

Foundations for AI Driven Communication Models Qualitative Analysis of Indonesian Language Adaptation E-Commerce

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ABSTRACT

In the rapidly evolving digital economy, effective communication between sellers and customers on e-commerce platforms plays a pivotal role in shaping user experience and satisfaction. This study explores the adaptation of the Indonesian language within these interactions, focusing on the linguistic styles, usage patterns, and communication challenges faced by sellers and customers. **Employing a qualitative** descriptive approach, data were collected from direct conversations and product descriptions on leading Indonesian e-commerce platforms. Findings reveal a dominant use of semi-formal and informal language styles, enhanced by abbreviations, emojis, and popular digital jargon, which collectively foster a sense of familiarity and responsiveness. However, balancing language standardization with the demands for fast and engaging communication remains a significant challenge. The results underline the critical need for communication models that can adapt to the dynamic nature of digital discourse while maintaining clarity and politeness. **This research lays** the groundwork for developing intelligent communication systems powered by artificial intelligence, which can effectively interpret and generate contextually appropriate language in e-commerce settings. **The insights gained** here offer valuable foundations for future work in creating AI-driven tools aimed at enhancing digital customer engagement and satisfaction through culturally and linguistically aware communication strategies.

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1. INTRODUCTION

In recent years, the rapid growth of e-commerce has transformed the retail and consumer interaction landscape globally, including in Indonesia [1, 2]. Leading platforms such as Tokopedia, Shopee, and Bukalapak

have become pivotal channels for sellers and customers to connect, transact, and build relationships [3]. As shown in Figure 1, the number of monthly active users on these e-commerce platforms continues to rise steadily, highlighting the increasing importance of digital marketplaces in the Indonesian economy [4, 5].

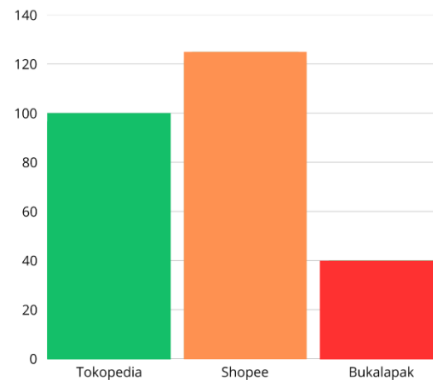


Figure 1. Number of Monthly Active Users on E-Commerce Platforms

Effective communication within this environment hinges largely on the use of the Indonesian language, which serves as the primary medium for conveying product information, negotiating prices, and resolving customer inquiries [6, 7]. Unlike traditional communication, interactions on e-commerce platforms demand language that is both fast and clear, yet still engaging and culturally appropriate. This has driven a shift in language usage from strictly formal to a blend of semi-formal and informal styles that better suit the expectations and behaviors of digital consumers [8, 9]. Figure 2 illustrates the relationship between language style and customer satisfaction, revealing that semi-formal and informal language styles are more effective in attracting and retaining customers by striking a balance between friendliness and politeness [10, 11]. This adaptive use of language often incorporates abbreviations, emojis, and popular digital jargon, which create a more relaxed and personalized communication atmosphere. Nevertheless, this flexibility introduces challenges such as maintaining language clarity, politeness, and preserving the linguistic identity amidst globalization and the infusion of foreign terms [12, 13].

Understanding these communication patterns is essential to developing AI-driven communication models that can effectively interpret and generate context-aware, culturally sensitive language in e-commerce settings. By qualitatively analyzing Indonesian language adaptation in seller-customer interactions, this study aims to provide foundational insights that support the design of intelligent systems capable of enhancing digital customer engagement and satisfaction [14, 15]. This study also aligns with the United Nations' Sustainable Development Goals (SDGs), particularly SDG 8 (Decent Work and Economic Growth) and SDG 9 (Industry, Innovation, and Infrastructure) [16, 17]. By providing insights into effective digital communication practices and supporting the development of AI-driven models for e-commerce platforms, this research contributes to the advancement of digital infrastructure and the empowerment of small and medium enterprises (SMEs) in Indonesia's growing digital economy. Furthermore, the adaptation of the Indonesian language in online interactions can be seen as a step toward enhancing digital literacy, indirectly supporting SDG 4 (Quality Education) by fostering more inclusive and effective digital communication [18, 19]. Such AI-enhanced models have the potential to revolutionize customer service automation by fostering more natural and empathetic digital conversations, thereby contributing to the growth and sustainability of Indonesia's vibrant e-commerce ecosystem [20, 21].

