

Analysis of Sources, Communication Channels and Perceptions of Kalimantan Students on Palm Oil Industry Information for The Period 2023-2024

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ABSTRACT

Keywords: source credibility, media richness theory, communication channels, Kalimantan, student perception.

This study examines how information sources and communication channels shape Kalimantan students' perceptions of the palm oil industry in 2023 and 2024. Using a positivist paradigm with descriptive and explanatory approaches, data were collected from students at Universitas Palangkaraya, Universitas Tanjungpura, and Universitas Mulawarman. Findings show that source credibility, including expertise, attractiveness, and trustworthiness, and media richness factors significantly influence perceptions. Students prefer credible sources and channels that provide diverse cues and personalised messages. These results support Source Credibility and Media Richness Theories, highlighting the need for credible sources and effective communication to enhance public trust. Future research should explore the combined effects of source and channel characteristics and gender-based perception differences.



Introduction

The palm oil industry is one of Indonesia's strategic commodities. According to data collected by BPD PKS (Oil Palm Plantation Fund Management Agency), the palm oil industry generated a foreign exchange value of US\$31 billion in 2023, which is the highest amount ever generated by the national palm oil industry. In addition, the palm oil industry also contributes to creating jobs for 16.5 million people working in the palm oil industry from upstream to downstream (PASPI, 2024).

The palm oil industry also has an important role in the global market with the following facts. First, palm oil is a very productive crop in producing vegetable oil, with the potential to produce vegetable oil 8-10 times per hectare compared to other vegetable oil-producing crops such as soybeans and olives (Aboregela et al., 2023). Second, the palm oil industry also provides significant benefits in creating jobs, especially in major producing countries such as Indonesia and Malaysia. Third, palm oil has a very wide use and can be used in various products such as food products, industrial products, beauty products, and bioenergy, through the multifunctional benefits of palm oil, the palm oil industry has become a vital component in various sectors of the world economy. Fourth, the palm oil industry has also encouraged advances in agricultural technology, including

more efficient and sustainable plantation management practices. Finally, the palm oil industry provides vegetable oil for the world community.

In addition to high productivity, palm oil also has a competitive price compared to other vegetable oils in the international market. This makes the palm oil industry face global competition for vegetable oils, making it a threat to other vegetable oils. Competitive palm oil prices force other vegetable oil industries to use non-price competition strategies to bring down the image of the palm oil industry in the international market through the formation of issues that are massively and systematically disseminated.

The dissemination of negative issues against palm oil is carried out through international and national Non-Governmental Organization (NGO) networks and social media such as YouTube, Instagram, Twitter, and TikTok. In the last twenty years, international and national anti-palm oil NGOs have carried out various attacks on the palm oil industry through various propaganda campaigns to influence the perception of the global community, especially the younger generation, in seeing the palm oil industry as an environmentally unfriendly, unhealthy and inhumane industry (Saleh et al., 2021).

One of the accusations made against the palm oil industry is that the expansion of oil palm plantations has resulted in human rights violations against local communities in West Kalimantan, resulting in local communities losing access to agricultural land and facing increased poverty and food insecurity. The palm oil industry is also accused of not providing significant economic benefits in rural areas that develop oil palm plantations in Kalimantan, but rather causing unsustainability in the livelihoods of local villagers (Cardia et al., 2019). The palm oil industry is also often associated with the issue of deforestation that destroys tropical rainforests in Indonesia (PASPI, 2023), biodiversity loss (Austin et al., 2019), the cause of excessive greenhouse gas effects (PASPI, 2023) and other environmental issues.

From a health perspective, palm oil derivative products are also associated as a cause of cholesterol disease, cardiovascular, obesity, diabetes, lipid metabolism, inflammation, and oxidative stress (Ismail et al., 2018; Odia et al., 2015).

PASPI (Palm Oil Agribusiness Strategic Policy Institute) in the fourth edition of the book *Myths of Palm Oil Industry Facts* found several main issues used in the anti-palm oil campaign including economic, social, health, and environmental issues. The issue of the palm oil economy, includes the contribution of palm oil to farmers' income, the contribution of palm oil to regional economic growth, the contribution of palm oil in food fulfillment, the contribution of palm oil to renewable energy materials, and the contribution of palm oil to Indonesia's foreign exchange contribution (PASPI, 2023: 25-60).

