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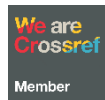
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Descriptive writing skills in the influencer era: sentiment effects of digital content

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ABSTRACT

This study investigates the influence of influencer-generated digital content on university students' descriptive writing skills, with a focus on the role of sentiment and digital literacy. Employing a quantitative cross-sectional design, data were collected from 63 students at Universitas Muhammadiyah Gorontalo and IAIN Sultan Amai Gorontalo using questionnaires and semi-structured interviews. Students' perceptions of writing quality were analyzed in relation to their exposure to digital content with positive, neutral, and negative sentiment. The findings reveal a significant correlation between exposure to positive-sentiment content and perceived improvements in creativity, vocabulary use, and idea organization, while neutral and negative content is associated with more formal but less expressive writing. The study also indicates that digital literacy mediates how students adapt informal digital language to academic writing demands. These results suggest that integrating digital literacy into writing instruction is essential to help students navigate the influence of digital media on academic writing.



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Introduction

In recent years, the rapid growth of digital platforms and social media has fundamentally transformed how individuals interact, communicate, and learn (Aziz et al., 2020; Chew & Cerbin, 2021; Mahfud et al., 2024). Among university students, this transformation is closely associated with increased exposure to influencer-generated content, which often features informal, expressive, and emotionally driven language styles (Pellas et al., 2017; Putrayasa et al., 2024). While such content is effective in engaging audiences, its linguistic characteristics may conflict with the conventions of academic writing, particularly in English descriptive texts that require clarity, coherence, and objectivity. Despite the growing prevalence of this phenomenon, the extent to which influencer-generated digital content shapes students' academic writing practices remains insufficiently explored.

Influencers, defined as individuals who shape opinions and communication practices through social media platforms, often employ narrative and informal language strategies to enhance audience engagement. These strategies, however, differ markedly from the structured and objective language

expected in academic contexts (Tenaja & Oco, 2023; Ünalmiş et al., 2024). As students regularly consume such content, they may internalize informal linguistic patterns, leading to a blending of social media language with academic writing norms. This issue is particularly evident in descriptive writing, where students must balance expressive language with formal structure, precise vocabulary, and logical organization. Previous studies suggest that while digital media exposure may foster creativity, it may simultaneously reduce academic accuracy and coherence (Ghouali & Benmoussat, 2019; Nkhi, 2023), indicating a potential tension between creativity and academic rigor.

The integration of digital content into students' daily lives has also altered their habitual language use. Platforms such as Instagram, YouTube, and Twitter encourage the use of colloquial expressions, emotionally charged language, and informal sentence structures, which may not align with academic writing conventions. As a result, students often face difficulties when transitioning from informal digital communication to formal academic tasks. This challenge highlights the growing importance of digital literacy, particularly students' ability to critically evaluate digital content and adapt their language use to different communicative contexts (Cintamulya et al., 2023; Yundayani et al., 2020). Without adequate digital literacy, students may struggle to distinguish between acceptable informal expression and the demands of academic writing.

Beyond linguistic style, the emotional tone or sentiment embedded in digital content may also influence students' writing practices. Sentiment plays a role in shaping emotional and cognitive engagement, which can affect motivation, idea development, and writing style. Sentiment analysis using Natural Language Processing (NLP) techniques offers a systematic approach to examining how emotional tones in digital content positive, neutral, or negative relate to students' writing outcomes. NLP enables large-scale and objective analysis of textual data, providing insights into how students' exposure to emotionally charged content influences vocabulary choice, sentence construction, and overall textual tone. However, empirical studies that integrate sentiment analysis with academic writing research remain limited (Bal et al., 2024).

Existing research on digital media in education has largely emphasized its positive contributions, such as increased creativity, engagement, and motivation (Castillo-Cuesta et al., 2021; Kaeophanuek et al., 2019). Nevertheless, fewer studies have examined the potential negative implications of digital content exposure, particularly the adoption of informal writing styles that may undermine academic writing quality. Although previous literature acknowledges the relevance of sentiment and emotional engagement in learning processes, its specific impact on descriptive academic writing has not been adequately addressed. This gap suggests the need for a more nuanced investigation that considers both linguistic and emotional dimensions of digital content.

Several instructional approaches, including digital storytelling, have been proposed to address challenges in students' writing development. Digital storytelling has been shown to enhance students' writing skills by encouraging creative and narrative expression (Alazemi et al., 2019; Bhowmik et al., 2023). While these approaches demonstrate the potential of digital tools to support writing development, they do not specifically examine the influence of influencer-generated content or the role of sentiment in shaping students' writing styles. Consequently, the direct impact of influencer-produced digital content on descriptive writing remains underexplored.

Another critical factor influencing students' writing practices is digital literacy. Digital and information literacy enable students to critically assess digital content, manage information effectively, and adapt their language use to academic contexts (Camacho et al., 2021). In the context of influencer-generated content, digital literacy becomes essential in helping students navigate the tension between informal digital language and formal academic writing. Integrating sentiment analysis through NLP provides an innovative means to examine how students respond to emotionally charged digital content and how their level of digital literacy moderates this influence.

Based on these considerations, this study aims to explore the influence of influencer-generated digital content on the descriptive writing skills of students at Universitas Muhammadiyah Gorontalo and IAIN Sultan Amai Gorontalo. By applying sentiment analysis to examine the emotional tone of digital content and its relationship with students' writing practices, this study seeks to address gaps in existing literature and offer empirical insights into how digital content, sentiment, and digital literacy interact in shaping academic writing. The findings are expected to contribute to writing pedagogy by

informing instructional strategies that support students in balancing creative expression with academic conventions in the digital era.

Method

The method employed in this study was a quantitative approach with a cross-sectional study design (Montgomery, 2013). This design was chosen because it allows data to be collected at a single point in time, enabling the researchers to describe the relationship between exposure to digital content and changes in students' descriptive writing skills. This approach also makes it possible to identify shifts in students' writing styles after being exposed to influencer-generated digital content, which often contains elements of positive, neutral, or negative sentiment.

Research Design and Sample Population

This study employed a quantitative design with a cross-sectional approach to measure the influence of digital content on students' descriptive writing styles. The research population consisted of students from Universitas Muhammadiyah Gorontalo and IAIN Sultan Amai Gorontalo who actively use social media and are exposed to influencer-generated digital content. The study sample comprised 63 students, selected through purposive sampling based on specific criteria, namely students who are actively engaged in social media use and frequently exposed to influencer content on platforms such as Instagram, YouTube, and Twitter.

