears almost exclusively in replies, suggesting that this communication layer is used for monitoring, refining, or managing ongoing interactions. Similarly, terms associated with direct communication, such as "message", are disproportionately represented in replies, highlighting their role in facilitating focused follow-up exchanges between users.

Figure 8 visualizes the most frequently occurring terms in Instagram comments classified as expressing positive sentiment. The most striking feature of the word cloud is the overwhelming prominence of the term *mentor*, which stands out alongside key terms such as "artificial intelligence", "chatgpt", "prompt", "command", "link", and "beautiful". This pattern suggests that positive interactions are strongly associated with mentorship-related discourse, as well as discussions of AI tools, instructional guidance, resource sharing, and favourable evaluations.

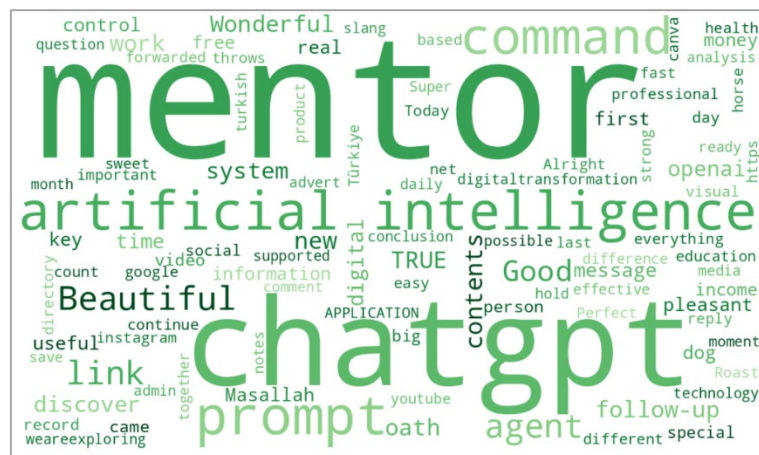


Figure 8: Word Cloud-Positive Sentiment

Figure 9 presents a visual synthesis of the most frequently occurring terms in Instagram comments classified as expressing negative sentiment. The word cloud reveals that "artificial intelligence", "chatgpt", "information", "person", "time", "wrong", and "lie" are among the most prominent terms. The co-occurrence of evaluative terms such as "wrong" and "lie" suggests that negative comments frequently center on concerns about the accuracy, reliability, and trustworthiness of AI-generated information.



Figure 9: Word Cloud-Negative Sentiment

4. Discussion and Conclusion

The sentiment analysis of Instagram captions, comments, and replies shared between 2022 to 2025 shows that the Turkish public's relationship with generative AI, particularly ChatGPT, has expanded significantly within Türkiye's digital environment. Using a fine-tuned Turkish BERT model, this study provides a detailed view of public sentiment, language use, and interaction dynamics across Instagram content.

The results indicate that positive sentiment substantially outweighs negative sentiment, with 86% of the analysed content classified as either positive or neutral. These findings are consistent with the Stanford Artificial Intelligence Index Report (Stanford HAI, 2025), which shows that Turkish respondents have a more favourable view of AI products and services than the global average and rank above many countries in Europe and North America in terms of perceived benefits of AI. The report also indicates that levels of excitement about AI in Turkey are relatively high, while concerns remain moderate, placing Turkey among the countries where enthusiasm for AI is comparable to or exceeds concerns about its potential risks.

