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Predicting Gen Z's Sentiments on Gorontalo's Cultural Wisdom Using Sentiment Analysis Models

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ABSTRACT

In the digital era, Generation Z faces both opportunities and challenges in understanding and preserving local cultural wisdom. It is essential to ensure that cultural values go beyond superficial consumption in cyberspace and remain deeply valued as integral aspects of identity and history. As technological advances and globalization continue influencing young people to preserve, local culture presents an increasing challenge. This study aims to determine Generation Z's perceptions of Gorontalo's local cultural wisdom, focusing on the Dikili and Meeraji traditions through a sentiment analysis approach. This research method uses the Naive Bayes algorithm to analyze positive, negative, and neutral sentiments derived from text data processed through a structured pre-processing stage. The findings reveal that Generation Z's perceptions of the Dikili and Meeraji cultures are mostly positive, reflecting a strong appreciation and acceptance of these cultural values. However, the presence of negative sentiment highlights a critical view among some members of Generation Z, who consider certain aspects of these traditions less relevant or controversial in a modern context. In addition, neutral sentiment indicates a segment of young people who may need more exposure or information to form an informed opinion. The study concludes that while Dikili and Meeraji cultures still hold value among Generation Z, a more inclusive and adaptive approach to cultural preservation is needed. The findings offer valuable insights for strategies to preserve and develop local cultural heritage in the digital age..

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1. INTRODUCTION

In today's digital age, the transmission and preservation of culture is undergoing a significant transformation. Digital technologies have expanded the scope and access to culture, enabling the exchange of values and traditions across geographic and social boundaries. Social media platforms, blogs, and other digital applications allow individuals and communities to share, document, and promote their culture to a global audience. This facilitates the dissemination of cultural elements and creates space for intercultural interaction and dialogue. On the one hand, digitalization plays an important role in maintaining cultural values, especially for younger generations who are more familiar with technology. On the other hand, it also poses challenges, such as the risk of cultural commodification and the potential loss of the original meaning of digitized traditions.

With the advent of the digital age, Generation Z is faced with opportunities and challenges in understanding and preserving local cultural wisdom [1, 2]. It is important to ensure that cultural values do not just become superficially consumed content in cyberspace but remain deeply understood and valued as an important part of their identity and history [3, 4]. For Generation Z, technology can be an effective tool for documenting, educating, and inspiring them to explore the true meaning of local culture. This wise and critical approach to the use of technology can encourage Generation Z to become consumers of culture and active agents of preservation, ensuring that regional culture remains relevant and dynamic amidst the changing times. Collaborative efforts between the community, government, and technology sector are key in building positive perceptions among Generation Z towards local wisdom, thus creating a digital ecosystem that supports cultural sustainability in a form that is authentic and meaningful to them.

Generation Z's perception of local cultural wisdom is an important aspect that needs to be studied, especially in the current digital era. Generation Z, known as digital natives, have extensive access to global information and digital technology, which can influence their perspective on local culture. The local wisdom of Gorontalo culture, with all its uniqueness and traditional values, faces challenges to remain relevant and appreciated by this younger generation. With information and communication technology development, including social media, interactions and discussions on regional culture have become more dynamic. However, this dynamic can also positively and negatively impact Generation Z's perceptions. Therefore, it is important to understand how their perception of Gorontalo's local wisdom evolves in this digital era.

Sentiment analysis has emerged as an effective method for assessing public perception of various issues, including Generation Z. Through sentiment analysis, patterns and trends in opinions on social media or other digital platforms can be identified [5, 6]. This method allows researchers to process large amounts of text data quickly and accurately [7] to provide a comprehensive picture of positive, negative, or neutral sentiments toward the local wisdom of Gorontalo culture. Using a predictive model based on sentiment analysis, this research seeks to identify Generation Z's perceptions of Gorontalo culture and factors that influence perceptions and attitudes towards certain entities [8, 9]. The results of this study are expected to contribute to the preservation and promotion of local culture during technological development and social change.

Several previous studies have explored sentiment analysis in various domains. However, several limitations still need to be bridged in the context of Generation Z's perception of local culture, especially Gorontalo's cultural wisdom. The studies conducted by Koupaei et al. (2020) and Blandi et al. (2022) focused more on developing methods of sentiment analysis in general and Gen Z perception on social media without specifically examining how the younger generation's perception of local culture is influenced by digital technology. Meanwhile, research by Gooljar et al. (2024) highlights the model's effectiveness in processing text data on a large scale but does not discuss how social and cultural contexts influence sentiment analysis results. In addition, the research of Thomas et al. (2021) emphasizes the application of the Naïve Bayes algorithm and its advantages without providing an in-depth exploration of the social factors that shape the sentiment of the younger generation toward its cultural heritage. Meanwhile, the study conducted by Kharlamov and Pilgun (2024) focuses on the implementation of sensors and technology in sentiment monitoring. Still, it does not specifically relate it to aspects of local cultural preservation. Therefore, this study fills the gap by comprehensively analyzing Generation Z's sentiment toward Gorontalo culture, considering the technical aspects of the sentiment analysis model and the social and cultural factors influencing their perceptions.