In the social issue of palm oil, the issues raised include, the contribution of palm oil in reducing unemployment in rural areas, the contribution of palm oil in poverty reduction in rural areas, the contribution of palm oil in the development of public facilities in rural areas, the contribution of palm oil in the restoration of disadvantaged areas, and gender

discrimination between male and female employees in the palm oil industry (PASPI, 2023: 63-89).

In the issue of palm health, the issues raised include, palm oil is not a healthy and nutritious vegetable oil, palm oil makes food unpleasant and not crispy, palm oil is an oil that is cholesterol, palm oil contains low antioxidant compounds and does not diversify, and palm oil contains unbalanced saturated and unsaturated fatty acids (Plasek et al., 2021).

In environmental issues, the issues raised include, plantations are the main cause of global deforestation, Indonesia's deforestation is caused by the expansion of oil palm plantations, oil palm plantations are the main cause of forest and land fires, oil palm plantations are the main cause of floods or droughts, the movement without palm oil makes the global environment better, oil palm plants are water-consuming crops, oil palm plantations damage soil and water conservation, oil palm plantations destroy the degraded environment, oil palm plantations destroy Indonesia's biodiversity, oil palm plantations do not absorb carbon dioxide and reduce oxygen production, oil palm plantations on peatlands increase emissions, palm oil production produces higher emissions than other vegetable oils, palm biodiesel is not environmentally friendly compared to fossil diesel, palm oil industry emissions are higher than oil and gas industry emissions, and the palm oil industry is not a solution to global warming and global climate change (PASPI, 2023: 127-208).

The anti-palm oil campaigns carried out by the anti-palm oil NGO are widely accepted by the millennial generation and Z targeting the millennial and Z generations. This is because social media users are dominated by millennials (27 - 42 years old) and Generation Z (11 - 26 years old) of which the majority are scholars/students, in addition, generation Z spends an average of 3 hours and 42 minutes on social media every day (We are Social, 2024).

Seeing these conditions, palm oil industry stakeholders target students as targets for public education related to the social, economic, environmental, and health aspects of the palm oil industry. Various channels and sources of information are used by palm oil stakeholders to disseminate and educate the public about the social, economic, environmental, and health aspects of the palm oil industry. How the sources, channels, and content of messages conveyed by palm oil stakeholders so far to students have affected students' perception of the palm oil industry is interesting to research.

This study aims to identify credible information sources in the assessment of Kalimantan students receiving information about the palm oil industry for the 2023–2024 period. It also seeks to understand the communication channels used by these students to receive this information. Furthermore, this research aims to describe the perception of Kalimantan students about the palm oil industry in Indonesia and to analyse the influence of information sources and communication channels on student perceptions.

The benefits of this research are twofold, encompassing both theoretical and practical implications. Theoretically, this research is expected to provide new insights into effective communication strategies to address various issues, particularly within the

palm oil industry. Practically, the results of this study can serve as a valuable reference for palm oil industry stakeholders in developing effective and relevant communication strategies. These strategies can be tailored to resonate with the perceptions and preferences of Kalimantan students, thereby fostering more informed and balanced perspectives on the industry.

Method

This research uses the positivism paradigm, which emphasizes objectivity and measurement to understand social realities, such as students' perceptions of the palm oil industry in Indonesia. This paradigm allows measurable data collection through questionnaire surveys to analyze the influence of sources and communication channels on student perceptions. In this study, descriptive and explanatory approaches are used to describe phenomena and explain the relationships between variables using hypotheses.

This study uses a survey method, which aims to measure the influence of sources and communication channels on student perceptions. Data was collected through a Likert scale-based questionnaire, with a value of 1–5 to represent the level of consent of respondents. The variables measured included independent variables (sources and communication channels) and dependent variables (student perception). The data sources of this research consist of primary data obtained through digital questionnaires and field visits, as well as secondary data that includes analysis of scientific journals and related literature.