The prominence of words such as "mentor", "prompt", and "command" in the positive sentiment category suggests that users tend to perceive AI as a supportive, interactive, and knowledge-enhancing technology. The prominence of "mentor" aligns with recent research indicating that generative AI is increasingly viewed as a learning companion and cognitive assistant capable of facilitating problem-solving and personalized guidance (Kasneji et al., 2023). The frequent occurrence of "prompt" and "command" further highlights the collaborative nature of human-AI interaction, emphasizing users' awareness that the quality and usefulness of AI-generated outputs depend on effective instructions and iterative engagement. Rather than passively consuming information, users appear to actively shape AI responses through prompting practices, reflecting the growing importance of prompt literacy in the use of generative AI technologies (Dwivedi et al., 2023). Collectively, these findings suggest that Turkish Instagram users increasingly view ChatGPT and artificial intelligence as interactive partners that support knowledge acquisition, creativity, and everyday problem-solving rather than as static technological tools. The presence of "beautiful" among the most frequently used words suggests that Turkish Instagram users' positive attitudes toward ChatGPT encompass both emotional-aesthetic and functional-utilitarian dimensions. This finding indicates that the acceptance of artificial intelligence is shaped not only by performance expectations but also by users' satisfaction and feelings of admiration arising from their experiences with the technology. A rather unique and local finding within the positive cluster is the explicit appearance of the cultural term "Masallah" (Maşallah). In Turkish culture, "Maşallah" is an expression of admiration and praise used when witnessing something extraordinarily successful or impressive. Its presence in the positive sentiment dataset is highly indicative of Turkish cultural integration. This shows that users are translating their appreciation for the latest global technology into a traditional, local language to express genuine admiration and approval.

The dominance of the words such as "wrong" and "lie" within the negative sentiment category suggests that Turkish Instagram users' concerns about ChatGPT are primarily related to the accuracy, reliability, and trustworthiness of AI-generated information. The frequent appearance of "information" further indicates that users often associate negative experiences with misinformation, factual errors, or misleading responses. In addition, the presence of "person" and "time" may reflect concerns about the impact of AI on human roles and the time required to verify generated content. Together, these findings suggest that negative perceptions of ChatGPT are driven less by the technology itself and more by concerns regarding information quality, trust, and the broader implications of AI use in everyday life. These concerns are consistent with a growing body of research highlighting the limitations of large language models, particularly their tendency to generate inaccurate or fabricated information, commonly referred to as AI hallucinations (Ji et al., 2023), and the broader challenges these systems pose for trust, transparency, and information reliability. Users' concerns regarding verification and accuracy may also reflect the additional cognitive and temporal effort required to assess AI-generated outputs before relying on them in everyday contexts.

At the same time, positive sentiment should not be interpreted as unconditional acceptance. The coexistence of trust-related concerns alongside predominantly favourable attitudes suggests that Turkish users may simultaneously appreciate the benefits of generative AI while remaining cautious about its limitations, accuracy, and potential societal implications.

Finally, these findings indicate that public engagement with ChatGPT in Türkiye is characterized by active use, practical orientation, and predominantly positive sentiment. In addition to its empirical findings, this study contributes to the emerging literature on public perceptions of generative AI by extending research beyond English-language and Twitter/X datasets. By focusing on Instagram and Turkish-language discourse, it

demonstrates how cultural and platform-specific contexts shape the ways users interpret, evaluate, and integrate AI technologies into everyday communication practices. More broadly, the findings suggest that Türkiye is not merely adopting AI technologies but is actively domesticating them through local cultural meanings, linguistic practices, and everyday digital interactions.

This study has several limitations. First, the dataset is restricted to Instagram, a platform predominantly used by younger and more digitally engaged individuals. Consequently, the findings may not fully represent attitudes across the broader Turkish population. Second, Instagram's self-presentational nature may contribute to a more positive expression of attitudes than would be observed on other platforms. Third, although the fine-tuned Turkish BERT model achieved strong classification performance, automated sentiment analysis may not fully capture sarcasm, irony, humour, or context-dependent meanings that frequently occur in social media communication. Consequently, some nuances of user sentiment may remain undetected despite the robustness of the classification approach. Future research may extend this work through cross-platform analyses, longitudinal studies, and comparative investigations of public attitudes toward different generative AI systems across cultural contexts.

Ethics Declaration

Ethical review not required because of using secondary data.

AI Declaration

An AI tool was not used in the development of the paper.

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