The urgency of this study lies in the strategic role of Generation Z as the successor and guardian of cultural heritage. This generation is not only consumers of information but also opinion formers who have a strong influence in the digital era. When local wisdom and regional cultural values, such as those in Gorontalo, are confronted with popular culture and globalization, there is a risk of cultural erosion if there is no proper effort to understand them [10]. Generation Z's perception and attitude towards local culture determine the future of its preservation. Therefore, understanding how this generation perceives Gorontalo's local wisdom is becoming increasingly important. This analysis is also urgent because it can help local governments, educators, and cultural activists design more effective programs and strategies to preserve and promote local culture. If Generation Z's perception of local culture tends to be negative or less enthusiastic, preventive and educative measures must be taken immediately to ensure that local culture is not marginalized. Conversely, if their perceptions are positive, then appropriate strategies are needed to strengthen and capitalize on

this sentiment in cultural preservation efforts. Thus, this study is academically important and has practical implications for preserving and developing regional culture in the digital era.

Although much research has been done on sentiment analysis with various models and techniques, the focus on Generation Z (Gen Z) sentiment towards local cultural wisdom, especially Gorontalo culture, is still very limited. Gen Z, as a generation born and raised in the digital era, has a different mindset and way of interacting with previous generations. They tend to be more open to technology but are often considered less concerned with traditional cultural values [11]. Previous research has focused more on sentiment analysis in general contexts such as products, services, or social issues. Still, not many have specialized in Gen Z sentiment towards local cultural wisdom, especially in a digital context [12, 13]. The novelty of this research lies in its approach, which combines technology-based sentiment analysis with the exploration of social and cultural factors that influence Gen Z's perception of Gorontalo's cultural wisdom. In addition, this study also offers a new perspective by using a predictive model that can identify sentiment trends and provide deeper insights into the mindset of the digital generation towards local culture. This creates a gap in the literature, especially in understanding how Gen Z perceives and responds to Gorontalo's cultural wisdom in the midst of globalization and digitalization.

The scope of the sentiment analysis study in this research is specifically focused on the local wisdom of Dikili and Meraaji culture in Gorontalo. This local wisdom includes various values, traditions, and cultural practices that have become integral to Gorontalo people's lives. Dikili and Meraaji are important symbols of regional cultural identity, reflecting the values of gotong royong, togetherness, and harmonious relationships between humans and nature. However, Generation Z's perception of these elements can vary greatly during rapid social and cultural change. This research analyses Generation Z's sentiments towards specific aspects of Dikili and Meraaji culture, such as how they express their views on these traditions on social media or other digital platforms. Using a predictive model based on sentiment analysis, this study categorizes opinions into positive, negative, or neutral and identifies key themes that emerge in their perceptions. With a clear focus on the local wisdom of Dikili and Meraaji, this study is expected to provide a deeper understanding of how Generation Z values, responds to, or even challenges these cultural values and how it affects the sustainability of Gorontalo culture in the future.

Understanding Gen Z's sentiments towards Gorontalo's cultural wisdom can provide insight into the extent to which this generation still maintains or even ignores local cultural values [14]. In addition, the results of this study can serve as a basis for the government, educational institutions, and cultural communities to design cultural preservation strategies relevant to the younger generation. In an era where global culture is increasingly dominating, preserving local wisdom is a big challenge. By utilizing sentiment analysis models, this research provides an objective picture of Gen Z's perceptions and shows how technology can be used to preserve culture in a modern context [15].

2. RESEARCH METHOD

This research uses a quantitative sentiment analysis model to process textual data. This approach is suitable for systematically and objectively understanding the patterns and trends of Generation Z's perceptions of Gorontalo's local culture. Data Collection through an online survey with descriptive questions and answers about the local wisdom of Dikili and Meeaji culture was distributed randomly to 250 young people in Gorontalo City. In addition, you also try to combine the results of sentiment analysis using Naïve Bayes and TF-IDF (Term Frequency-Inverse Document Frequency). Data analysis in this research includes several steps: Data Processing, Sentiment Analysis, Model training, and visualization and Interpretation. The following is a picture of the data analysis steps in detail:

Figure 1. Stages of data analysis

According to Figure 1, data preprocessing is the first step in data analysis. The data that has been collected needs to go through a preprocessing stage to ensure the quality of the analysis. This stage includes Text cleaning, which is the process of removing unwanted elements such as punctuation, numbers, special characters, hyperlinks, and emojis from the collected textual data [10, 16, 17]. This stage also includes the removal of stopwords-common words like "the," "and," "is," which do not contribute significant meaning to the sentiment analysis. The primary aim of text cleaning is to eliminate noise and irrelevant information that can obscure the

true sentiment within the text, ensuring that the remaining words are more meaningful for analysis. The next step is tokenization, which involves breaking down the cleaned text into individual units called tokens, typically words or phrases [12, 18]. For instance, the sentence ”Gorontalo’s culture is unique and valuable” would be tokenized into [”Gorontalo’s,” ”culture,” ”is,” ”unique,” ”and,” ”valuable”]. Tokenization simplifies the text data into manageable pieces, allowing the sentiment analysis model to process each word individually and understand their contribution to the overall sentiment. In the next stage, once tokenized, the text undergoes normalization, where all tokens are converted to a standard format. This often involves converting all characters to lowercase, ensuring consistency [19]. For example, ”Culture” and ”culture” would be treated as the same word post-normalization. Normalization may also include spelling corrections and handling various forms of a word to ensure uniformity across the dataset. After normalization, the preprocessing involves stemming and lemmatization, two techniques used to reduce words to their base or root forms [20, 21]. Stemming simplifies words to their root form by removing suffixes and prefixes. For example, ”cultural,” ”culturally,” and ”cultures” would be reduced to the stem ”culture.” However, stemming can sometimes result in non-dictionary forms, making the text less human-readable. To address this, lemmatization is often preferred, as it reduces words to their base or dictionary form, considering the context and parts of speech. For instance, ”running” would be lemmatized to ”run” and ”better” to ”good.” Lemmatization helps preserve the meaning of words while simplifying them, making the text more meaningful for sentiment analysis. The textual data is transformed into a structured and consistent format that enhances the predictive model’s performance in accurately capturing Generation Z’s perceptions of Gorontalo’s cultural wisdom by performing these stages- text cleaning, tokenization, normalization, stemming, and lemmatization.