Data Collection Instruments

In this study, two primary instruments were employed to collect data: semi-structured interviews and a Likert-scale questionnaire. The interviews were conducted to explore students' perceptions of how they felt influenced by the content they consumed, as well as how such content affected their writing style, particularly in descriptive writing. These interviews also provided students with the opportunity to express their personal experiences regarding changes in language style and sentence structure after being exposed to digital content.

The Likert-scale questionnaire was used to measure various aspects of students' descriptive writing, including language style, vocabulary choice, sentence coherence, and writing structure. The questionnaire consisted of several statements covering these dimensions, and students were asked to rate their agreement with each statement on a scale of 1 to 5, where 1 indicated "strongly disagree" and 5 indicated "strongly agree." This instrument aimed to assess the extent to which digital content whether positive, neutral, or negative influences students' writing style.

Data Collection Procedure

Data collection was conducted in two main stages. The first stage involved the distribution of questionnaires to all selected respondents. These questionnaires were designed to measure students' perceptions of the influence of influencer-generated digital content on their writing, as well as the amount of time they spent consuming social media. Students were asked to complete the questionnaires honestly based on their personal experiences.

The second stage involved interviews with several selected students after they had completed the questionnaires. The purpose of these interviews was to provide deeper insights into how students perceived changes in their writing style after being exposed to influencer-generated digital content. The interviews also offered students the opportunity to elaborate in more detail on how the sentiment contained in digital content (positive, neutral, or negative) could influence their language style and the overall quality of their writing.

Data Analysis

After data collection, the analysis was carried out using descriptive and quantitative statistical methods. Descriptive analysis was used to describe the distribution of data obtained from the questionnaires, such as the mean, standard deviation, and frequency distribution for each measured variable. To analyze the relationship between sentiment in digital content and students' writing quality, Pearson correlation analysis was conducted. This correlation test aimed to identify the extent to which exposure to digital content with positive sentiment was associated with improvements in

writing quality, particularly in terms of creativity, idea organization, and the use of more varied vocabulary.

In addition, sentiment analysis was conducted using Natural Language Processing (NLP) technology to evaluate the texts to which students were exposed. The sentiment contained in the digital content consumed by students was analyzed based on three categories: positive, neutral, and negative. Through this analysis, researchers were able to examine how differences in the types of sentiment in digital content influence students' writing styles.

Results and Discussions

In this section, the research findings regarding the influence of digital content produced by influencers on students' writing styles in descriptive texts are presented. The data used in this study were obtained through interviews, observations, and questionnaire analyses involving (n=63) students from Muhammadiyah University of Gorontalo and IAIN Sultan Amai Gorontalo. The analysis process included descriptive statistics, sentiment analysis, correlation tests, and chi-square tests, providing a comprehensive overview of the relationship between exposure to digital content and the quality of students' writing.

Descriptive Statistics

Descriptive statistical analysis was conducted to identify patterns in the distribution of data related to the variables examined in this study. The main variables measured were the influence of digital content on students' writing styles and the changes that occurred after they were exposed to influencer-generated digital content. Based on the results of the questionnaire administered to 63 students, it was found that most students felt strongly influenced by digital content, particularly in terms of language style, sentence structure, and vocabulary choice. The results of the descriptive statistical calculations are presented in Table 1.

Table 1. Descriptive Statistics for Assessment Variables

Variable	N	Minimum	Maximum	Mean	Standard Deviation
Preference or Language Style	63	2	5	4.19	0.877
Adopting a Language Style	63	2	5	3.97	0.861
The Influence of Content on Writing Style	63	3	5	4.19	0.840
Imitating the Language Style/Emoji of Influencers	63	2	5	4.00	0.898
Time Spent on Social Media per Day	63	2	5	3.51	0.914
Assessment of Sentence Structure	63	2	5	4.06	0.931
Assessment of Vocabulary	63	3	5	4.08	0.867
Assessment of Coherence and Cohesion	63	2	5	4.05	0.888
Assessment of Detail and Description	63	2	5	4.33	0.880
Total Score for Variable Y	63	9	20	16.52	3.393

From Table 1, it is reported that the mean scores for most variables indicate that students feel strongly influenced by digital content, particularly in terms of language style, sentence structure, and vocabulary choice. The majority of students reported feeling exposed to content produced by influencers, especially in aspects of self-expression, creativity, and writing structure.

This study found that exposure to influencer content with an informal and expressive language style altered the way students write, leading them to rely more on free vocabulary and adopt a more creative writing style. Conversely, students exposed to influencer content with a more formal and objective writing style reported that their writing became more structured and formal, indicating that the influence of language style can reinforce structure and precision in their writing.

The interview findings support these results, as reported by students who follow influencer Jerome Polin, stating that they feel more expressive in writing and tend to use a more relaxed and informal

language style. In contrast, students who follow influencer Najwa Shihab reported that their writing is more formal and structured, consistent with the language style employed by the influencer.

Previous research supports these findings, (Buwono & Dewantara, 2020) It has been highlighted that positive sentiment in digital content can foster increased student engagement and motivation, which in turn may lead to improved writing performance. They demonstrated that exposure to positive digital content can encourage students to be more creative and productive in their writing. This aligns with the findings of the present study, where exposure to positive content enhanced the quality of students' writing, particularly in terms of creativity and sentence structure.

On the other hand, (Diana & Santika, 2020; Fawzy et al., 2023) They emphasize that exposure to informal digital content can influence students' linguistic habits, often leading to the adoption of a more informal language style. They note that although this may enhance creativity, it can also reduce precision in academic writing. This aligns with the findings of the present study, where students exposed to informal content tended to emulate a freer and more expressive writing style, which may compromise the quality of their academic writing if not properly guided.

Correlation between Content Influence and Students' Writing Skills

The results of the Pearson correlation test between the influence of digital content (variable X) and students' writing quality (variable Y) indicate a highly significant relationship. The correlation value obtained was 0.950, suggesting that the greater the students' exposure to digital content with positive sentiment, the better their writing quality in descriptive texts. These findings confirm the hypothesis that the sentiment contained in digital content can influence students' academic writing quality. Furthermore, the results demonstrate a very strong relationship between the two variables, as evidenced by a significance value of 0.001. Overall, these results indicate that exposure to digital content has a direct impact on students' writing abilities, particularly in the context of descriptive writing.

