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Digital marketing strategy across cultures: Algorithmic bias, local media, MSME performance, Indonesia & Malaysia

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Abstract

This study aims to produce a cross-cultural analysis of algorithm bias and local media in Indonesia and Malaysia as a marketing strategy for MSMEs to enhance marketing performance. It examines how algorithmic bias in digital marketing affects cultural relevance in Indonesia and Malaysia. Consumers are more likely to accept and share content with cultural relevance, such as the use of local languages and distinctive symbols. This study employed a quantitative approach and data collection techniques, including questionnaires, interviews, and documentation. Data analysis utilized SEM PLS on 200 MSME consumer respondents in Malaysia and Indonesia, using a simple random sampling technique. The results of this study indicate that marketing strategies that integrate cultural factors, such as local languages, symbols, and traditional values, can increase consumer engagement and the effectiveness of digital marketing. By understanding the local context in depth—including how local media and algorithm bias affect message distribution—marketers can design more adaptive strategies that are responsive to audiences' needs in the digital era. This research contributes theoretical insights and provides practical recommendations for MSMEs to develop more inclusive and culturally effective digital marketing strategies.

Keywords: Business strategy, Cross-cultural, Digital literacy, Media local, SMEs.

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1. Introduction

The digital era continues to develop, and digital marketing has become essential in business strategies worldwide, including MSMEs in Indonesia and Malaysia [1-3]. These two countries have many cultural similarities but significant differences that influence how consumers receive and respond to marketing [4-6]. One of the main challenges in cross-cultural digital marketing is algorithm bias and digital literacy.

These two countries have many cultural similarities but significant differences that influence how consumers receive and respond to marketing [4-6]. One of the main challenges in cross-cultural digital marketing is algorithm bias and digital literacy. Algorithms used to target and deliver marketing messages are often influenced by unrepresentative data and design assumptions that need to consider cultural differences [7, 8]. This results in messages not in line with local values and norms. The influence of local media and digital literacy cannot be ignored either. Local media play an essential role in shaping consumer perceptions and preferences.

In the ever-evolving digital era, digital marketing has become one of the main strategies for improving business performance, especially for micro, small, and medium enterprises (MSMEs). In Indonesia and Malaysia, as countries with significant MSME growth rates, digital marketing has great potential to expand the market and increase competitiveness. However, algorithm bias, local media, and digital literacy are significant factors in the success of implementing digital marketing, which is greatly influenced by factors such as.

Algorithms used to target and deliver marketing messages are often influenced by unrepresentative data and design assumptions that need to consider cultural differences [7, 8]. This results in messages not in line with local values and norms. The influence of local media and digital literacy cannot be ignored either. Local media play an essential role in shaping consumer perceptions and preferences. MSMEs must understand and adapt their marketing strategies according to the local media context in Indonesia and Malaysia.

Previous research emphasizes the importance of cultural dimensions and digital literacy when designing a global marketing strategy [9, 10]. When designing a global marketing strategy [11-13]. The research results show that content integrating specific cultural elements such as symbols, language, and local values can increase customer engagement and marketing results [11, 14]. Previous research [15-18]. Reveals that social media algorithms can influence the content shown to users and how algorithm bias can lead to inaccurate or less diverse representations of specific cultures. Although there is research on culture in digital marketing and marketing performance measurement, there still needs to be a gap in understanding how algorithm bias, local media, and digital literacy influence how culture interacts or influences each other to marketing performance.

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Based on previous research, several gaps exist in studying culturally-based digital marketing for MSMEs in Indonesia and Malaysia.

Previous studies, Zechiel et al. [7] and Akter et al. [8], have highlighted bias in digital marketing algorithms, particularly how unrepresentative data and design assumptions affect the effectiveness of marketing campaigns. However, these studies have primarily focused on a global or developed-country context, with limited research specifically examining the impact of algorithmic bias on cultural relevance in MSME marketing in Indonesia and Malaysia.

Furthermore, there is still a lack of research exploring how local media in Indonesia and Malaysia shape consumer perceptions of culturally-based marketing for MSMEs. Previous studies, Rajah et al. [4], Bordeleau et al. [5], and Zhang et al. [6] have only examined how local media influence consumer behavior in various marketing contexts without a focused analysis on MSMEs.