2. LITERATURE REVIEW

2.1. The Role of Language in Digital Communication

Language serves as a fundamental tool that connects individuals and facilitates information exchange in all forms of communication. In digital environments, particularly e-commerce platforms, language takes on strategic significance as it not only conveys product information but also builds relationships and resolves transaction-related issues. Studies have shown that adaptive language use tailored to the medium and audience improves communication effectiveness and customer engagement [22, 23]. The need for speed, clarity, and

emotional connection in digital messaging demands language styles that are flexible and context-aware, often departing from traditional formal structures [24, 25].

2.2. Indonesian Language Evolution in the Digital Era

The Indonesian language has evolved considerably in response to the rise of digital platforms such as social media, online marketplaces, and customer service chat systems. Research indicates that Indonesian users tend to favor semi-formal and informal language styles online, balancing friendliness with politeness to maintain social harmony [26, 27]. Digital communication often employs abbreviations, emojis, and popular jargon to accelerate message delivery and enhance expressiveness. This evolution reflects both technological influences and socio-cultural factors, including globalization and the influx of foreign terms, which simultaneously enrich and challenge the integrity of the language [28, 29].

2.3. Language Style in E-Commerce Communication

E-commerce communication differs significantly from traditional face-to-face or formal written communication. Sellers adopt varying language styles formal, semi-formal, and informal based on their target audiences and communication goals. Empirical studies confirm that semi-formal and informal language styles are more effective in capturing customer attention, promoting trust, and improving satisfaction, particularly among younger demographics [30, 31]. The strategic use of language styles in product descriptions and chat interactions shapes customers perceptions and influences purchase decisions. This relationship between language style and customer satisfaction is illustrated in Figure 2, which shows how different communication approaches can influence customer perceptions and trust levels.

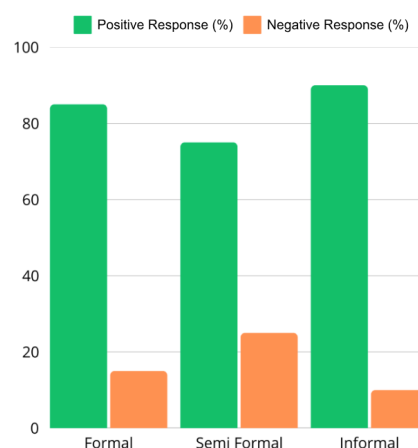


Figure 2. Relationship of Language Style and Customer Satisfaction

However, it is important to maintain clarity and politeness in communication, especially when handling customer complaints.

2.4. Challenges in Language Standardization and Adaptation

One of the critical issues in digital language use is maintaining language standardization while adapting to the fast-paced and informal nature of online communication. Studies emphasize the tension between the need for efficient, attractive language that resonates with customers and the preservation of linguistic correctness and cultural identity [32, 33]. The widespread adoption of foreign loanwords and relaxed language norms risks diluting the traditional standards of Indonesian, raising questions about long-term impacts on language sustainability in digital commerce contexts.

2.5. Customer Satisfaction Through Effective Communication

Customer satisfaction in e-commerce is greatly influenced by the way sellers communicate [34]. Effective communication must meet three main elements: clarity, accuracy, and relevance. In the context of e-commerce, the Indonesian language used by sellers must be able to answer customer information needs directly and easily understood. Research by [35] shows that customers are more likely to feel satisfied if the seller uses friendly, polite, and responsive language in answering questions or resolving complaints. This shows that

language adaptation is not only about adjusting communication style, but also building good relationships with customers [36].