Table 2. Pearson Correlation between Digital Content Influence and Students' Writing Skills

Variable	Total Score X	Total Score Y
Digital Content Influence (X)	Pearson Correlation	1
	Sig. (2-tailed)	0.001
	N	63
Students' Writing Skills (Y)	Pearson Correlation	0.950**
	Sig. (2-tailed)	0.001
	N	63

This high correlation value (0.950) indicates a very strong relationship between the digital content consumed by students and the quality of their writing. Exposure to positive digital content, which often includes elements of motivation and creativity, directly contributes to the improvement of students' writing quality. In this context, positive sentiment in digital content plays a crucial role in enhancing creativity, word choice, and even sentence structure in descriptive writing. Further details can be seen in Figure 1 below.

This very strong correlation ($r = 0.950$) indicates that frequent exposure to digital content with positive sentiment is closely associated with higher writing quality, particularly in creativity, vocabulary use, and sentence structure. Students who consume positively framed content tend to demonstrate richer word choice, clearer idea organization, and more expressive yet structured descriptive writing, supporting previous findings that positive digital sentiment can motivate more innovative writing practices (Galaresa & Sundari, 2019; Hastuti, 2021). At the same time, digital content—especially influencer-generated material with informal language can shape students' linguistic habits (Yao et al., 2024). These results also highlight the role of emotional engagement in the writing process, as emotionally positive content appears to enhance students' cognitive involvement and writing performance, extending earlier research on digital storytelling and critical thinking in writing development (Wahid & Sudirman, 2023).

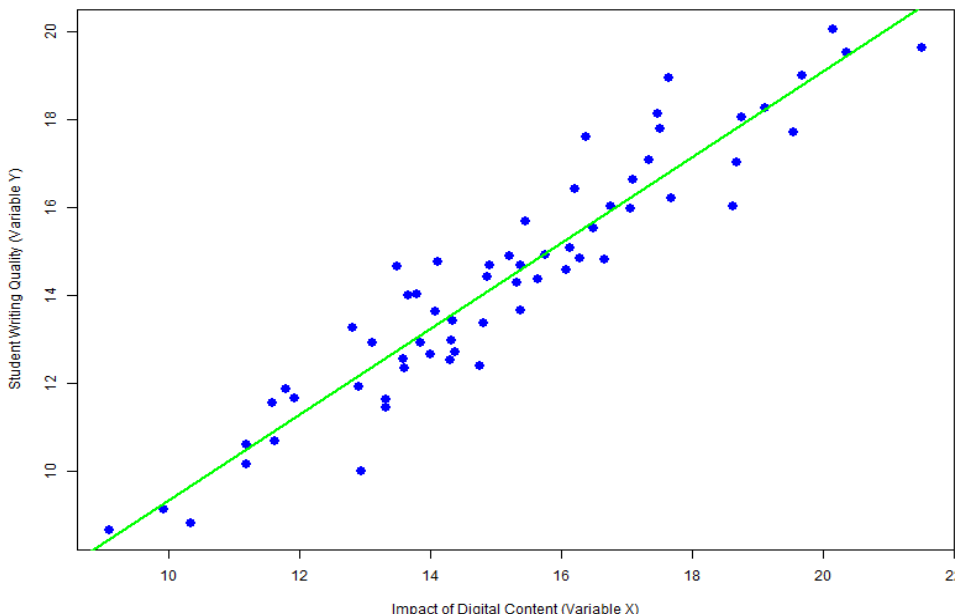


Figure 1. The Relationship between Digital Content Influence and Students' Writing Skills

NLP-Based Sentiment Analysis on Review Texts

Sentiment analysis was conducted to investigate how sentiment in digital content consumed by students influences the quality of their writing. Data obtained from the analysis of review texts indicate a significant relationship between the sentiment contained in digital content and students' writing outcomes. This analysis employed Natural Language Processing (NLP) methods to assess whether the sentiment in texts consumed by students, such as those produced by influencers, affects their writing quality. In this study, 10 review texts selected as samples were analyzed to identify the sentiment contained within them, categorized as positive, neutral, or negative. The following presents the results of the sentiment analysis on the review texts consumed by students:

Table 3. Sentiment in Review Texts

No.	Text	NLP Sentiment
1	"My visit to Bali was very enjoyable! The beaches are beautiful and the local food is delicious."	Positive
2	"I just tried a new place in Jakarta; the atmosphere is comfortable, but the service is slow."	Neutral
3	"Today, I still started work even though it was actually exhausting."	Neutral
4	" After practicing all day, I feel very satisfied and healthier!"	Positive
5	" Today's shooting activities were very exhausting, but fun!"	Positive
6	" The weather here is extremely hot, not comfortable at all."	Negative
7	" The food at this restaurant is delicious, but the prices are too expensive.."	Neutral
8	" Hanging out with friends is really enjoyable."	Positive
9	" The view from the top of this mountain is amazing, very satisfying!"	Positive
10	" There are so many tourists here, so it's a bit difficult to enjoy this place peacefully."	Negative

The selected texts reflect various levels of sentiment positive, neutral, and negative commonly found on social media or in content produced by influencers. The results of this analysis indicate that content with positive sentiment has a stronger impact on students' writing quality. Conversely, content with neutral or negative sentiment tends to produce more formal and structured writing, suggesting that the type of content consumed influences the writing style produced.

Furthermore, Table 3 presents a cross-tabulation between the sentiment of digital content consumed by students and the quality of their writing. These results provide a more detailed view of the relationship between sentiment type and students' writing quality.