While prior research [1-3]. Has investigated the importance of digital literacy in enhancing the effectiveness of digital marketing in general, these studies have not extensively explored how consumers' digital literacy levels influence their understanding and acceptance of culturally-based marketing messages.

Additionally, previous research still lacks sufficient differences between Indonesia and Malaysia's impact digital marketing strategies for MSMEs, particularly in algorithmic bias, local media, and digital literacy.

This study aims to address these gaps by examining how algorithmic bias in digital marketing affects cultural relevance in Indonesia and Malaysia, exploring the role of local media in shaping consumer perceptions of culturally-based marketing and analyzing how digital literacy levels influence consumer understanding and acceptance of culturally-based marketing messages.

Thus, this research contributes theoretical insights and provides practical recommendations for MSMEs to develop more inclusive and culturally effective digital marketing strategies. Research purposes: Produce cross-cultural analysis, algorithm bias, and local media in Indonesia and Malaysia as a marketing strategy for MSMEs for marketing performance.

2. Method

This study adopts a quantitative approach using Structural Equation Modeling–Partial Least Squares (SEM-PLS) to analyze the relationships between algorithmic bias, local media influence, digital literacy, and consumer perceptions of culturally based digital marketing for MSMEs in Indonesia and Malaysia.

Data collection techniques use primary data sources, including interviews, observations, and questionnaires, as well as secondary data from books, documentation, relevant research journals, and digital media content analysis. The determination of qualitative informants involved purposive sampling of MSME actors who use digital business and consumer applications,

as well as consumers. The determination of the quantitative sample was conducted using simple random sampling. The research sample consisted of 200 MSME consumers in Indonesia and Malaysia. Simple random sampling was used to ensure an unbiased representation of MSME consumers.

Quantitative Instrument Development

- Questionnaire: Develop a questionnaire based on qualitative findings. For example, if the interview indicates that price is a significant factor, ask questions about price perception.
- Hypothesis: The hypothesis formulation is tested in the quantitative Stage.

The quantitative Stage uses data analysis techniques with Partial Least Square (PLS) Analysis, which is a statistical method designed to solve structural problems involving many variables, the presence of missing data, and multicollinearity, revealing the consequence of using PLS that testing can be carried out without a solid theoretical basis [19]. PLS is very appropriate for research that aims to develop theory construction.

The data was analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS) with SmartPLS software. The analysis will include: (1) Outer Model Evaluation: Assessing validity (convergent and discriminant validity) and reliability (composite reliability and Cronbach's alpha) of the measurement model. (2) Inner Model Evaluation: Testing hypotheses using path coefficients (β values), R^2, effect sizes (f^2), and predictive relevance (Q^2). Bootstrapping Method: Used to test the significance of relationships between variables.

3. Results and Discussion

Digital marketing strategies by understanding cross-cultural differences in Indonesia and Malaysia allow MSMEs to adjust marketing strategies. Optimizing the use of algorithms, understanding bias in social media algorithms, and digital literacy can help MSMEs optimize their content for better and fair reach in both countries. This research supports data-driven strategies, explicitly supporting the use of data-based marketing strategies, enabling more precise and measurable decision-making for marketing strategy design, thereby improving marketing performance.

4. Result

4.1. Partial Least Squares Structural Model Testing Results

In this study, SmartPLS tests two models: the measurement model, commonly referred to as the outer model, and the structural model, commonly referred to as the inner model. The first starts with the measurement model (outer model) used to determine the validity and reliability that connects the reflective indicators with the latent variables, tested using three measurement methods. After conducting a confirmatory factor analysis, all indicators are declared valid and reliable. The next step is to test the structural model (inner model) as a whole. This structural model (inner model) is carried out by evaluating the percentage of variance (R2) for the endogenous latent variables that are modeled as being influenced by exogenous latent variables. Also, testing is carried out with the t value obtained from bootstrapping to see whether the effect is significant [19].