2.6. Foundations for AI-Driven Communication Models

Advancements in artificial intelligence offer promising solutions to bridge the gap between human communication complexities and automated digital interaction systems. AI-powered language models, Natural Language Processing (NLP) tools, and machine learning algorithms enable the analysis and generation of contextually appropriate, culturally sensitive language in real-time [37]. By leveraging qualitative insights into language adaptation patterns, these technologies can be trained to recognize diverse language styles, emotional cues, and communication goals in e-commerce environments. This creates opportunities to develop intelligent communication models that enhance customer engagement, personalize responses, and support sellers in maintaining effective and standardized language use [38, 39].

3. RESEARCH METHODS

To achieve a comprehensive understanding of how Indonesian language adapts in e-commerce communication and to provide a solid foundation for AI-driven communication model development, this study employs a qualitative methodology. This approach allows for an in-depth exploration of real world language use, capturing the subtleties of linguistic styles, cultural nuances, and interaction dynamics that quantitative methods might overlook. By focusing on natural communication exchanges between sellers and customers, the research aims to identify patterns and challenges that inform the design of intelligent systems capable of effective, context-aware language processing in digital commerce environments.

3.1. Research Design

This study employs a qualitative descriptive research design aimed at deeply exploring the adaptation of the Indonesian language within customer-seller interactions on e-commerce platforms. The qualitative approach is chosen to capture the nuanced language use, communication styles, and contextual challenges that are not easily quantifiable but are essential for building foundational insights. This approach supports the goal of informing future development of AI-driven communication models by providing rich, contextualized data on real-world linguistic behaviors.

3.2. Data Sources

Data were collected from multiple sources to ensure a comprehensive understanding of language adaptation phenomena in e-commerce.

Table 1. Types and Sources of Research Data

Data Types	Data source	Collection Techniques
Primary Data	Overly complex language confusing audiences	Observation, documentation
Secondary Data	Journals, articles, scientific books	Literature review

The Table 1 Data collection involved gathering primary and secondary data to provide a comprehensive perspective on language adaptation in e-commerce communication. The primary data consisted of transcripts and documented chat conversations between sellers and customers, along with product descriptions from popular Indonesian e-commerce platforms such as Tokopedia and Shopee. These authentic textual interactions offered valuable insights into real-world communication patterns. In addition, secondary data were collected from relevant academic journals, articles, and prior studies focusing on digital communication, language adaptation, and customer engagement strategies. The inclusion of secondary sources helped to frame the empirical findings within a broader theoretical and contextual understanding, enhancing the depth and validity of the analysis.

3.3. Data Collection Techniques

Data collection involved systematic observation and documentation of communication exchanges on e-commerce platforms over a three-month period.

Table 2. Data Collection Techniques

Technique	Information
Observation	Observing salesperson-customer conversations and interactions
Documentation	Save screenshots of conversations and product descriptions
Literature review	Collect literature from academic sources

The Table 2 data collection process combined non-participatory observation, documentation, and literature review. Non-participatory observation involved monitoring chat interactions on e-commerce platforms without intervention, ensuring natural language use was captured. Documentation entailed systematically archiving screenshots and text logs of conversations and product descriptions to form a reliable dataset for analysis. Complementing these, a comprehensive literature review was conducted to contextualize findings within existing knowledge and to inform interpretation.

3.4. Data Analysis Techniques

Table 3. Data Analysis Stages

Level of Analysis	Description
Data Reduction	Filtering data that matches the research focus
Classification of Language Styles	Categorize data based on language style type
Interpretation	Extracting meaning and patterns from the language styles used in communication
Impact Evaluation	Assessing the effect of communication style on customer satisfaction

Table 3 was conducted in multiple stages, beginning with data reduction where irrelevant or redundant data were filtered out, focusing the study on relevant communication excerpts that illustrated language adaptation phenomena. Next, language styles were classified into formal, semi-formal, and informal categories based on linguistic characteristics and context. This classification facilitated a detailed interpretation of communication patterns, including the functional use of abbreviations, emojis, and popular digital terms. Finally, the study assessed the impact of these language styles on customer satisfaction by examining customer feedback, responsiveness, and perceived politeness, offering insights critical for guiding AI-driven communication model development.