Table 4. Cross-tabulation of NLP Sentiment Analysis on Content and Writing Quality

		Writing Quality Categories			Total
		Low	Medium	High	
NLP Content Sentiment	Positive	0	0	35	35
	Neutral	0	14	7	21
	Negative	2	5	0	7
Total		2	19	42	63

In Table 4 above, it can be seen that the majority of students exposed to content with positive sentiment produced high-quality writing (35 students). Conversely, students exposed to content with neutral sentiment produced writing of moderate quality, while students exposed to content with negative sentiment produced low-quality writing. Further details can be seen in Figure 2 below:

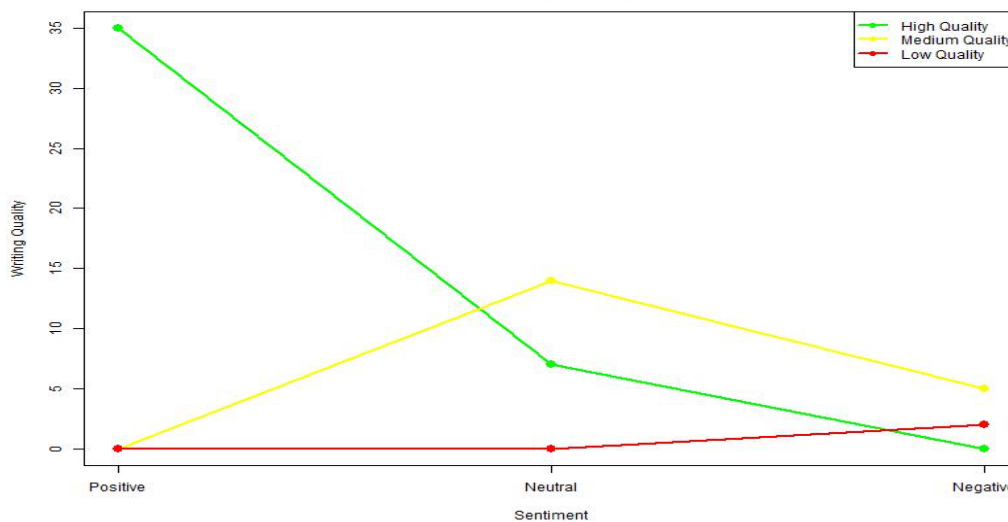


Figure 2. NLP Sentiment Analysis on Content and Writing Skills Quality

Based on these results, it can be observed that the majority of students exposed to content with positive sentiment produced high-quality writing (35 students). Conversely, students exposed to content with neutral sentiment produced writing of moderate quality, while students exposed to content with negative sentiment produced low-quality writing.

These findings confirm that the sentiment in digital content consumed by students plays a significant role in shaping their writing quality. Content with positive sentiment appears to enhance students' motivation and creativity in writing, contributing to improved quality of their work. Meanwhile, content with neutral or negative sentiment tends to result in more structured and formal writing, which may indicate reduced emotional engagement of students in their writing tasks.

Findings from interviews and observations of students also support the sentiment analysis results. Some students who follow influencers with an informal language style, such as Jerome Polin, reported feeling more expressive and freer in their writing. They tend to use a more relaxed language and include emojis in their texts. Conversely, students who follow influencers with a formal style, such as Najwa Shihab, felt that their writing became more structured and formal. This indicates that the sentiment contained in influencer content influences students' writing styles, both in terms of self-expression and writing precision. (Vo & Pham, 2019; Yanti et al., 2020) found that positive sentiment in digital content can promote better writing outcomes, as it enhances students' emotional engagement with the learning material. On the other hand, negative sentiment tends to reduce engagement and motivation, which may hinder writing quality (Li et al., 2024; Melton et al., 2021). The

findings of this study reinforce these results, indicating that the sentiment in digital content consumed by students significantly influences the quality of their writing.

The findings of this study reinforce these results, indicating that the sentiment in digital content consumed by students significantly influences the quality of their writing. (Nuriah et al., 2023; Purnamasari et al., 2021) It explains that students' ability to effectively utilize digital tools is associated with improvements in their writing quality. Good digital literacy enables students to access, manage, and critically evaluate various types of digital content, which in turn can influence the quality of their writing. However, exposure to informal digital content, such as that commonly found on social media platforms, may lead to the adoption of language styles that are less aligned with academic writing standards, potentially reducing the quality of their work.

Overall, the NLP-based sentiment analysis in this study provides valuable insights into how exposure to digital content affects students' writing quality. The results indicate that positive sentiment in digital content can enhance students' writing quality, whereas neutral or negative sentiment tends to produce more formal and structured writing. These findings make an important contribution to writing education, particularly in developing teaching strategies that help students balance creativity and precision in their academic writing.

Chi-Square Test for Content Sentiment and Writing Skills Quality

To analyze the deeper relationship between sentiment in digital content and students' writing quality, this study employed the chi-square test. The chi-square test was used to determine whether there is a significant relationship between the type of sentiment in digital content consumed by students and the quality of their writing. The results of the chi-square test indicated a highly significant relationship between the two variables, namely digital content sentiment and students' writing quality.

Table 4. Chi-Square Test for the Influence of Content Sentiment on Writing Quality

Uji Chi-Square	Score	df	Asymp. Sig. (2-tailed)
Pearson Chi-Square	53.789	4	0.001
Likelihood Ratio	58.300	4	0.001
Linear-by-Linear Association	41.665	1	0.000
N of Valid Cases	63		

Based on the chi-square test results, the Pearson Chi-Square value was 53.789 with a very low significance level of 0.001. This indicates a highly significant relationship between the type of sentiment in digital content consumed by students and the quality of their writing. The low significance value ($p < 0.05$) further reinforces the finding that sentiment in digital content has a direct impact on students' academic writing quality. In other words, the type of sentiment present in the content students consume influences how they write, including aspects of creative expression, structure, and writing accuracy.

The results of this chi-square test support previous findings indicating that sentiment in digital content not only influences students' creativity but also improves the overall quality of their writing. Writing influenced by positive sentiment tends to result in higher-quality output, particularly in the context of descriptive writing, which requires clear, organized, and detailed depiction. Conversely, exposure to digital content with neutral or negative sentiment is more likely to produce more formal writing, with rigid structure and less reliance on self-expression.

Analysis of the Impact of Positive Sentiment in Digital Content

Positive sentiment in digital content, commonly found on social media platforms managed by influencers, has a significant impact on students' writing quality. Content with positive sentiment often includes motivational elements, emotional support, and inspiring language, which can enhance students' confidence in writing. For instance, students exposed to digital content with positive sentiment report improvements in their ability to construct sentences more creatively and expressively, as reflected in the quality of their writing. This aligns with the findings of (Khaira et al., 2020) which indicates that positive sentiment in digital content can stimulate higher emotional engagement, which in turn positively affects writing quality.

As an illustration, students who follow influencers like Jerome Polin, known for his casual and expressive language style, reported feeling freer and more confident in their writing. This relaxed and less formally structured language allows them to express their ideas more creatively, without being constrained by the rigidity often found in formal academic writing. This demonstrates that positive influence in digital content can help students expand the ways they express themselves through writing (Parlika et al., 2020; Syifa et al., 2022).