Based on the Partial Least Squares estimation method, there are Full Structural Model path diagram is obtained, as shown in the following figure:

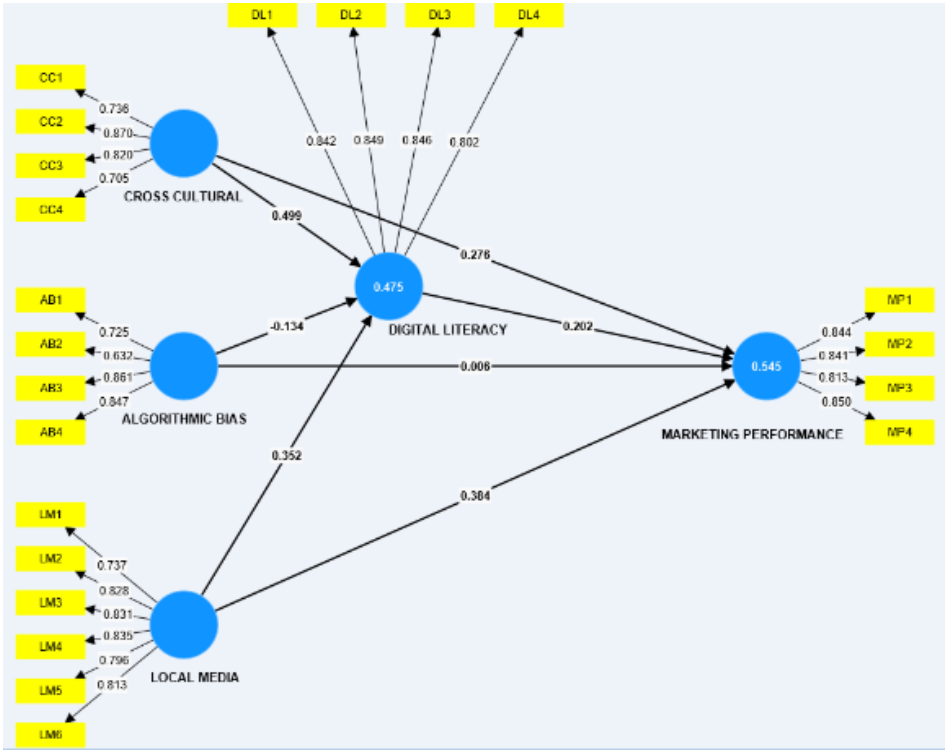

Figure 1.
Full Structural Model Image (PLS Algorithm).

The image above shows that the yellow box shows each indicator, and the blue circle shows the latent variable. There are numbers on each arrow that show the validity value of each indicator and test the reliability of the construct of the studied variable. An indicator is valid if it has a factor weight value greater than 0.60.

4.2. Measurement Model Testing (Outer Model)

The measurement model (outer model) is a model that connects latent variables with manifest variables. The measurement results of the measurement model (outer model) are evaluated through confirmatory factor analysis (CFA), which tests the validity and reliability of latent constructs. The measurement model test consists of convergent validity, discriminant validity, and reliability tests.

Convergent validity is related to the principle that a construct's measures (manifest variables) should be highly correlated. The rule of thumb usually used to assess convergent validity is that the loading value must be more than 0.7 for confirmatory research, and the loading value between 0.6-0.7 for exploratory research is still acceptable. The Average variance extracted (AVE) value must be greater than 0.5. However, for early-stage research in developing a measurement scale, a factor loading value of 0.5-0.6 is still considered sufficient [20]. Meanwhile, the reliability test is conducted to test the instrument's accuracy, consistency, and precision when measuring the construct with composite reliability. The rule of thumb usually used to assess construct reliability is that the CR value must be greater than 0.7 for confirmatory research, and a value of 0.6-0.7 is still acceptable for exploratory research.

4.3. Convergent Validity

Convergent validity is conducted to test the level of accuracy of items used to measure the research object in this study using the loading factor test. According to Hair et al. [19], an item can be said to have convergent validity if the loading factor score is more than 0.6. The following are the results of the loading factor scores.

Table 1.
Convergent Validity Test Table.