The second step is sentiment analysis, analyzing the distribution of sentiments (positive, negative, neutral) across the dataset to understand Generation Z’s overall perception [22, 23]. This research uses a machine learning-based approach for sentiment analysis. The method used is Naïve Bayes. In the third model of training, in this section, data is separated into training data and test data, 75% for training and 25% for testing. Then, the model is trained, and its performance is evaluated using metrics such as accuracy to ensure reliable results. Based on the sentiment analysis results, a predictive model will be built to project how Generation Z’s perception of Dikili and Meraaji may change. This model utilizes the Naïve Bayes machine learning algorithm to make predictions based on the sentiment data analyzed. The fourth step, a combination of naïve Bayes and TF-IDF is used to represent the text numerically by considering the importance of certain words in each document, while Naïve Bayes acts as the main classification algorithm. In the last step, visualization and interpretation, the analysis results are visualized using graphs to show the distribution of sentiments towards Dikili and Meraaji. Further analysis will be conducted to identify key themes and perception patterns that emerge from the data, such as positive and negative tendencies or specific issues that Generation Z often talks about.

In addition, various tools were used in this research to support the thorough data analysis and interpretation process. RapidMiner was used as the primary tool for sentiment data analysis. This application helps in processing and analyzing text data efficiently, allowing researchers to extract positive, negative, or neutral sentiments from the collected data. Then Python is used to see the combination of TF-IDF results. Furthermore, Microsoft Excel was utilized for data tabulation and visualization. Excel makes it easy to arrange data in neat tables. It provides various options for visualization, such as graphs and charts so that patterns and trends in the data can be more easily understood. Finally, ChatGPT plays a role in the process of interpreting the metadata of the research results. With the help of ChatGPT, researchers can explore the deeper meaning of the findings and produce more comprehensive and insightful interpretations. The combined use of these tools ensures that data analysis and interpretation are conducted effectively and thoroughly.

3. RESULT AND ANALYSIS

3.1. Sentiment Towards Dikili

The results of sentiment analysis on the local wisdom of Dikili culture using the Naive Bayes algorithm illustrate a fairly diverse distribution of sentiments, as seen in the pie chart above. Positive sentiments dominate Generation Z’s view of Dikili culture, indicating that this tradition is still widely accepted and appreciated. The dominance of positive sentiments indicates that many young people see the value, meaning, and relevance of Dikili culture in their lives. This may reflect the success of efforts to preserve and promote local culture among the younger generation, or it may also reflect the strong emotional connection and identity that Generation Z has with their cultural heritage. As illustrated in Figure 2.

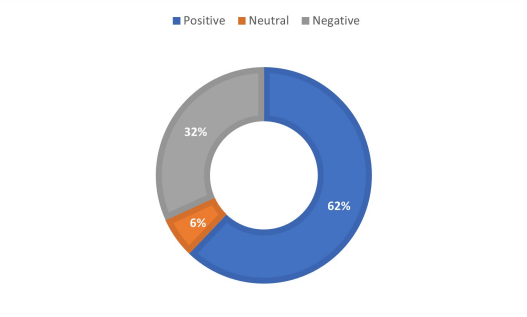

Figure 2. Sentiment distributions on keyword dikili

However, negative sentiments also appear in non-negligible proportions. These negative sentiments indicate that a segment of Generation Z may have a critical view of the Dikili culture. They may feel that some aspects of this tradition are no longer relevant to the modern world, or there may be elements in Dikili culture that are considered controversial or incompatible with their values. The presence of this negative sentiment signals cultural actors and the community to evaluate and perhaps take a more adaptive approach to introducing and preserving this culture so that it can be more accepted by the younger generation. In addition, there is also a significant amount of neutral sentiment. This neutral sentiment could reflect the Generation Z group, which may not have a deep understanding or clear position of Dikili culture. This group may need more information or direct experience with the culture to form a more firm view.

Overall, this analysis shows that although Dikili culture is still perceived positively and valuable by most of Generation Z, some areas require attention and reflection. Preserving Dikili culture can focus on increasing understanding and appreciation while addressing existing criticisms and negative views. With a more inclusive and adaptive approach, Dikili culture can continue to thrive and be relevant amidst the dynamics of social change faced by Generation Z. As shown in Figure 3, the word that appears the most from the results of the extraction of Gen Z sentiment data towards Dikili culture is".

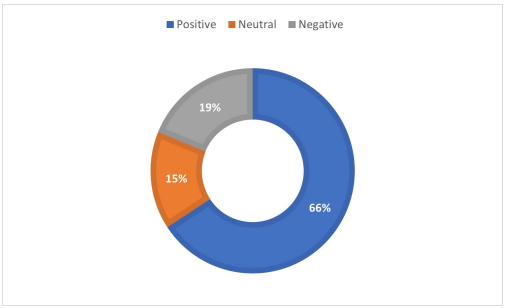

Figure 3. Sentiment distributions on keyword dikili (Wordworld)

The diagram above shows a word cloud visualization in the form of a treemap that illustrates the results of sentiment analysis of the keyword 'Dikili' in the context of research themed 'Predictive Model Based on Sentiment Analysis to Assess Generation Z's Perception of Gorontalo Regional Cultural Local Wisdom.' Based on this visualization, it can be seen that Generation Z has various perceptions and understandings of the Dikili tradition, which is an important part of Gorontalo culture.