Impact of Neutral or Negative Sentiment in Digital Content

On the other hand, content with neutral or negative sentiment tends to produce writing that is more formal and structured, but with lower quality in terms of creativity and expression. Students exposed to content with neutral or negative sentiment tend to focus more on delivering information objectively and in an organized manner, yet they are less able to develop a freer and more creative writing style. Digital content with negative sentiment often emphasizes criticism or problems, which can reduce students' emotional engagement in their writing.

Previous studies, such as those by Alkaab (Alkaab, 2024; Rasyidah et al., 2020), have shown that negative or neutral sentiment in digital content can limit students' freedom of expression and encourage them to write in a more formal and structured style. These findings are further reinforced by the sentiment analysis results in this study, which indicate that exposure to content with negative sentiment tends to reduce students' creativity, as reflected in a decline in their writing quality.

The chi-square test results, which show a highly significant relationship between digital content sentiment and students' writing quality, support existing literature on the influence of sentiment on student engagement and writing quality. Content with positive sentiment not only enhances students' creativity but also encourages them to produce higher-quality writing. Conversely, content with neutral or negative sentiment tends to result in more structured writing that is less expressive and creative.

These findings have important implications for writing education in the digital era. Given that students are heavily exposed to various types of digital content, it is crucial for educators to understand how sentiment in this content influences students' writing style and quality. Implementing teaching strategies that leverage positive digital content can enhance students' writing quality, especially in descriptive writing, which requires a balance between creativity and precision (Syifa et al., 2022). Therefore, educators need to design more holistic teaching strategies that combine the positive influence of digital content with formal academic writing skills.

The findings of this study indicate that exposure to influencer-generated digital content is associated with variations in students' descriptive writing styles, particularly in creativity, vocabulary use, and sentence structure. Rather than suggesting a direct causal relationship, these results highlight a meaningful association between the type of digital content students consume and their perceived writing practices. This finding reflects broader changes in communication patterns in the digital era, where informal and expressive language increasingly coexists with academic writing demands. The discussion therefore focuses on interpreting these associations within the limits of a cross-sectional design, while situating the findings in relevant educational and linguistic contexts.

Changes in Students' Writing Style After Exposure to Digital Content

The results show that a large proportion of students reported changes in their writing style after exposure to influencer-generated digital content, particularly in terms of creativity, vocabulary choice, and sentence structure. Students who regularly consumed informal and expressive digital content tended to perceive their writing as more flexible and creative, whereas those exposed to more formal content reported increased attention to structure and organization (Kusuma, 2020). These findings are consistent with Manurung et al. (2024), who reported that digital media exposure often encourages relaxed language use that may diverge from formal grammatical conventions. While such exposure may enhance expressive writing, it also raises concerns regarding academic accuracy and consistency, as noted by Buwono and Dewantara (2020) and Sutadi (2020).

However, these findings should be interpreted cautiously, as the reported changes are based on students' perceptions rather than direct textual analysis of their written work. Moreover, the observed associations do not imply that digital content alone determines students' writing styles. Instead, the

findings suggest that frequent exposure to certain linguistic patterns may influence students' preferences and habits when composing descriptive texts. This highlights the ongoing challenge students face in shifting between informal digital writing and formal academic conventions.

The Relationship Between Positive Sentiment and Writing Quality

The analysis indicates a significant association between exposure to digital content with positive sentiment and higher perceived writing quality, particularly in creativity, idea organization, and sentence construction. Pearson correlation results suggest that students exposed to positive digital content tend to report greater motivation and confidence when writing. These findings align with previous studies emphasizing the role of positive emotional input in enhancing writing motivation and self-efficacy (Mushoffa et al., 2019; Puspitaloka, 2019).

Positive sentiment may contribute to deeper emotional engagement during the writing process, which is especially relevant in descriptive writing that requires vivid and coherent expression (Irwanto et al., 2020). Nevertheless, this relationship should not be interpreted as evidence that positive sentiment inherently leads to superior academic writing. Rather, positive emotional engagement appears to support expressive aspects of writing, which may or may not align with academic standards depending on students' ability to regulate their language use.

The Impact of Neutral and Negative Sentiment on Writing Style

In contrast, exposure to digital content with neutral or negative sentiment was associated with writing that students perceived as more structured but less expressive. Neutral content appears to encourage an objective and informational writing style, which may reduce emotional involvement in the writing process. This finding corresponds with previous research suggesting that limited emotional engagement can constrain expressive language use (Astiantih & Akfan, 2023; Girmen et al., 2019; Winasis, 2020).

Negative sentiment, meanwhile, may evoke cautious or defensive responses in students' writing. As noted by Febriana et al. (2023), Jufrida et al. (2021), and Kurniawan et al. (2024), exposure to negatively charged content can lead students to prioritize logical structure and accuracy over creativity. While such writing may align more closely with formal academic conventions, it may also limit descriptive richness and flexibility. These findings suggest that sentiment influences not only emotional engagement but also stylistic choices in writing.

Sentiment and Emotional Engagement in the Writing Process

The findings further indicate that sentiment in digital content plays a role in shaping students' emotional engagement with writing tasks. Students exposed to positive sentiment reported higher motivation and openness in expressing ideas, which may contribute to more developed and detailed descriptive texts. This observation is consistent with previous research emphasizing the role of emotional intelligence and affective factors in learning and writing development (Susilaningsih et al., 2020; Yundayani et al., 2020). Conversely, exposure to neutral or negative content was associated with more mechanical writing approaches and reduced expressiveness, supporting the findings of Djaling and Purba (2020).

However, emotional engagement alone does not guarantee high-quality academic writing. Without sufficient awareness of academic conventions, increased expressiveness may result in writing that deviates from expected formal standards. This underscores the need to balance emotional involvement with linguistic and structural control.

The Role of Digital Literacy in Academic Writing

Digital literacy emerged as an important contextual factor in moderating how students respond to digital content. Students with stronger digital literacy skills are better equipped to critically evaluate online content and adapt their language use according to academic expectations (S. T. R. Ferdiana & Aina, 2020). Such skills help students manage the influence of informal digital language and reduce risks such as plagiarism or inappropriate language transfer (R. Ferdiana et al., 2019).