The research population was students at three universities in Kalimantan, which was chosen because of the relevance of the location to palm oil issues. The sample was determined using the purposive sampling method, with a total of 240 respondents who met certain criteria. Testing the validity and reliability of the questionnaire was carried out using SPSS, ensuring that the measuring tool produced valid and reliable data. The results of the analysis were used to test the hypothesis through partial test (t-test) and simultaneous test (F-test) to assess the influence of independent variables on dependent variables.

This research is expected to contribute to understanding the effectiveness of sources and communication channels in shaping student perceptions related to the palm oil industry, providing insight for policymakers in designing more effective communication strategies.

Results and Discussion

Hypothesis Test Results

This study has two hypotheses, namely sources significantly influence students' perceptions of the palm oil industry, and communication channels also have a significant impact. The results confirm both hypotheses, showing that students prioritize sources with expertise, attractiveness, and trustworthiness, while preferring communication channels that offer diverse cues and personalized messages.

Results of the Variable Hypothesis Test of Sources (X₁)

Based on Table 1, two tests can be carried out, namely first, conventionally it is found that at the error level = 0.05 (double-sided test) with $df = 237$ (240-3) it is known that $t_{table} = 1.651$ and $t_{count} = 6.043$. Because $t_{count} > t_{table}$, the sources variable (X_1) has a significant effect on students' perception of receiving information on the palm oil industry. This means that H_0 is rejected and H_1 is accepted. Second, according to SPSS, by looking at the probability of its significance (p -value) = 0.000 or 0% less than 5%, then H_0 is rejected, H_1 is accepted so that it can be said that the sources variable (X_1) has a significant effect on the perception of students in receiving palm oil industry information, thus the hypothesis proposed is proven.

Results of the Communication Channel Variable Hypothesis Test (X_2)

Based on Table 2, two tests can be carried out, namely first, Conventionally it is found that at the error level = 0.05 (double-sided test) with $df = 237$ (240-3) it is known that $t_{table} = 1.651$ and $t_{count} = 2.582$. Because $t_{count} > t_{table}$, the communication channel variable (X_2) has a significant effect on students' perception of receiving palm oil industry information. This means that H_0 is rejected and H_1 is accepted. Second, in terms of SPSS, by looking at the probability of its significance (p -value) = 0.010 or 1% less than 5%, then H_0 is rejected, H_1 is accepted so that it can be said that the communication channel variable (X_2) has a significant effect on students' perception in receiving palm oil industry information, thus the hypothesis proposed is proven.

Research Answer

In this study, three problem formulations are answered, namely as follows:

- 1) What sources are considered credible by Kalimantan students in receiving palm oil information in the period 2023 - 2024?
- 2) What communication channels are considered credible by Kalimantan students in receiving palm oil information in the period 2023 - 2024?
- 3) How do Kalimantan students perceive the palm oil industry in Indonesia?

Based on the results of the research carried out, the following results were found:

- 1) Sources considered credible by Kalimantan students for receiving palm oil information during the 2023–2024 period possess expertise, attractiveness, and trustworthiness
- 2) Communication channels considered credible by Kalimantan students in receiving palm oil information during the 2023–2024 period are those capable of conveying multiple cues and personalizing messages.
- 3) The perception of students of Kalimantan towards the palm oil industry in Indonesia is positive in looking at the economic aspects of palm oil, but negative in looking at the environmental aspects of palm oil.

In this chapter, the author will describe how the source credibility theory and media richness theory can complement each other to create more meaningful and impactful interactions. Effective communication is the foundation of delivering a clear and understood message, whereas the Lasswell Paradigm model is an effective communication formula to analyze each element (source, communication channel,

message recipient, effect of message, or perception). The source, as the sender of the message, must have high credibility so that the message can be received and trusted by the recipient. The credibility of a source is determined not only by knowledge and expertise but also by the trust and reliability felt by the recipient of the message.

Selected Sources for Kalimantan Students in Receiving Information on the Palm Oil Industry in the 2023-2024 Period

The findings indicate that Kalimantan students prioritize expertise (21.04) as the most critical factor in evaluating the credibility of sources on palm oil industry information, followed by attractiveness (20.46) and trustworthiness (20.25). This suggests that students value technical competence in understanding the economic, environmental, and social aspects of the industry before considering a source’s appeal or integrity. As an educated demographic residing in palm oil-producing regions, they tend to trust academics, researchers, and practitioners with a strong background in palm oil studies.