The word 'nabi' dominates this diagram, showing that Generation Z strongly associates Dikili with the Prophet Muhammad and religious aspects. The words 'maulid' and 'commemorate' also appear significantly, indicating that Generation Z sees Dikili as part of the commemoration of the Prophet Muhammad's birthday, a celebration of the birth of the Prophet Muhammad, often held with various ceremonies and traditions in Gorontalo. The presence of the words 'muhammad' and 'birth' further confirms that Dikili is closely related to Islamic history and is a way for Gorontalo people to express respect and love for Prophet Muhammad. Terms such as 'tradition,' 'value,' and 'adat' indicate that Generation Z views Dikili from a religious perspective and as part of cultural heritage and local identity. They see it as a tradition full of positive values that must be maintained and preserved. This is also shown by the word 'good,' which indicates a positive sentiment towards this tradition. The words 'community' and 'activity' indicate Generation Z's awareness of the role of the community in practicing and maintaining this tradition and show that they see Dikili as a social

activity that involves many parties. The word 'gorontalo' indicates that Generation Z understands Dikili as an integral part of their regional identity. They see it as an important element distinguishing Gorontalo culture from other regional cultures. The emergence of the word 'generation' shows that Generation Z understands the importance of passing on this tradition to future generations. They realize that the continuity of this tradition depends on how the younger generation, including themselves, understand and appreciate Dikili.

Overall, the results of this analysis show that Generation Z in Gorontalo has a comprehensive understanding of Dikili. They see it not only from a religious perspective but also from the point of view of culture, local identity, and social values. This reflects that although Generation Z lives in a modern and digital era, they still appreciate and attach to local wisdom and traditions inherited by their ancestors.

3.2. Sentiment towards Meeraji

The sentiment analysis results on the local wisdom of Meeraji culture using the Naive Bayes algorithm show an interesting distribution of sentiments, as illustrated in the doughnut diagram above. From the diagram, it can be seen that most of Generation Z's perceptions of Meeraji culture are positive. This predominance of positive sentiments indicates a strong appreciation and acceptance of the values promoted by Meeraji culture. Generation Z, which is often regarded as a modern-minded and open-minded group, still seems to have strong ties to this local culture. This may be due to the relevance of Meeraji's cultural values to their lives or the success of preservation and education efforts that the community and related parties have made. Figure 4 below presents in detail the sentiment of Gen Z in terms of both positive, negative, and neutral sentiment.

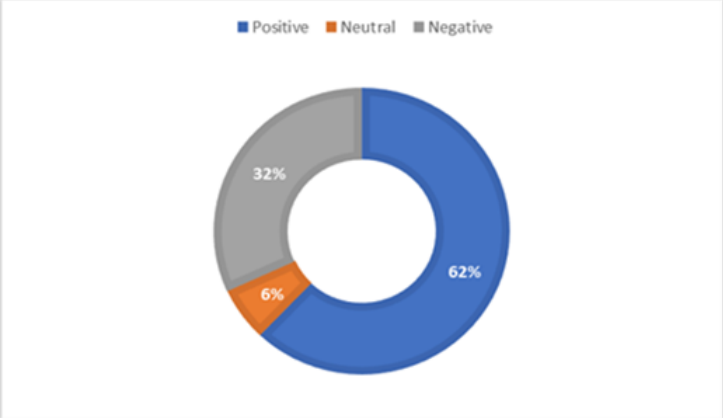

Figure 4. Sentiment distributions on keyword meeraji

However, alongside the dominance of positive sentiments, there is also a significant amount of negative sentiment. The existence of this negative sentiment indicates that not all elements of Meeraji culture are universally accepted by Generation Z. This criticism or negative view could be related to the view that some aspects of Meeraji culture may be considered outdated or less relevant to the current context of life. This is an important indication for cultural stakeholders to evaluate and adapt cultural elements that may need to be adjusted to remain relevant and acceptable to the younger generation. In addition, there is also a small segment of neutral sentiment. This neutral sentiment reflects a group that may not yet have strong views or opinions about Meeraji culture. This group could consist of individuals still seeking more information or with a pragmatic attitude toward cultural traditions.

Overall, the sentiment analysis results in Figure 5 provide a comprehensive picture of how Generation Z perceives Meeraji culture. The predominance of positive sentiments indicates that Meeraji culture still has an important place in the hearts and minds of the younger generation. Still, negative and neutral sentiments also signify ro om for improvement and customization. With this understanding, efforts to preserve and develop Meeraji culture can focus on strengthening the well-received aspects while addressing negative views through a more inclusive and adaptive approach.

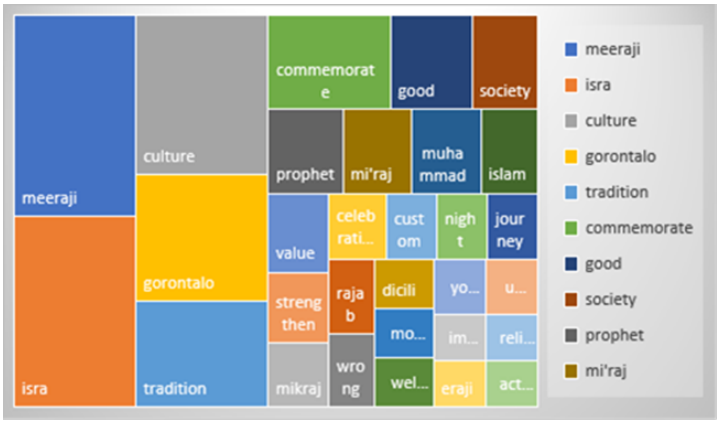

Figure 5. Sentiment distributions on keyword meeraji (Wordworld)