Furthermore, digital literacy enables students to utilize digital tools to refine their writing and adjust stylistic choices when moving between informal and academic contexts (Hendar et al., 2022). While this study did not statistically test digital literacy as a mediating variable, the findings suggest its potential role in shaping students' ability to navigate diverse writing styles in the digital era.

Implications and Limitations

Overall, this study demonstrates that exposure to influencer-generated digital content is associated with variations in students' descriptive writing styles, particularly in relation to sentiment and emotional engagement. Positive sentiment appears to support creativity and motivation, whereas neutral and negative sentiment is associated with more structured but less expressive writing. These findings highlight the importance of integrating digital literacy into writing instruction to help students critically engage with digital content and adapt their writing to academic contexts.

Nevertheless, this study has limitations that should be acknowledged. The reliance on self-reported data limits the ability to draw conclusions about actual changes in writing quality, and the cross-sectional design does not allow for causal inferences. Future research should incorporate textual analysis of students' written work and longitudinal designs to better capture changes over time. Despite these limitations, the findings contribute to a more nuanced understanding of how digital content, sentiment, and digital literacy intersect in shaping academic writing practices in higher education.

Conclusions

It can be concluded that exposure to digital content with positive sentiment is closely associated with improvements in students' writing quality, particularly in terms of creativity, sentence structure, and vocabulary choice. Conversely, content with negative or neutral sentiment tends to result in more formal and structured writing, but less expressive. This study also highlights the importance of digital literacy in mediating the influence of digital content on students' writing quality, where students with strong digital literacy are better able to navigate the differences between informal and formal writing.

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References

- Alazemi, A. F., Sa'di, I., & Al-Jamal, D. (2019). Effects of Digital Citizenship on EFL Students' Success in Writing. *International Journal of Learning Teaching and Educational Research*, 18(4), 120–140. <https://doi.org/10.26803/ijlter.18.4.7>
- ALKaab, S. N. S. (2024). Improving Students' Creative Writing Ability Through SCAMPER Technique. *Theory and Practice in Language Studies*, 14(5), 1576–1581. <https://doi.org/10.17507/tpsls.1405.31>
- Astiantih, S., & Akfan, S. S. (2023). Utilizing Concept Maps to Enhance Students' Writing Skills. *Journal of Languages and Language Teaching*, 11(3), 433. <https://doi.org/10.33394/jollt.v11i3.7993>
- Aziz, F. A., Alsaed, A. S. M. A., Sulaiman, S., Ariffin, M. K. A. M., & Al-Hakim, M. F. (2020). Mixed reality improves education and training in assembly processes. *Journal of Engineering and Technological Sciences*, 52(4), 598–607. <https://doi.org/10.5614/j.eng.technol.sci.2020.52.4.10>
- Bal, M., Aydemir, A. G. K., & Coşkun, M. V. (2024). Exploring YouTube Content Creators' Perspectives on Generative AI in Language Learning: Insights Through Opinion Mining and Sentiment Analysis. *Plos One*, 19(9), e0308096. <https://doi.org/10.1371/journal.pone.0308096>
- Bhowmik, A., Noor, N. M., Miah, M. S. U., & Karmaker, D. (2023). Aspect-Based Sentiment Analysis Model for Evaluating Teachers' Performance From Students' Feedback. *Aiub Journal of Science and Engineering (Ajse)*, 22(3), 287–294. <https://doi.org/10.53799/ajse.v22i3.921>
- Buwono, S., & Dewantara, J. A. (2020). Hubungan Media Internet, Membaca, Dan Menulis Dalam Literasi Digital Mahasiswa. *Jurnal Basicedu*, 4(4), 1186–1193. <https://doi.org/10.31004/basicedu.v4i4.526>
- Camacho, A., Alves, R. A., Smedt, F. D., Keer, H. V., & Boscolo, P. (2021). Relations Among Motivation,