Variables	Indicator	Loading Factor	Information
Cross Cultural	CC1	0.736	Valid
	CC2	0.870	Valid
	CC3	0.820	Valid
	CC4	0.705	Valid
Algorithmic Bias	AB1	0.725	Valid
	AB2	0.632	Valid
	AB3	0.861	Valid
	AB4	0.847	Valid
Local Media	LM1	0.737	Valid
	LM2	0.828	Valid
	LM3	0.831	Valid
	LM4	0.835	Valid
	LM5	0.796	Valid
	LM6	0.813	Valid
Digital Literacy	DL1	0.842	Valid
	DL2	0.849	Valid
	DL3	0.846	Valid
	DL4	0.802	Valid
Marketing Performance	MP1	0.844	Valid
	MP2	0.841	Valid
	MP3	0.813	Valid
	MP4	0.850	Valid

The table above provides information regarding the loading factor values for each manifest variable. The loading factor value of all indicators for latent variables and dimensions shows >0.6, so all indicators are declared valid.

Table 2.
Average Variance Extracted (AVE) Table.

Variables	Average variance extracted (AVE)
Algorithmic Bias	0.596
Cross Cultural	0.617
Digital Literacy	0.697
Local Media	0.652
Marketing Performance	0.701

In the table above, it can be seen that all variables have AVE values which is greater than the specified value of 0.5. So that all variables are declared valid in explaining their latent variables, which shows that the use of the manifest variables has met the AVE requirements.

Therefore, all manifest variables are stated to have met the requirements of convergent validity. Convergent validity itself is a validity that is proven if the scores obtained by the instrument that measures the concept or measures the concept with different methods, have a high correlation.

4.4. Discriminant Validity

Discriminant Validity can be seen from the cross-loading factor with the construct and the comparison of AVE with the correlation of latent variables. If the correlation of the construct with the measurement point (each indicator) is greater than the size of other constructs, then the variable is said to have high discriminant validity. The cross-loading value is presented as follows:

Table 3.
Cross-Loading Factor Test Results Table.

Indicator	Algorithmic Bias	Cross Cultural	Digital Literacy	Local Media	Marketing Performance
AB1	0.725	0.112	0.122	0.306	0.167
AB2	0.632	0.134	0.090	0.308	0.017
AB3	0.861	0.509	0.232	0.470	0.399
AB4	0.847	0.393	0.301	0.486	0.363
CC1	0.436	0.736	0.342	0.393	0.458
CC2	0.381	0.870	0.739	0.581	0.613
CC3	0.286	0.820	0.447	0.348	0.381
CC4	0.344	0.705	0.324	0.353	0.444
DL1	0.356	0.550	0.842	0.472	0.491
DL2	0.335	0.620	0.849	0.567	0.516
DL3	0.217	0.541	0.846	0.432	0.533
DL4	-0.012	0.371	0.802	0.369	0.429
LM1	0.411	0.386	0.473	0.737	0.373
LM2	0.394	0.395	0.360	0.828	0.614
LM3	0.432	0.375	0.354	0.831	0.465
LM4	0.370	0.510	0.505	0.835	0.645
LM5	0.646	0.578	0.536	0.796	0.564
LM6	0.318	0.401	0.448	0.813	0.442
MP1	0.322	0.551	0.589	0.461	0.844
MP2	0.460	0.533	0.434	0.636	0.841
MP3	0.295	0.537	0.486	0.473	0.813
MP4	0.238	0.458	0.481	0.608	0.850

Based on the PLS software results table above, it can be seen that the cross-loading factor correlation value of each latent construct for the corresponding indicator is higher than other constructs, so it can be concluded that the indicators used to measure the latent variables have met the requirements.

Table 4.
Fornell-Lacker Criterion.

	Algorithmic Bias	Cross Cultural	Digital Literacy	Local Media	Marketing Performance
Algorithmic Bias	0.772				
Cross Cultural	0.457	0.786			
Digital Literacy	0.283	0.634	0.835		
Local Media	0.536	0.556	0.558	0.807	
Marketing Performance	0.395	0.620	0.593	0.654	0.837

Based on the results of the table above, it shows that all the root values obtained for each variable are higher than their correlation, so it can be concluded that the model has good discriminant validity.

4.5. Reliability Test

Reliability testing in Partial Least Square (PLS) can use two methods, namely Composite Reliability (CR) and Cronbach's Alpha, which are presented as follows:

Table 5.
Composite Reliability (CR) and Cronbach's Alpha Test Results.