3.5. Research Timeline and Location

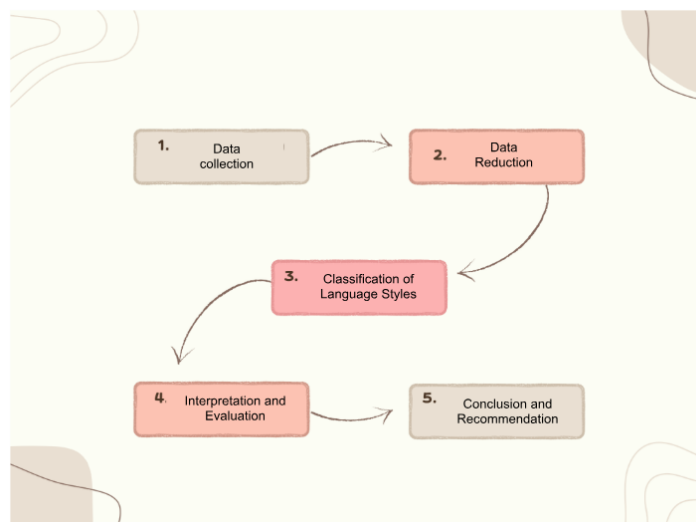


Figure 3. Research process flow diagram

The Figure 3 was carried out over three months, from January to March 2025, utilizing online platforms Tokopedia and Shopee to collect data [40, 41]. This period allowed for a sufficient volume of communi-

cation exchanges across diverse product categories and demographic segments, ensuring the representativeness of the dataset [42].

4. RESEARCH RESULT

This study analyzed 50 seller-customer chat interactions, 30 product descriptions, and 20 customer reviews from leading Indonesian e-commerce platforms to understand the adaptation of Indonesian language in digital commerce communication. The findings highlight several key aspects of language use, style adaptation, and their implications for customer satisfaction and future AI-driven communication systems [43].

4.1. Language Style in E-Commerce Interactions

The analysis revealed that sellers predominantly employ semi-formal and informal language styles in their communication with customers. Semi-formal style accounted for approximately 50% of observed conversations, while informal style made up 40%. Formal language was relatively rare, constituting only 10% of the interactions. Semi-formal language was typically used in responses involving technical explanations or complaint handling, balancing politeness with approachability. Informal language appeared more frequently in promotional conversations and price negotiations, fostering a friendly and relaxed atmosphere. This variation in language style indicates sellers strategic adaptation to optimize customer engagement and satisfaction [44, 45].

4.2. Linguistic Adaptation Abbreviations Emojis and Popular Terms

A significant feature of the communication patterns was the frequent use of abbreviations, emojis, and popular e-commerce jargon. Approximately 70% of conversations included abbreviations such as “gan” and “sis,” while 60% incorporated emojis to create emotional closeness. Furthermore, terms such as “cashback,” “COD,” and “flash sale” appeared in about half of the conversations, reflecting integration of platform-specific digital vocabulary. These adaptations contributed to a more personalized and informal communication style, which customers found effective for creating familiarity and speeding up exchanges [46, 47].

4.3. Challenges in Maintaining Language Standards

Despite the advantages of adaptive language styles, sellers faced challenges in maintaining language clarity and professionalism. About 55% of sellers admitted to reducing formal language use to increase communication efficiency, while 40% expressed concerns that excessive foreign loanwords might undermine professionalism. This tension between maintaining language standards and meeting customer expectations for quick, relatable communication highlights the need for tools that can assist sellers in balancing these demands without compromising either clarity or engagement [48, 49].