- Behaviour, and Performance in Writing: A Multiple-group Structural Equation modeling Study. *British Journal of Educational Psychology*, 91(4), 1456–1480. <https://doi.org/10.1111/bjep.12430>
- Castillo-Cuesta, L., Quinonez-Beltran, A., Cabrera-Solano, P., Ochoa-Cueva, C., & Gonzalez-Torres, P. (2021). Using Digital Storytelling as a Strategy for Enhancing EFL Writing Skills. *International Journal of Emerging Technologies in Learning (Ijet)*, 16(13), 142. <https://doi.org/10.3991/ijet.v16i13.22187>
- Chew, S. L., & Cerbin, W. J. (2021). The cognitive challenges of effective teaching. *Journal of Economic Education*, 52(1), 17–40. <https://doi.org/10.1080/00220485.2020.1845266>
- Cintamulya, I., Mawartiningsih, L., & Warli, W. (2023). The Effect of Optimizing Digital and Information Literacy in Writing Scientific Articles on Students' Critical Thinking Skills. *Al-Ishlah Jurnal Pendidikan*, 15(2), 1987–1998. <https://doi.org/10.35445/alishlah.v15i2.3062>
- Diana, A., & Santika, R. R. (2020). Pengembangan Kompetensi Digital Academics Writing Berbasis COST Untuk Remaja Di Puri Cinere Hijau Depok. *Transformasi Jurnal Pengabdian Masyarakat*, 16(2), 165–177. <https://doi.org/10.20414/transformasi.v16i2.2659>
- Djaliling, K. W., & Purba, D. E. (2020). Efek Mediasi Makna Hidup Pada Hubungan Antara GRIT Dan Kepuasan Hidup Pada Mahasiswa. *Jurnal Psikologi Ulayat*, 6(2), 135–149. <https://doi.org/10.24854/jpu91>
- Fawzy, M., Fakhr, M. W., & Rizka, M. A. (2023). ArSentBERT: Fine-Tuned Bidirectional Encoder Representations From Transformers Model for Arabic Sentiment Classification. *Bulletin of Electrical Engineering and Informatics*, 12(2), 1196–1202. <https://doi.org/10.11591/eei.v12i2.3914>
- Febriana, A. P., Amin, S., Kurniawan, M. A., & Maulidiah, L. (2023). The Influence of Outdoor Study Model and Learning Motivation on Social Sciences Learning Outcomes. *Dinamika Sosial Jurnal Pendidikan Ilmu Pengetahuan Sosial*, 2(3), 342–352. <https://doi.org/10.18860/dsjpips.v2i3.3067>
- Ferdiana, R., Jatmiko, F., Purwanti, D. D., Ayu, A. S. T., & Dicka, W. F. (2019). Dataset Indonesia Untuk Analisis Sentimen. *Jurnal Nasional Teknik Elektro Dan Teknologi Informasi (Jnteti)*, 8(4), 334. <https://doi.org/10.22146/jnteti.v8i4.533>
- Ferdiana, S. T. R., & Aina, Q. (2020). Profil Literasi Sains Digital Mahasiswa Di Era Pandemi. *Indonesian Journal of Science Learning (Ijsl)*, 1(2), 37–43. <https://doi.org/10.15642/ijsl.v1i2.954>
- Galaresa, A. V., & Sundari, S. (2019). Penggunaan Metode Simulasi Dalam Peningkatan Critical Thinking: Literature Review. *Jurnal Penelitian Keperawatan*, 5(1). <https://doi.org/10.32660/jurnal.v5i1.332>
- Ghouali, K., & Benmoussat, S. (2019). Investigating the Effect of Social Media on EFL Students' Written Production: Case of Third-Year EFL Students at Tlemcen University, Algeria. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3400418>
- Girmen, P., Özkanal, Ü., & Dayan, G. (2019). Digital Storytelling in the Language Arts Classroom. *Universal Journal of Educational Research*, 7(1), 55–65. <https://doi.org/10.13189/ujer.2019.070108>
- Hastuti, S. D. S. (2021). The Influence of Vocabulary and Grammar Mastery on the Students' Writing Skill at Yogyakarta State University. *Media Wisata*, 13(1). <https://doi.org/10.36276/mws.v13i1.213>
- Hendar, H., Tanjung, R., Arini, D. A., Syahid, A., & Rudiyan. (2022). Pemanfaatan Youtube Sebagai Media Pembelajaran Guna Meningkatkan Motivasi Belajar Siswa. *Jurnal Tahsinia*, 3(1), 1–10. <https://doi.org/10.57171/jt.v3i1.305>
- Irwanto, K. A., Aditomo, A., & Natalya, L. (2020). "Why Fiction Is Better Than Reality": The Influence of Reading Fiction Narrative on Empathy ["Why Fiction Is Better Than Reality": Pengaruh Membaca Fiction Narrative Terhadap Empati]. *Anima Indonesian Psychological Journal*, 35(2). <https://doi.org/10.24123/aipj.v35i2.2909>
- Jufrida, J., Astalini, A., Darmaji, D., Tanti, T., Kurniawan, D. A., Erika, E., Hayi, R., & Sukarni, W. (2021). Student Responses to the Application of the Number Head Together Learning Model in Physics Subjects. *Jurnal Pendidikan Fisika Indonesia*, 17(2), 151–159. <https://doi.org/10.15294/jpfi.v17i2.24083>
- Kaeophanuek, S., Na-Songkhla, J., & Nilsook, P. (2019). A Learning Process Model to Enhance Digital Literacy Using Critical Inquiry Through Digital Storytelling (CIDST). *International Journal of Emerging Technologies in Learning (Ijet)*, 14(03), 22. <https://doi.org/10.3991/ijet.v14i03.8326>
- Khaira, U., Johanda, R., Utomo, P. E. P., & Suratno, T. (2020). Sentiment Analysis of Cyberbullying on