Variables	Cronbach's alpha	Composite reliability
Algorithmic Bias	0.804	0.853
Cross Cultural	0.796	0.865
Digital Literacy	0.856	0.902
Local Media	0.893	0.918
Marketing Performance	0.858	0.904

From the test results above, it can be seen that all variables have a Composite Reliability (CR) value greater than 0.7 and a value of Cronbach's Alpha greater than 0.6, so it can be concluded that the data is reliable, which shows that the variables have consistency in measuring each variable.

4.6. Q2 Square

This test is useful in providing information about the magnitude of the possibility of relevance between latent variables in research. Value*Q2 square*can also be grouped into three groups, namely:

(1) *small predictive relevance* : < 0.25
(2) *medium predictive relevance* : 0.25 – 0.5
(3) *large predictive relevance* : > 0.5

Table 6.
Results TableQ2 Square.

Variables	Q^2Square	Results
Digital Literacy	0.316	Medium Predictive Relevance
Marketing Performance	0.375	Medium Predictive Relevance

The test results in the table above show that the Digital Literacy variable has a Q Square value of 0.316 and demonstrates a moderate predictive ability of relevance relationships. Meanwhile, the Marketing Performance variable has a Q Square value of 0.375 and also shows a moderate predictive ability of relevance relationships.

4.7. Structural Model Testing (Inner Model)

The reduction of this structural model is to test the influence of one latent variable on another latent variable. The test is done by looking at the path value to see whether the influence is significant or not, as seen from the t value of the path value (the t value can be obtained by doing bootstrapping). The following is a picture of the results of bootstrapping carried out in this study:

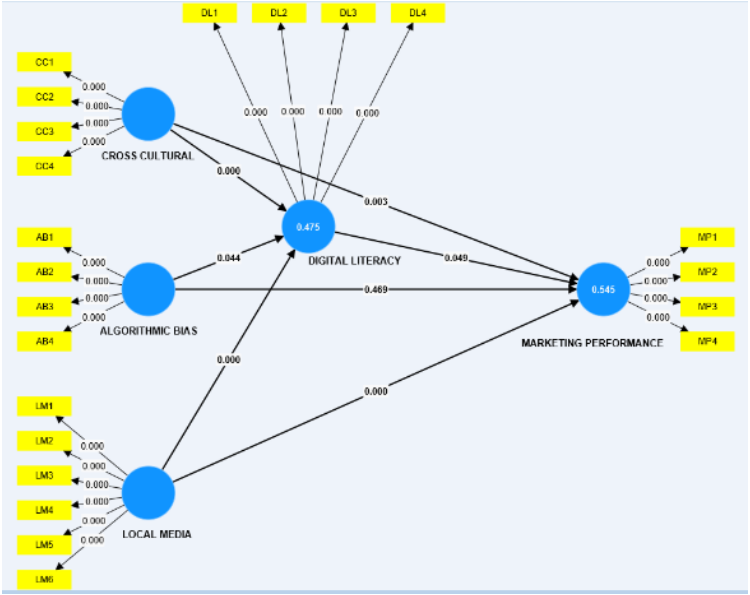

Figure 2.
Bootstraping Image.

4.8. R Square Test

The influence of the dependent variable can be shown by the R-squared value. The following is the R-squared value obtained.

Table 7.
R Squares Results Table.

Variables	R-square
Digital Literacy	0.475
Marketing Performance	0.545

Through the determination coefficient value (R-square) contained in the table above, it can be seen in substructure 1 that the R-square value of the Digital Literacy variable of 0.475, which shows that the Digital Literacy variable can be explained by 47.5% by the Cross Cultural, Algorithmic Bias, and Local Media variables. In substructure 2, the R-squared value of the Marketing Performance variable of 0.545, which shows that the Marketing Performance variable can be explained by 54.5% by the Cross Cultural, Algorithmic Bias, Local Media, and Local Media variables.

4.9. F2 Effect Size Test

To determine the magnitude of the influence on the overall R-squared acquisition, further testing was carried out with the f2 test. The f2 effect size value according to Mukhlisin et al. [21] if ≥ 0.02 indicates a small effect size, ≥ 0.15 indicates a medium effect size, ≥ 0.35 indicates a large effect size. as follows:

Table 8.
F2 Effect Size Test Table.