The word 'Meraaji' dominates the diagram, indicating that this topic is at the center of attention and discussion in the younger generation's perception. In addition, the word 'isra' also stands out, signaling that the religious aspect of Isra and Mi'raj is an important element in this tradition. This is reinforced by the presence of the words 'miraj,' 'nabi,' and 'muhammad,' indicating that the tradition is closely linked to Islamic history and religious events. The word 'culture' is also prominent, emphasizing that the Meraaji tradition is not only seen as a religious ceremony but also as an important part of the cultural heritage of the Gorontalo region. The word 'Gorontalo' appears significantly, signaling that respondents understand Meraaji as part of Gorontalo's cultural identity. Other terms such as 'tradition,' 'commemorate,' and 'adat' indicate that Generation Z sees Meraaji as a form of respect for traditional values and customs passed down through generations. The presence of the words 'community' and 'young' indicates an awareness among Generation Z of the important role of the community, including the younger generation, in preserving this tradition. Positive sentiments towards Meraaji are also reflected in words such as 'good,' 'value,' and 'celebration,' indicating that many of Generation Z have a positive view of this tradition. Conversely, words such as 'wrong' may reflect certain discussions or controversies in the younger generation's perception of certain aspects of the tradition.

Overall, this analysis shows that Generation Z has complex and diverse perceptions of Meraaji. They associate it with cultural identity, religious values, and community roles while recognizing the importance of maintaining and preserving this tradition in a modern context.

3.3. Combination Result of Naïve Bayes and TF-IDF

TF-IDF represents the text numerically by considering the importance of certain words in each document, while Naïve Bayes acts as the main classification algorithm. This approach adds significant value in terms of interpretation and accuracy of the model. Based on the results of the dataset test, the model showed varying performance in each sentiment class. The resulting confusion matrix is as follows.

$$\begin{bmatrix} TF & FN & FP \\ TF & TN & FP \\ FP & FP & TP \end{bmatrix} \rightarrow \begin{bmatrix} 2 & 0 & 7 \\ 1 & 0 & 5 \\ 0 & 0 & 38 \end{bmatrix}$$

Figure 6. Confusion matrix

Based on the results of sentiment analysis on Gorontalo cultural wisdom conducted by combining Naïve Bayes and TF-IDF methods, a confusion matrix is obtained that represents the model's performance in classifying sentiments. The first figure shows the general structure of the confusion matrix, which consists of True Positive (TP), True Negative (TN), False Positive (FP), and False Negative (FN). The second figure is the real result of the model used in this study. From the confusion matrix of the analysis results, it was noted that the model successfully classified 38 samples correctly as positive sentiment (TP). However, there were 7 False Positive (FP) cases, where the actual negative sentiment was classified as positive. In addition, there were 2 cases of True Negative (TN), where the model correctly identified a negative sentiment and 1 case of False Negative (FN), indicating that one positive sentiment

was incorrectly classified as negative. Interestingly, there are no neutral predictions in the confusion matrix, as indicated by zeros at several positions in the matrix.

These results show that the model tends to be more dominant in recognizing positive and negative sentiments. However, the presence of misclassification, especially in the FP and FN categories, needs further attention to improve the accuracy of the model, for example, through parameter optimization or the use of better data preprocessing techniques. Table 1 provides more detailed information from the confusion matrix results based on negative, neutral, and positive predicates to clarify the information from the matrix.

Table 1. Pembagian Data untuk Training dan Testing

	Prediction: Negative	**Prediction: Neutral**	**Prediction: Positive**
Negative	2	0	7
Neutral	1	0	5
Positive	0	0	38

Based on the matrix and Table 1 above, it can be interpreted that the model has the best performance in predicting the Positive class, with an accuracy rate of 95% in that class. A total of 38 positive data were correctly predicted without error. However, there are challenges in the Negative and Neutral classes, where the model is only able to predict 2 data correctly for the Negative class, while the Neutral class cannot be predicted at all. This indicates an imbalance in the data distribution, which affects the model's ability to recognize patterns from minority classes. The model successfully identified the most influential keywords in sentiment analysis, which can be utilized to understand Gen Z thinking and perception patterns. In addition, this approach shows potential for wider application, such as in predicting sentiment in the fields of culture, education, or marketing. TF-IDF integration increases the relevance of the information processed by Naïve Bayes, which operates based on the probability of words in a particular class. The results show that the combination of methods can provide efficient results even with imbalanced data and provide directions for further algorithm development, such as the application of oversampling techniques or the utilization of deep learning algorithms to overcome shortcomings in predicting minority classes.

This study provides new insights into how sentiment analysis technology can be applied to understand local people's perceptions of culture. This is important for developing data-driven policies that are more responsive to the needs of younger generations. The results of this study provide a clear picture of how Gen Z responds to Gorontalo's cultural wisdom. With the majority of positive sentiments, it can be concluded that Gen Z greatly appreciates local culture. However, negative and neutral sentiments indicate challenges that must be addressed, such as a lack of in-depth understanding or low interest in certain aspects of the culture. This analysis provides a basis for policymakers and stakeholders to design more effective strategies for introducing local culture to the younger generation, including through digital platforms that are relevant to Gen Z preferences.