4.4. Impact on Customer Satisfaction

Customer feedback indicated that language style significantly influences satisfaction. Among 20 customer reviews analyzed, 80% praised sellers for polite and responsive communication, which correlated strongly with semi-formal and informal language use that conveyed empathy and attentiveness. However, 15% of customers expressed dissatisfaction due to brief or unclear answers, while 5% found overly formal language to be impersonal. These results emphasize that empathetic and contextually appropriate language fosters trust and loyalty, a crucial insight for designing AI communication models that must simulate human-like responsiveness and cultural sensitivity.

4.5. Implications for AI-Driven Communication Models

The observed linguistic patterns and challenges provide a foundational basis for developing AI-driven communication systems in e-commerce. Intelligent models can be trained to recognize and emulate effective semi-formal and informal styles, appropriately incorporating abbreviations, emojis, and jargon to enhance user engagement. Furthermore, AI can assist sellers in maintaining language standards by suggesting balanced language options that are both efficient and professional. Such systems have the potential to improve automated customer service, personalize interactions, and strengthen customer satisfaction by dynamically adapting to conversational contexts and cultural nuances [50].

5. MANAGERIAL IMPLICATIONS

The study findings highlight the critical need for e-commerce managers to prioritize communication strategies that effectively balance politeness and friendliness. Training sellers to adopt semi-formal and informal language styles that convey empathy and responsiveness can significantly enhance customer trust and loyalty. Embracing digital language trends such as abbreviations, emojis, and popular e-commerce jargon is essential for creating engaging communication. However, it is equally important to establish clear guidelines that help sellers use these elements appropriately, preserving brand professionalism and ensuring clear messaging. The challenges observed in maintaining language standards amidst fast-paced communication emphasize the importance of integrating technological support systems. AI-driven tools can offer real-time suggestions for contextually suitable language, enabling sellers to deliver efficient yet standardized responses. Such tools help improve service quality and maintain consistent communication across platforms. Investing in AI-based communication models that understand cultural and linguistic nuances specific to Indonesian consumers can revolutionize customer interaction automation. These models facilitate personalized engagement, enable natural language understanding in automated responses, and support e-commerce businesses in maintaining a competitive edge in the evolving digital marketplace.

6. CONCLUSION

This study provides valuable insights into the dynamic adaptation of the Indonesian language in communication between sellers and customers on e-commerce platforms. The predominance of semi-formal and informal language styles, combined with the frequent use of abbreviations, emojis, and popular jargon, reflects sellers' strategic efforts to create engaging and relatable interactions while maintaining politeness. These communication adaptations contribute significantly to enhancing customer satisfaction and loyalty, demonstrating the importance of culturally and contextually sensitive language use in digital commerce. The challenges identified in balancing language standardization with the demands for efficient and informal communication underscore the need for intelligent solutions to support sellers. This research lays a foundational understanding necessary for the development of AI-driven communication models capable of recognizing and generating context-aware, culturally appropriate language. Such models hold promise for improving automated customer service, personalizing user engagement, and strengthening business competitiveness in Indonesia's fast-growing digital marketplace.

Future research should expand data sources to include diverse platforms and demographic groups to deepen understanding of language adaptation across contexts. Additionally, exploring the integration of multimedia communication and cross-cultural factors can further enrich the development of advanced AI communication systems tailored to evolving consumer expectations.

7. DECLARATIONS

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7.2. Author Contributions

Conceptualization: AS; Methodology: DA; Software: MA; Validation: NF and EF; Formal Analysis: ES and MM; Investigation: AS; Resources: DA; Data Curation: MM; Writing Original Draft Preparation: MA and NF; Writing Review and Editing: DA and MA; Visualization: ES; All authors, AS, DA, MA, NF, EF, ES, And MM, have read and agreed to the published version of the manuscript.

7.3. Data Availability Statement

The data presented in this study are available on request from the corresponding author.

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7.5. Declaration of Conflicting Interest

The authors declare that they have no conflicts of interest, known competing financial interests, or personal relationships that could have influenced the work reported in this paper.

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