- Twitter Using SentiStrength. *Indonesian Journal of Artificial Intelligence and Data Mining*, 3(1), 21. <https://doi.org/10.24014/ijaidm.v3i1.9145>
- Kurniawan, K., Khoirunnisa, K., & Masrina, D. (2024). Pengembangan Media Edukasi Kreatif Berbasis Digital Untuk Peningkatan Kesejahteraan Mental Anak Dengan Stunting Di Kabupaten Pangandaran. *Jurnal Kreativitas Pengabdian Kepada Masyarakat (Pkm)*, 7(4), 1881–1893. <https://doi.org/10.33024/jkpm.v7i4.14074>
- Kusuma, C. S. D. (2020). Dampak Media Sosial Dalam Gaya Hidup Sosial (Studi Kasus Pada Mahasiswi Pendidikan Administrasi Perkantoran Fe Uny). *Efisiensi - Kajian Ilmu Administrasi*, 17(1), 15–33. <https://doi.org/10.21831/efisiensi.v17i1.30436>
- Li, J., Zong, H., Wu, E., Wu, R., Peng, Z., Zhao, J., Yang, L., Xie, H., & Shen, B. (2024). Exploring the Potential of Artificial Intelligence to Enhance the Writing of English Academic Papers by Non-Native English-Speaking Medical Students - The Educational Application of ChatGPT. *BMC Medical Education*, 24(1). <https://doi.org/10.1186/s12909-024-05738-y>
- Mahfud, T., Masek, A., Suyitno, S., Ihsani, A. N. N., Fransisca, Y., Pranoto, P. W., Pranoto, A., Hadi, S., & Susanto, A. (2024). The Role of Work-Based Learning in Enhancing Career Adaptability: An Empirical Study from Vocational Students in Indonesian and Malaysian Universities. *Integration of Education*, 28(3), 436–453. <https://doi.org/10.15507/1991-9468.116.028.202403.436-453>
- Manurung, A., Sutisna, S., Kurniadi, A., Widodo, P., & Kusuma, K. (2024). Strategi Penanggulangan Bencana Pada Badan Penanggulangan Bencana Daerah: Kajian Literatur. *Manajemen Dan Kewirausahaan*, 5(2), 125–144. <https://doi.org/10.53682/mk.v5i2.9590>
- Melton, C., Olusanya, O. A., Ammar, N., & Shaban-Nejad, A. (2021). Public Sentiment Analysis and Topic Modeling Regarding COVID-19 Vaccines on the Reddit Social Media Platform: A Call to Action for Strengthening Vaccine Confidence. *Journal of Infection and Public Health*, 14(10), 1505–1512. <https://doi.org/10.1016/j.jiph.2021.08.010>
- Montgomery, D. C. (2013). Design and Analysis of Experiments. In L. Ratts, L. Buonocore, A. Melhorn, C. Ruel, H. Nolan, & M. Eide (Eds.), *Design* (8th ed., Vol. 2). John Wiley & Sons, Inc. http://cataleg.uab.cat/record=b1764873~S1*cat
- Mushoffa, M., Dawud, D., & Suyitno, I. (2019). Hubungan Sikap Belajar Dengan Kualitas Isi Karya Tulis Ilmiah Siswa Kelas XI. *Jurnal Pendidikan Teori Penelitian Dan Pengembangan*, 4(4), 427. <https://doi.org/10.17977/jptpp.v4i4.12230>
- Nkhi, S. E. (2023). An Investigation Into the Impact of Digital Social Media on the Writing and Speaking Skills of Tertiary Level Students in One Institution in Lesotho. *J-Shmic Journal of English for Academic*, 10(1), 83–93. [https://doi.org/10.25299/jshmic.2023.vol10\(1\).11784](https://doi.org/10.25299/jshmic.2023.vol10(1).11784)
- Nuriah, N., Riandi, R., & Gumelar, R. E. (2023). The Effect of Think-Talk-Write (TTW) Strategy Toward Students' Descriptive Text Writing Skill at the Tenth Grade of MAN 2 Pandeglang in Academic Year 2021-2022. *Journal of English Education Studies*, 6(1), 11–17. <https://doi.org/10.30653/005.202361.105>
- Parlika, R., Pradika, S. I., Hakim, A. M., & N.M, K. R. (2020). Analisis Sentimen Twitter Terhadap Bitcoin Dan Cryptocurrency Berbasis Python TextBlob. *Jurnal Ilmiah Teknologi Informasi Dan Robotika*, 2(2). <https://doi.org/10.33005/jifti.v2i2.22>
- Pellas, N., Kazanidis, I., Konstantinou, N., & Georgiou, G. (2017). Exploring the educational potential of three-dimensional multi-user virtual worlds for STEM education: A mixed-method systematic literature review. *Education and Information Technologies*, 22(5), 2235–2279. <https://doi.org/10.1007/s10639-016-9537-2>
- Purnamasari, D., Hidayat, D. N., & Kurniawati, L. (2021). An Analysis of Students' Writing Skill on English Descriptive Text. *English Education Jurnal Tadris Bahasa Inggris*, 14(1), 101–114. <https://doi.org/10.24042/ee-jtbi.v14i1.7943>
- Puspitaloka, N. (2019). The Effects of Grammar Mastery and Critical Thinking Towards Student's Descriptive Writing Skill. *Elt in Focus*, 2(1), 19–28. <https://doi.org/10.35706/eltinf.v2i1.2024>
- Putrayasa, I. M., Suwindia, I. G., & Ari Winangun, I. M. (2024). Transformasi literasi di era digital: tantangan dan peluang untuk generasi muda. *Education and Social Sciences Review*, 5(2), 156. <https://doi.org/10.29210/07essr501400>
- Rasyidah, Q. A., Fitryasari, R., & Wahyudi, A. S. (2020). Hubungan Tingkat Stres Dan Burnout Syndrome Dengan Kualitas Tidur Pada Mahasiswa Profesi Ners Fakultas Keperawatan Universitas Airlangga. *Psychiatry Nursing Journal (Jurnal Keperawatan Jiwa)*, 2(1), 16.

- <https://doi.org/10.20473/pnj.v2i1.19209>
- Susilaningsih, F. S., Lumbantobing, V., & Sholihah, M. M. (2020). Hubungan Kecerdasan Emosional Dengan Sikap Caring Mahasiswa Keperawatan Universitas Padjadjaran. *Jurnal Keperawatan Komprehensif*, 6(1), 1–15. <https://doi.org/10.33755/jkk.v6i1.141>
- Sutadi, Y. D. B. (2020). Pengaruh Minat Belajar Dan Persepsi Siswa Atas Gaya Hidup Digital Terhadap Kemampuan Menulis Deskripsi Siswa. *Diskursus Jurnal Pendidikan Bahasa Indonesia*, 2(03), 276. <https://doi.org/10.30998/diskursus.v2i03.6707>
- Syifa, Q. A., Baekani, A. K. A., & Srisudarso, M. (2022). Junior High School Students' Difficulties in Writing Descriptive Text. *Jiip - Jurnal Ilmiah Ilmu Pendidikan*, 5(10), 4470–4474. <https://doi.org/10.54371/jiip.v5i10.1044>
- Tenaja, J. F. M., & Oco, R. M. (2023). Utilization of Social Media and Learners' Creative Writing Skills. *Asian Journal of Education and Social Studies*, 44(3), 1–14. <https://doi.org/10.9734/ajess/2023/v44i3961>
- Ünalmiş, E., Dirsehan, T., & Erdoğan, İ. E. (2024). Consequences of influencer-created content on influencers' authenticity in the beauty and personal care industry. *Journal of Marketing Communications*, 7266. <https://doi.org/10.1080/13527266.2024.2371833>
- Vo, D., & Pham, T. (2019). Sentiment Analysis in Education. 1–6. https://doi.org/10.1007/978-981-13-2262-4_138-1
- Wahid, J. H., & Sudirman, S. (2023). The Effect of Mind Mapping Technique on Students' Writing Skills. *Journal of Languages and Language Teaching*, 11(1), 39. <https://doi.org/10.33394/jollt.v11i1.6692>
- Winasis, S. (2020). Transformasi Digital Di Industri Perbankan Indonesia : Impak Pada Stress Kerja Karyawan. *Iqtishadia Jurnal Ekonomi & Perbankan Syariah*, 7(1), 55–64. <https://doi.org/10.19105/iqtishadia.v7i1.3162>
- Yanti, N. F., Arapu, L. A. L., & Kadir, K. (2020). Pengaruh Kepercayaan Diri Terhadap Kemampuan Komunikasi Dan Hasil Belajar Matematika Siswa. *Jurnal Amal Pendidikan*, 1(3), 287. <https://doi.org/10.36709/japend.v1i3.15827>
- Yao, X., Shao, Y., & Luo, R. (2024). The Effectiveness of Using an H5P Pathway to Enhance College Students' Academic Style in Writing. *European Journal of Teaching and Education*, 6(1), 35–56. <https://doi.org/10.33422/ejte.v6i1.1221>
- Yundayani, A., Kardijan, D., & Apriliani, R. D. (2020). The Impact of Pbworks Application on Vocational Students' Collaborative Writing Skill. *Jurnal Cakrawala Pendidikan*, 39(3), 694–704. <https://doi.org/10.21831/cp.v39i3.25077>