Generation Z's perception of the 'Meraaji' and 'Dikili' traditions in Gorontalo reveals the dynamics of their understanding of local wisdom and cultural values inherited by previous generations. Both word cloud visualizations show that Generation Z deeply appreciates and attaches to these traditions, even though they live in an era dominated by technology and modernity. In the tradition of 'Meraaji,' Generation Z seems to understand this tradition as an important part of their cultural and religious identity. This is indicated by words such as 'isra,' 'miraj,' 'nabi,' and 'muhammad,' which illustrate their understanding of the religious and spiritual context of the tradition. They associate 'Meraaji' with important events in Islamic history, signalling that the younger generation recognises the tradition not only as a cultural rite but also as part of a larger religious narrative. Moreover, the terms 'culture,' 'tradition,' and 'adat' indicate that Generation Z sees 'Meraaji' as a rich cultural heritage, reflecting community and social values that should be preserved. On the other hand, the analysis of 'Dikili' also shows a similar pattern. Words such as 'prophet,' 'maulid,' 'muhammad,' and 'birth' indicate that Generation Z sees this tradition as a form of honouring and celebrating the birth of Prophet Muhammad. Just like 'Meraaji,' 'Dikili' is also seen as a religious and cultural activity. However, what is interesting is the appearance of the word 'generation' in this word cloud, which indicates an awareness among Generation Z of the importance of passing on and preserving this tradition. They realize that the sustainability of the 'Dikili' tradition depends on how their generation and subsequent generations understand and value it. These two traditions also show how Generation Z in Gorontalo balances between religious identity and cultural identity. They understand and value these two traditions as a form of religious expression that is not just a ritual but also an integral part of their local culture and identity. Words such as 'good,' 'value,' 'community,' and 'activities' in both visualizations reflect their positive views and involvement in interpreting the traditions.

This discussion shows that although Generation Z lives in an era of globalization and digitalization, they still have a strong attachment to local wisdom and cultural traditions. They do not see these traditions as old-fashioned or irrelevant but rather as important components that help them define their identity and community. In accordance with what Sanjaya et al. (2024) revealed,

local wisdom values have an important role in character building in the digital era [24, 25]. This indicates a great potential for preserving regional culture, where Generation Z can play an active role in maintaining, developing, and promoting local traditions to remain relevant in the future. Indonesia has diverse cultures, local wisdom, and positive values that must be preserved [26, 27]. With the right approach, traditions such as 'Meraaji' and 'Dikili' can continue to live and evolve with the changing times, bringing positive messages to future generations.

This research finding also confirms that the Naïve Bayes algorithm has long been recognized as one of the effective methods in sentiment analysis, mainly due to its simplicity and efficiency in processing large text data. The main advantage of this algorithm is its ability to perform classification quickly and accurately, even with a limited amount of training data. This is due to the probabilistic approach that assumes independence between features, making calculations simpler and more efficient. In addition, Naïve Bayes is also known to be resistant to overfitting, making it a reliable choice in various sentiment analysis applications. Several previous studies have confirmed these advantages. For example, research by Helmayanti et al. (2023) showed that the Naïve Bayes algorithm is effective in classifying Flip app user reviews based on aspects of speed, security, and cost, with an average accuracy of 84% [28]. Similarly, a study by Pramudita et al. (2024) applied Naïve Bayes to analyze sentiment toward the Indonesia Smart College Card Program, resulting in an accuracy of 84.99% [29].

The superiority of the Naïve Bayes algorithm increases when combined with the Term Frequency-Inverse Document Frequency (TF-IDF) weighting technique. TF-IDF plays a role in emphasizing words that have a high significance in a document, thus helping the model distinguish words that are relevant for sentiment classification. This combination has been shown to improve model accuracy in various studies. For example, research by Alfawas et al. (2024) showed that the application of TF-IDF together with Naïve Bayes in sentiment analysis of "Bus Simulator Indonesia" game reviews resulted in an accuracy of up to 85% [30]. In addition, a study by Noer (2023) also indicated that the combination of TF-IDF and Naïve Bayes effectively analyzed the sentiment of Shopee app reviews. However, the accuracy details were not specifically mentioned [31].

Overall, the combination of Naïve Bayes and the TF-IDF algorithm offers an efficient and accurate solution in sentiment analysis. This approach improves classification performance while maintaining computational efficiency, making it appropriate for various text analysis applications.

4. CONCLUSION

Based on the results of sentiment analysis towards Meeraji and Dikili culture show that these local wisdoms still have an important place in the perception of Generation Z in Gorontalo. Positive sentiments dominate both cultures, indicating that many young people appreciate, accept, and feel that the values contained in the Meeraji and Dikili cultures are relevant to their lives. This predominance of positive sentiments indicates a strong emotional connection and identity between Generation Z and their cultural heritage. It may also reflect the success of cultural preservation and education efforts that various parties have made.

However, the presence of negative sentiments in the analysis of these two cultures indicates that not all elements of Meeraji and Dikili culture are universally accepted by Generation Z. Some critical views indicate that there are aspects of these cultures that may be considered less relevant or controversial in the context of the modern world. These negative sentiments signal that there is room for improvement, evaluation, and adaptation, especially in aligning cultural traditions with the values and expectations of today's younger generation. Furthermore, the presence of a neutral sentiment segment in both analyses suggests that a portion of Generation Z may still not have a clear understanding or position towards this culture. This emphasizes the importance of a more comprehensive educational approach to enhance their understanding and engagement with local culture.

Meanwhile, the prediction model results show that the model's success is in the positive class, where the accuracy rate reaches 95%. Meanwhile, less performance is shown in the negative and neutral class models. This is caused by data imbalance, where the positive class has a much larger amount of data than other classes. As a result, the model tends to be more biased towards classes with a dominant amount of data. So, to overcome the limitations of the model, further research can increase the amount of data or focus on oversampling techniques, such as the Synthetic Minority Oversampling Technique (SMOTE), or on more complex algorithmic approaches, such as Support Vector Machine (SVM) or deep learning-based models.