Table 1
Comparison of Inter-University Student Sources (% of respondents) (n=240)

Sources Indicators	Average	Final Score	Mean
Expertise	4.21	21.04	4.12
Trustworthiness	4.05	20.25	
Attractiveness	4.09	20.46	

Source: Primary data processed

Attractiveness, while secondary, plays a key role in enhancing engagement and message acceptance. Students are more receptive to sources that present complex information in a relatable and comprehensible manner, supporting research that links psychological appeal to effective communication. However, in this context, attractiveness primarily facilitates rather than determines credibility. Trustworthiness, receiving the lowest score, reflects students' skepticism toward sources affiliated with palm oil corporations or those perceived as biased, aligning with studies on digital-era credibility challenges.

The local context further shapes students' perceptions, as issues such as deforestation and land conflicts influence their preference for sources with both expertise and a deep understanding of regional realities. Compared to studies on consumer product perceptions, where trust and attractiveness dominate, this research underscores the complexity of industrial issues like palm oil. An ideal source embodies all three credibility factors: expertise in palm oil-related research, attractiveness through engaging communication, and trustworthiness demonstrated by transparency and independence.

Communication Channels of Choice for Kalimantan Students in Receiving Information on the Palm Oil Industry in the 2023-2024 Period

The findings of this study indicate that Kalimantan students perceive communication channels capable of delivering multiple cues and personalized messages

as the most effective for receiving information about the palm oil industry. The highest score was observed for the multiple cues indicator (22.93), suggesting that the integration of text, visuals, audio, and data plays a critical role in minimizing message ambiguity, in line with the principles of Media Richness Theory. This result aligns with the findings of Soerono et al. (2024), which demonstrated that the use of multimodal content such as videos, images, and creative illustrations on the Instagram account @youngontop significantly enhances message comprehension through visual contextualization. Within the context of palm oil industry communication, multimodal approaches facilitate a comprehensive understanding of technical, economic, and environmental aspects, ranging from production processes to the ecological impact of palm oil operations.

Table 2
Comparison of Inter-University Student Communication Channels (% of respondents)
(n=240)

Sources Indicators	Average	Final Score	Mean
The ability of media to deliver multiple cues	4.59	22.93	4.32
The immediacy in providing feedback	4.16	20.81	
Language variety	4.11	20.54	
The ability of media to personally focus on the message recipient (personalize message)	4.40	22.02	

Source: Primary data processed

The personalize message indicator (22.02) underscores the significance of content adaptation to audience needs and local contexts. This preference corroborates the findings of Wang (2022), which highlight the role of message personalization, including the use of colloquial language and locally relevant case studies, in increasing social presence and emotional engagement. Kalimantan students tend to exhibit greater receptivity to information linked to local practices, such as case studies on sustainable plantations in West Kalimantan or discussions on the economic contributions of the palm oil industry to regional development. These findings suggest that cultural relevance is a key determinant of message acceptance, as information tailored to local identity is more readily internalized compared to generalized narratives.

Conversely, the relatively lower scores for the feedback immediacy indicator (20.81) and language variety indicator (20.54) indicate that students do not consider instant responses or linguistic diversity as primary determinants of effective communication, provided that message clarity is maintained. Wang (2022) posits that digital-native audiences are increasingly accustomed to asynchronous communication, reducing the necessity for immediate feedback as long as information quality remains high. However, the study by Soerono et al. (2024) suggests that interactive features within communication channels remain essential for fostering trust, particularly in discussions

surrounding controversial issues such as environmental sustainability. Regarding language variety, while linguistic diversity may contribute to broader accessibility, students prioritize message clarity over variations in language use.

These findings reaffirm the continued relevance of Media Richness Theory in structuring effective communication strategies for the palm oil industry among Kalimantan students. The emphasis on multimodality and personalization emerges as a critical factor in enhancing communication channel effectiveness. However, the lower prioritization of feedback immediacy and language variety suggests the necessity of adapting the theory to account for the unique characteristics of digital-native audiences and the socio-cultural context in which palm oil-related information is disseminated.