Influence	Effect Size Value	Information
Algorithmic Bias -> Digital Literacy	0.023	Weak Influence
Algorithmic Bias -> Marketing Performance	0.000	Weak Influence
Cross Cultural -> Digital Literacy	0.310	Have a big influence
Cross Cultural -> Marketing Performance	0.084	Weak Influence
Digital Literacy -> Marketing Performance	0.047	Weak Influence
Local Media -> Digital Literacy	0.140	Moderate Influence
Local Media -> Marketing Performance	0.168	Moderate Influence

Based on the table above, the variables can be identified. Cross-Cultural has a significant influence on Digital Literacy with an effect size value of 0.310.

4.10. Goodness of Fit Evaluation

To validate the overall model, goodness of fit (GoF) is used. The GoF index is a single measure used to validate the combined performance of the measurement model (outer model) and the structural model (inner model). The GoF index value is obtained from the average communalities index multiplied by $R2$ models. Here is the Gof index formula:

$$Gof = \sqrt{rata - rata\ AVE\ x\ rata - rata\ R2}$$
$$Gof = \sqrt{0,653\ x\ 0,510}$$
$$Gof = \sqrt{0,333} = 0.577$$

Based on the calculation results, the Gof value obtained was 0.577, so the goodness of fit (GoF) of the model falls into the moderate GoF category.

4.11. Partial Hypothesis Testing

The hypothesis in this study will be tested using path coefficient values and t-values to determine whether there is a significant influence or not. In addition, the results of the path significance test also show the value of the parameter coefficient (original sample). The parameter coefficient indicates the significance value of the influence of each research variable.

Table. 9.
Path Significance Test Table.

Hypothesis	Influence	Original sample (O)	T statistics (|O/STDEV|)	P values	Information
H1	Cross Cultural -> Digital Literacy	0.499	5,858	0.000	Significant
H2	Algorithmic Bias -> Digital Literacy	-0.134	1,704	0.044	Significant
H3	Local Media -> Digital Literacy	0.352	3,804	0.000	Significant
H4	Cross Cultural -> Marketing Performance	0.276	2,774	0.003	Significant
H5	Algorithmic Bias -> Marketing Performance	0.006	0.077	0.469	Not Significant
H6	Local Media -> Marketing Performance	0.384	5,980	0.000	Significant
H7	Digital Literacy -> Marketing Performance	0.202	1,656	0.049	Significant
H8	Cross-Cultural -> Digital Literacy -> Marketing Performance	0.101	1,502	0.067	Not Significant
H9	Algorithmic Bias -> Digital Literacy -> Marketing Performance	-0.027	1.275	0.101	Not Significant
H10	Local Media -> Digital Literacy -> Marketing Performance	0.071	1,592	0.056	Not Significant

In this study, the researcher used a confidence level of 95%. The path coefficient score indicated by the T-statistic value must be above 1.64 for a one-tailed hypothesis. Based on the Path Coefficient and T-Statistics in the table above, the following conclusions can be drawn:

Hypothesis 1: InfluenceCross CulturalToDigital Literacy

Ho: Cross-cultural does not have a significant effect on Digital Literacy

H1: Cross-Cultural has a significant positive effect on Digital Literacy

The results of the analysis using SMART PLS are presented in the table above with a significance level of 5%. The resulting T-statistic value of 5.858 is greater than the t table value (1.64), and the P-value is 0.000 <0.05. Thus, the results of testing hypothesis 1 are H0 rejected and H1 accepted, meaning that Cross-Cultural has a significant positive effect on Digital Literacy.

The Cross-Cultural variable has an original sample value of 0.499 with a positive direction, meaning that the better the Cross-Cultural, the Digital Literacy will also increase by 0.499.

Hypothesis 2: InfluenceAlgorithmic BiasToDigital Literacy

Ho: Algorithmic Bias does not have a significant effect on Digital Literacy

H1: Algorithmic Bias has a significant positive effect on Digital Literacy

The results of the analysis using SMART PLS are presented in the table above with a significance level of 5%. The resulting T-statistic value of 1.704 is greater than the t table value (1.64), and the P-value is 0.044 <0.05. Thus, the results of testing hypothesis 2 are H0 rejected and H1 accepted, meaning that Algorithmic Bias has a significant negative effect on Digital Literacy.