Overall, the results of this sentiment analysis highlight that Generation Z still values Meeraji and Dikili cultures but also emphasize the need for a more inclusive and adaptive approach to their preservation. By understanding and responding to these diverse sentiments, cultural preservation efforts can focus on strengthening positive values while addressing negative views through dialogue and innovation relevant to today's youth.

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6. DECLARATIONS

AUTHOR CONTIBUTION

Hermila A analyzes data, interprets and creates results, and discusses conclusions. Rahmat Taufik is responsible for data collection and analysis as well. Sitti Suhada for the introduction and methods. Abdulaziz Ahmed Siyad adds an explanation in the analysis interpretation section.

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COMPETING INTEREST

we have no institutional interests. We only present articles on the results of our research in the field of data mining, especially sentiment analysis. Because this article is a mandatory output.

REFERENCES

[1] T. He and Y. Sheng, "The Study of Curriculum System to Cultivate the Thinking of Sustainable Development of Regional Culture: Taking Digital Media Art as an Example," in *Proceedings of the 4th International Conference on Art Studies: Science, Experience, Education (ICASSEE 2020)*. Atlantis Press, 2020, pp. 578–582, https://doi.org/10.2991/assehr.k.200907.105.

[2] L. Lazzeretti, "What is the role of culture facing the digital revolution challenge? Some reflections for a research agenda," vol. 30, no. 9, pp. 1617–1637, 2022-09-02, https://doi.org/10.1080/09654313.2020.1836133.

[3] A. Rahmawati, D. M. Astuti, F. H. Harun, and M. K. Rofiq, "Peran Media Sosial dalam Penguatan Moderasi Beragama di Kalangan Gen-Z," vol. 3, no. 5, pp. 905–920, 2023-10-02, https://doi.org/10.53625/jabdi.v3i5.6495.

[4] A. D. Murdani and H. Haqqi, "Penguatan Nilai Nasionalisme melalui Kearifan Lokal bagi Gen-Z sebagai Counter Hegemoni Asing," vol. 3, no. 4, pp. 236–242, 2023-12-20, https://doi.org/10.31004/jh.v3i4.366.

[5] L. Blandi, M. Sabbatucci, G. Dallagiacoma, F. Alberti, P. Bertuccio, and A. Odone, "Digital Information Approach through Social Media among Gen Z and Millennials: The Global Scenario during the COVID-19 Pandemic," vol. 10, no. 11, p. 1822, 2022-10-28, https://doi.org/10.3390/vaccines10111822.

[6] D. Malekpour Koupaei, T. Song, K. S. Cetin, and J. Im, "An assessment of opinions and perceptions of smart thermostats using aspect-based sentiment analysis of online reviews," vol. 170, p. 106603, 2020-03, https://doi.org/10.1016/j.buildenv.2019.106603.

[7] V. Gooljar, T. Issa, S. Hardin-Ramanan, and B. Abu-Salih, "Sentiment-based predictive models for online purchases in the era of marketing 5.0: A systematic review," vol. 11, no. 1, p. 107, 2024-08-05, https://doi.org/10.1186/s40537-024-00947-0.

[8] S. Thomas, Yuliana, and Noviyanti. P, "Study Analisis Metode Analisis Sentimen pada YouTube," vol. 1, no. 1, pp. 1–7, 2021-03-02, https://doi.org/10.46229/jifotech.v1i1.201.

[9] A. A. Kharlamov and M. Pilgun, "Data Analytics for Predicting Situational Developments in Smart Cities: Assessing User Perceptions," vol. 24, no. 15, p. 4810, 2024-01, https://doi.org/10.3390/s24154810.

[10] R. A. Putri, N. A. A. Fitri, and S. Syamsir, "Pengaruh Globalisasi Digital terhadap Budaya di Sumatera Barat," vol. 3, no. 9, pp. 32–42, 2024-05-24, https://doi.org/10.6578/triwikrama.v3i9.3308.

[11] Redaksi, "Generasi z: Peran utama dalam era transformasi digital," 2024-04-10, https://langgam.id/generasi-z-peran-utama-dalam-era-transformasi-digital/.

[12] W. B. Zulfikar, A. R. Atmadja, and S. F. Pratama, "Sentiment Analysis on Social Media Against Public Policy Using Multinomial Naive Bayes," vol. 10, no. 1, pp. 25–34, https://doi.org/10.15294/sji.v10i1.39952.

[13] Y. A. Singgalen, "Analisis Sentimen Wisatawan Melalui Data Ulasan Candi Borobudur di Tripadvisor Menggunakan Algoritma Naïve Bayes Classifier," vol. 4, no. 3, 2022-12-26, https://doi.org/10.47065/bits.v4i3.2486.

[14] B. Liu, "Sentiment Analysis: Mining Opinions, Sentiments, and Emotions," p. 431, 2020-10-15, https://books.google.co.id/books/about/Sentiment_Analysis.html?hl=id&id=PdX7DwAAQBAJ&redir_esc=y.

[15] D. R. Daffa, D. Arthuro, J. A. Fernanda, and Muh. Bintang Widya Pratama, "Gen-Z: Eksplorasi Identitas Budaya dan Tantangan Sosial dalam Era Digital," vol. 2, no. 2, pp. 169–183, 2024-05-08, https://doi.org/10.59581/jipsoshum-widyakarya.v2i2.3112.