Student Perception of Palm Oil Industry Information

Kalimantan university students' perceptions of the palm oil industry reflect a balance between economic, social, health, and environmental concerns. Economic (20.66) and social (19.29) aspects receive the highest scores, while environmental (17.64) and health (18.93) aspects are rated moderately. Festinger's (1957) Cognitive Dissonance Theory helps explain this pattern, as students prioritize economic benefits such as job creation and regional development while downplaying environmental concerns that contradict these advantages. This selective perception minimizes cognitive conflict, reinforcing positive views of the industry.

Table 3
Student Perception Competition Between Universities

Perception	Average	Final Score	Mean
Economics	4.13	20.66	3.83
Social	3.86	19.29	
Health & Nutrition	3.79	18.93	
Environment	3.53	17.64	

Source: Primary data processed

Selective attention and retention further shape these perceptions. Students focus on narratives aligned with their experiences in palm oil-producing regions, often dismissing foreign media reports on deforestation and health risks. The tendency to retain information supporting economic benefits suggests an effort to maintain cognitive stability (Santoso, 2015). However, the moderate environmental score indicates that dissonance is not entirely resolved. Students acknowledge environmental issues but rationalize them through sustainability efforts, believing these practices can balance negative impacts.

These findings contrast with perceptions in the European Union, where environmental and health concerns dominate opposition to palm oil (Saleh et al., 2021). The difference highlights how economic dependence influences cognitive consistency. In Kalimantan, economic benefits buffer against environmental criticism, whereas regions with less economic gain, such as Aceh and South Sumatra, show more negative

perceptions (Helviani et al., 2021). To reshape student perceptions, communication strategies must address cognitive mechanisms by improving transparency, strengthening sustainability literacy, and ensuring inclusive information dissemination.

Multiple Regression Analysis

Multiple regression analysis in this study was used to analyze the influence between sources and communication channels on students' perceptions of palm oil industry information. The influence of sources (X1) and communication channels (X2) on student perception (Y) is demonstrated in the form of mathematical equations:

$$Y = 1,904 + 0,352\chi_1 + 0.149\chi_2$$

Adjusted R² : 0.216

Table 4
Regression Estimation Output Results

Variable	Coefficient Estimation	Beta	t	Sig	Information
Intercept	1,904		7,900	0,000	Significant Influence
Sources (X ₁)	0,352	0,377	6,043	0,000	Significant Influence
Communication Channels (X ₂)	0,149	0,161	2,582	0,010	Significant Influence
F Calculate	32,620			0.000	Significant Influence
R2	0,216				
Adjusted R2	0,209				

Source: Primary data processed

Based on the regression equation, it can be explained that the regression constant value of 1.904 shows the perception of students of Tanjungpura, Palangkaraya, and Mulawarman University of 1.904 on the Likert scale when the variables of sources (X1) and communication channels (X2) are constant. The source variable (X1) has a significance value of 0.000, which means it has a significant effect on student perception, while the communication channel (X2) also has a significant effect with a significance value of 0.010. The regression coefficient for X1 of 0.352 shows that the more credible the sources, the higher the perception of students, while the coefficient of X2 of 0.149 shows that effective communication channels also have a positive effect on student perception. The t-test and hypothesis testing showed that the variables of sources (X1) and communication channels (X2) had a significant effect on students' perceptions of receiving information about the palm oil industry. Based on the output results of SPSS, the calculated t-value for the sources was 6.043, greater than the t-table 1.651, with a p-value of 0.000, which showed a significant influence. Likewise, for communication channels, the t-calculated value is 2.582, greater than the t-table 1.651, with a p-value of 0.010, which also shows a significant influence. With a significance of 5% (two-sided test), these two variables were proven to have a significant effect on student perception.

Conclusion

Based on the analysis of the perception of Kalimantan students towards palm oil industry information for the 2023–2024 period, this study found several conclusions. The majority of respondents are women, comprising 63.33% of the total, indicating higher female participation in discussions about the palm oil industry. The preferred sources of information align with the Source Credibility Theory, emphasizing expertise, attractiveness, and trustworthiness as key factors influencing students' trust in information. Communication channels also have a significant effect, with students favoring media that provide multiple cues and personalized messages, supporting the Media Richness Theory.