The Algorithmic Bias variable has an original sample value of -0.134 with a negative direction, meaning that the better the Algorithmic Bias, the more Digital Literacy will decrease by 0.134.

Hypothesis 3: InfluenceLocal MediaToDigital Literacy

Ho: Local Media does not have a significant effect on Digital Literacy

H1: Local Media has a significant positive effect on Digital Literacy

The results of the analysis using SMART PLS are presented in the table above with a significance level of 5%. The resulting T-statistic value of 3.804 is greater than the t-table value (1.64), and the P-value is 0.000 <0.05. Thus, the results of testing hypothesis 3 are H0 rejected and H1 accepted, meaning that Local Media has a significant positive effect on Digital Literacy.

The Local Media variable has an original sample value of 0.352 with a positive direction, meaning that the better the Local Media, the more Digital Literacy will increase by 0.352.

Hypothesis 4: InfluenceCross CulturalToMarketing performance

Ho: Cross-cultural does not have a significant effect on Marketing performance

H1: Cross-cultural has a significant positive effect on Marketing performance

The Cross-Cultural variable has an original sample value of 0.276 with a positive direction, meaning that the better the Cross-Cultural, the Marketing performance will also increase by 0.276.

Hypothesis 5: InfluenceAlgorithmic BiasToMarketing performance

Ho: Algorithmic Bias does not have a significant effect on Marketing performance

H1: Algorithmic Bias has a significant positive effect on Marketing performance

The results of the analysis using SMART PLS are presented in the table above with a significance level of 5%. The resulting T-statistic value of 0.077 is smaller than the t table value (1.64), and the P-value is 0.469> 0.05. Thus, the results of

testing hypothesis 5 are H0 accepted and H1 rejected, meaning that Algorithmic Bias has no significant effect on Marketing performance.

The Algorithmic Bias variable has an original sample value of 0.006 with a positive direction, meaning that the better the Algorithmic Bias, the Marketing performance will also increase by 0.006.

Hypothesis 6: InfluenceLocal MediaToMarketing performance

Ho: Local Media does not have a significant effect on Marketing performance

H1: Local Media has a significant positive effect on Marketing performance

The results of the analysis using SMART PLS are presented in the table above with a significance level of 5%. The resulting T-statistic value of 5.980 is greater than the t-table value (1.64), and the P-value is 0.000 <0.05. Thus, the results of testing hypothesis 6 are H0 rejected and H1 accepted, meaning that Local Media has a significant positive effect on Marketing performance.

The Local Media variable has an original sample value of 0.384 with a positive direction, meaning that the better the Local Media, the Marketing performance will also increase by 0.384.

Hypothesis 7: InfluenceDigital literacyToMarketing performance

Ho: Digital literacy does not have a significant effect on marketing performance.

H1: Digital literacy has a significant positive effect on marketing performance.

The results of the analysis using SMART PLS are presented in the table above with a significance level of 5%. The resulting T-statistic value of 1.656 is greater than the t-table value (1.64), and the P-value is 0.049 <0.05. Thus, the results of testing hypothesis 7 are H0 rejected and H1 accepted, meaning that Digital literacy has a significant positive effect on Marketing performance.

The Digital literacy variable has an original sample value of 0.202 with a positive direction, meaning that the better the Digital literacy, the Marketing performance will also increase by 0.202.

Hypothesis 8: InfluenceCross CulturalToMarketing performance through Digital Literacy

Ho: Cross-cultural does not have a significant effect on Marketing performance through Digital Literacy

H1: Cross-Cultural has a significant positive effect on Marketing performance through Digital Literacy

The results of the analysis using SMART PLS are presented in the table above with a significance level of 5%. The resulting T-statistic value of 1,502 is smaller than the t table value (1.64), and the P-value is 0.067> 0.05. Thus, the results of testing hypothesis 8 are H0 accepted and H1 rejected, meaning that Cross-Cultural does not have a significant effect on Marketing performance through Digital literacy.