[16] C. Ahmed, A. ElKorany, and E. ElSayed, "Prediction of customer's perception in social networks by integrating sentiment analysis and machine learning," vol. 60, no. 3, pp. 829–851, 2023-06-01, https://doi.org/10.1007/s10844-022-00756-y.

[17] J.-Y. Huang, C.-L. Tung, and W.-Z. Lin, "Using Social Network Sentiment Analysis and Genetic Algorithm to Improve the Stock Prediction Accuracy of the Deep Learning-Based Approach," vol. 16, no. 1, p. 93, 2023-05-29, https://doi.org/10.1007/s44196-023-00276-9.

[18] P. Savci and B. Das, "Prediction of the customers' interests using sentiment analysis in e-commerce data for comparison of Arabic, English, and Turkish languages," vol. 35, no. 3, pp. 227–237, 2023-03, https://doi.org/10.1016/j.jksuci.2023.02.017.

[19] R. Singh and R. Singh, "Applications of sentiment analysis and machine learning techniques in disease outbreak prediction – A review," vol. 81, pp. 1006–1011, 2023, https://doi.org/10.1016/j.matpr.2021.04.356.

[20] R. L. Mustofa and B. Prasetiyo, "Sentiment analysis using lexicon-based method with naive bayes classifier algorithm on #newnormal hashtag in twitter," vol. 1918, no. 4, p. 042155, 2021-06-01, https://doi.org/10.1088/1742-6596/1918/4/042155.

[21] D. A. Kristiyanti, D. A. Putri, E. Indrayuni, A. Nurhadi, and A. H. Umam, "E-Wallet Sentiment Analysis Using Naïve Bayes and Support Vector Machine Algorithm," in *Journal of Physics: Conference Series*, vol. 1641, no. 1. IOP Publishing, 2020, p. 12079, https://doi.org/10.1088/1742-6596/1641/1/012079.

[22] G. Gupta, S. Khan, V. Guleria, A. Almjally, B. I. Alabduallah, T. Siddiqui, B. M. Albahlal, S. A. Alajlan, and M. AL-subaie, "DDPM: A Dengue Disease Prediction and Diagnosis Model Using Sentiment Analysis and Machine Learning Algorithms," vol. 13, no. 6, p. 1093, 2023-03-14, https://doi.org/10.3390/diagnostics13061093.

[23] W. Gu, Y. Zhong, S. Li, C. Wei, L. Dong, Z. Wang, and C. Yan, "Predicting Stock Prices with FinBERT-LSTM: Integrating News Sentiment Analysis," in *Proceedings of the 2024 8th International Conference on Cloud and Big Data Computing*, 2024-08-15, pp. 67–72, https://doi.org/10.1145/3694860.3694870.

[24] Y. A. Sanjaya, D. Safitri, and S. Sujarwo, "Integrasi nilai-nilai kearifan lokal dalam pengembangan pendidikan karakter di era 4.0," vol. 1, no. 2, pp. 3007–3013, 2024. https://jicnusantara.com/index.php/jicn/article/view/331

[25] N. K. N. Sari, N. K. V. S. Dewi, N. L. G. P. Maharani, N. K. G. P. Sari, D. A. M. D. Anggita, and B. R. Werang, "Membangun Generasi Digital Bijak dan Berbudaya: Intergrasi Kearifan Lokal Bali dalam Pembelajaran Literasi Digital di SDN 5 Sudaji," vol. 2, no. 3, pp. 177–194, 2024-06-14, https://doi.org/10.55927/cjas.v2i3.9717.

[26] S. Rahman, "Kearifan Lokal Huyula Masyarakat Gorontalo sebagai Media Pendidikan Anti Korupsi," vol. 10, no. 2, pp. 148–159, 2022-09-08, https://doi.org/10.30603/tjmpi.v10i2.2792.

[27] A. Faiz and B. Soleh, "Implementasi Pendidikan Karakter Berbasis Kearifan Lokal," vol. 7, no. 1, pp. 68–77, 2021-05-22, https://doi.org/10.22219/jinop.v7i1.14250.

[28] S. A. Helmayanti, F. Hamami, and R. Y. Fa'rifah, "Penerapan Algoritma TF-IDF dan Naïve Bayes Untuk Analisis Sentimen Berbasis Aspek Ulasan Aplikasi Flip Pada Google Play Store," vol. 4, no. 3, pp. 1822–1834, 2023-09-10, https://doi.org/10.35870/jimik.v4i3.415.

[29] D. Pramudita, Y. Akbar, and T. Wahyudi, "Analisis Sentimen Terhadap Program Kartu Indonesia Pintar Kuliah pada Media Sosial X Menggunakan Algoritma Naive Bayes: Sentiment Analysis of the Indonesian Smart College Card Program on Social Media X Using the Naive Bayes Algorithm," vol. 4, no. 4, pp. 1420–1430, 2024-08-05, https://doi.org/10.57152/malcom.v4i4.1565.

[30] T. I. Alfawas, A. Rahim, and R. Rudiman, "Penerapan Fitur Ekstraksi TF-IDF untuk Analisis Sentimen Ulasan Game Bus Simulator Indonesia dengan Algoritma Naive Bayes," vol. 4, no. 5, pp. 3177–3193, 2024, https://doi.org/10.31004/innovative.v4i5.13975.

[31] G. H. A. R. Noer, "Implementasi agoritma naïve bayes dan tf-idf dalam analisis sentimen data ulasan (studi kasus : Ulasan review aplikasi e-commerce shopee di situs google playstore," 2023-04-04, https://repository.uinjkt.ac.id/dspace/handle/123456789/68747.