Students' perception of the palm oil industry varies by aspect, with the economic aspect receiving the highest positive response, while the environmental aspect is viewed more critically. Statistical analysis confirms that both source credibility and communication channels significantly influence students' perceptions, as demonstrated by the acceptance of hypothesis H1. The regression analysis further supports these findings, with both variables (X_1 and X_2) having a significant impact on perception (Y). Therefore, effective dissemination of palm oil industry information should prioritize credible sources and rich communication channels to enhance students' understanding and engagement.

Bibliography

Aboregela, A. M., Sonpol, H. M.A., Metwally, A. S., El-Ashkar, A. M., Hashish, A. A., Mohammed, O. A., Elnahriry, T. A., Senbel, A., & Alghamdi, M. (2023). Medical students' perception and academic performance after team-based and seminar-based learning in human anatomy. *Journal of Taibah University Medical Sciences*, 18(1), 65-73. <https://doi.org/10.1016/j.jtumed.2022.08.005>

- Austin, K. G., Schwantes, A., Gu, Y., & Kasibhatla, P. S. (2019). What causes deforestation in Indonesia? *Environmental Research Letters*, 14(2), 024007. <https://doi.org/10.1088/1748-9326/aaf6db>
- Cardia, D. I. N. R., Santika, I. W., & Respati, N. N. R. (2019). *Pengaruh kualitas produk, harga, dan promosi terhadap loyalitas pelanggan*. Udayana University.
- Helviani, K., Kasmin, M. O., Juliatmaja, A. W., Nursalam, & Syahrir, H. (2021). Persepsi masyarakat terhadap dampak perkebunan kelapa sawit PT. Damai Jaya Lestari di Kecamatan Tanggetada Kabupaten Kolaka, Sulawesi Tenggara, Indonesia. *Agricultural Journal*, 4(3), 467-479. <https://doi.org/10.37637/ab.v4i3.773>
- Ismail, S. R., Maarof, S. K., Siedar Ali, S., & Ali, A. (2018). Systematic review of palm oil consumption and the risk of cardiovascular disease. *PLOS ONE*, 13(2), e0193533. <https://doi.org/10.1371/journal.pone.0193533>
- Odia, O. J., Ofori, & Maduka. (2015). Palm oil and the heart: A review. *World Journal of Cardiology*, 7(3), 144. <https://doi.org/10.4330/wjc.v7.i3.144>
- Park, Y. S., Konge, L., & Artino, A. R. Jr. (2020). The positivism paradigm of research. *Academic Medicine*, 95(5), 690–694. <https://doi.org/10.1097/ACM.0000000000003093>
- PASPI. (2023). Mitos vs fakta industri minyak sawit Indonesia dalam isu sosial, ekonomi dan lingkungan global edisi keempat. Palm Oil Agribusiness Strategic Policy Institute.
- PASPI. (2023). 12 Isu Sawit Dalam Pemanasan Global, Perubahan Iklim Dan Emisi Gas Rumah Kaca (2023). Palm Oil Indonesia. Diakses dari palmoilina.asia : <https://palmoilina.asia/sawit-hub/isu-sawit-dalam-pemanasan-global/>
- PASPI. (2023). Jurnal Sawit Dan Ekonomi Global (2023). Palm Oil Agribusiness Strategic Policy Institute. Diakses dari palmoilina.asia : <https://palmoilina.asia/jurnal-kelapa-sawit/sawit-dan-ekonomi-global/>
- Plasek, B., Lakner, Z., Badak-Kerti, K., Kovács, A., & Temesi, Á. (2021). Perceived consequences: General or specific? The case of palm oil-free products. *Sustainability*, 13(6), 3550. <https://doi.org/10.3390/su13063550>
- Saleh, K. M., Zakaria, K., Mazlan, R., Rahman, M. A. K. A., & Nambiappan, B. (2021). The impact of negative perceptions toward palm oil in the European Union on the competitiveness of Malaysian palm oil export. *Oil Palm Industry Economic Journal*, 21(1), 28–41. <https://doi.org/10.1088/1755-1315/1102/1/012033>
- Wang, Z. (2022). Media richness and continuance intention to online learning platforms: The mediating role of social presence and the moderating role of need for cognition. *Frontiers in Psychology*, 13, 950501. <https://doi.org/10.3389/fpsyg.2022.950501>

