Evolution of Online Communication in Non-Monogamous Romantic Relationships

An Analysis of WhatsApp Messages

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Keywords

Abstract

This study explores how the frequency, topic, and sentiment of WhatsApp messages evolve throughout non-monogamous romantic relationships. The aim is to analyze how communication dynamics may reflect changes in the relationship. The methodology includes analyzing WhatsApp messages from a group of participants in non-monogamous relationships, using text analysis techniques to identify themes and sentiments. Results show that the frequency of messages tends to increase in the early stages of the relationship, while topics do not vary significantly, as most messages are structural and for planning, with romantic-related conversations primarily occurring face-to-face. Due to the low amount of available data and the challenges language models face in interpreting short messages often lacking substantial content, sentiment analysis has proven to be challenging. Conclusions indicate that communication through WhatsApp can be an important reflection of emotional states and dynamics in non-monogamous relationships, but focusing solely on WhatsApp messages may be insufficient as it represents only a small part of the overall communication.

Introduction

Non-monogamous romantic relationships have gained visibility in recent years, yet their communicative dynamics have not been extensively studied. This study focuses on the evolution of communication through WhatsApp in these relationships, aiming to understand how the frequency, topic, and sentiment of messages may reflect changes in the relationship. The significance of this study lies in the need to better understand emotional dynamics in non-traditional relationships, which may challenge conventional notions of romantic communication.

Methodology

The study is based on the analysis of WhatsApp conversation backup files from 16 different contacts engaged in non-monogamous relationships over a period of 5 years. The methodology includes:

- **Research Design**: Qualitative study with content analysis.
- **Records**: WhatsApp conversation backup files collected over the specified period.
- **Tools and Techniques**:
    - **Pandas** for data manipulation.
    - **Matplotlib** and **Seaborn** for data visualization.
    - **Hugging Face Transformers** sentiment-analysis pipeline for sentiment analysis.
    - **BERTOPIC** for topic analysis, running on top of **Multilingual BERT** due to messages being written in different languages.
    - Additional libraries such as **regex**, **emoji**, and **tqdm** proved useful in assisting with the tasks at hand.

The sensitive nature of the data required the use of tools that could operate locally, complicating the analysis and limiting the ability to obtain additional data.

Results

The results show different evolution changes in communication depending on the perspective:

- **Frequency of Messages**: Significant increase in the early stages of the relationship with a low but steady decrease towards the end of the social interaction.
- **Topics**: Topics do not vary significantly, as most messages are structural and for planning, with romantic-related conversations primarily occurring face-to-face.
- **Sentiment**: Due to the low amount of available data and the challenges language models face in interpreting short messages often lacking substantial content, sentiment analysis has proven to be challenging and further analysis should be done.

Discussion

The results indicate that communication through WhatsApp reflects partially the emotional state of non-monogamous relationships. The increase in the frequency of messages in the early stages may indicate initial interest and connection building. The limited variation in topics suggests that much of the relationship's emotional depth is communicated in person rather than through text. Furthermore, focusing solely on WhatsApp messages may be insufficient, as they represent only a small part of the overall communication within these relationships. It is important to note that the results are inferred from a very small group, and conclusions should not be extended to the entire non-monogamous population.

Conclusion

This study provides valuable insights into how communication through WhatsApp evolves in non-monogamous romantic relationships. The findings highlight the importance of communication in the construction and maintenance of these relationships. However, it is crucial to recognize that WhatsApp messages are just one aspect of a broader communication landscape. Recommendations for future research include exploring different communication platforms and incorporating a wider variety of perspectives to better understand the complexities of non-monogamous relationships.

References

- **BERTOPIC**. (n.d.). *BERTOPIC: A topic modeling technique based on BERT embeddings*. Retrieved from https://maartengr.github.io/BERTopic/

- **Hugging Face**. (n.d.). *Transformers documentation: Sentiment-analysis pipeline*. Retrieved from https://huggingface.co/docs/transformers/main_classes/pipelines#transformers.Pipeline

- **Devlin, J., Chang, M. W., Lee, K., & Toutanova, K.** (2019). *BERT: Pre-training of deep bidirectional transformers for language understanding*. Retrieved from https://arxiv.org/abs/1810.04805

- **Emoji**. (n.d.). *Emoji: A library for emoji handling in Python*. Retrieved from https://pypi.org/project/emoji/

- **WhatsApp**. (n.d.). *Back up your chats*. Retrieved from https://faq.whatsapp.com/