Hypothesis 9: Influence Algorithmic Bias ToMarketing performance through Digital Literacy

Ho: Algorithmic Bias does not have a significant effect on Marketing performance through Digital Literacy

H1: Algorithmic Bias has a significant positive effect on Marketing performance through Digital Literacy

The results of the analysis using SMART PLS are presented in the table above with a significance level of 5%. The resulting T-statistic value of 1.275 is smaller than the t-table value (1.64), and the P-value is 0.101> 0.05. Thus, the results of testing hypothesis 9 are H0 accepted and H1 rejected, meaning that Algorithmic Bias does not have a significant effect on Marketing performance through Digital literacy.

Hypothesis 10: InfluenceLocal MediaToMarketing performance through digital literacy

Ho: Local Media does not have a significant effect on Marketing performance through Digital literacy

H1: Local Media has a significant positive effect on Marketing performance through Digital literacy

The results of the analysis using SMART PLS are presented in the table above with a significance level of 5%. The resulting T-statistic value of 1.592 is smaller than the t table value (1.64), and the P-value is 0.056> 0.05. Thus, the results of testing hypothesis 10 are H0 accepted and H1 rejected, meaning that Local Media does not have a significant effect on Marketing performance through Digital literacy.

5. Discussion

The results of this study are in line with research trends demonstrating how culturally relevant marketing messaging significantly boosts engagement and the efficacy of marketing campaigns. This study is based on research trends demonstrating how culturally relevant marketing messaging significantly boosts engagement and the efficacy of marketing campaigns. Customers are more likely to accept and share culturally relevant content, such as local language and symbols [11, 22, 23]. Nevertheless, prior studies have not thoroughly investigated the extent to which algorithm bias in digital platforms might affect the visibility and influence of digital literacy and culturally appropriate content on marketing performance as a marketing strategy. In this study on digital marketing, the hypothesis of algorithmic bias as an independent variable focuses on how algorithms can lead to unfair or inaccurate results, which then influence marketing strategies [7, 8, 24]. Algorithmic bias can influence how marketing messages are disseminated, who sees them, and how they respond.

Unrepresentative data, algorithms created with incorrect presumptions, or the impact of preexisting social and cultural systems are some of the drivers of this bias [8, 25]. Few studies have examined how local media and particular cultural contexts can interact to influence digital marketing performance, even though local media play a crucial role in forming cultural perceptions[26-28]. For example, content tailored to local cultural values and technology leads to higher engagement and better marketing strategies [29-32].

Few studies have examined how local media and particular cultural settings can interact to influence digital marketing performance, despite the fact that local media are crucial in forming cultural attitudes [26-28]. The algorithms used to deliver marketing messages are often impacted by unrepresentative data and design assumptions that disregard cultural diversity. According to this study, the algorithm's messaging can occasionally be at odds with local norms and values, which lowers

the efficacy of advertising campaigns. According to this study, local symbols or tastes can boost consumer engagement—something that is typically disregarded in writing intended for a worldwide readership.

This study indicates that marketing strategies that fail to consider the role of local media struggle—the fail to connect with their target audiences. Local media's impact varies between the two countries due to differences in media consumption and digital literacy among their respective populations. How consumers in both nations perceive and react to digital marketing is influenced by their level of digital literacy [9]. This study suggests that customers who are not digitally literate may have a more challenging time comprehending communications provided through digital media, mainly when those communications contain culturally sensitive topics [9, 33].

Conversely, customers with higher levels of digital literacy are more equipped to assess marketing materials critically. Marketing results and consumer involvement can be enhanced by including cultural factors such as local language, symbols, and beliefs. This is consistent with earlier studies demonstrating that more culturally relevant content is more engaging. This study's thorough comprehension of local context, mainly how local media and algorithms affect message distribution, is explained by cultural adaptation.

6. Conclusion

The study results show that culturally relevant marketing messages significantly increase customer engagement and boost the effectiveness of digital marketing strategies. Marketing effectiveness is increased because audiences are more likely to accept and share cultural elements such as regional symbols, language, and values. However, this study also shows that the impact and visibility of culturally relevant content can be impacted by algorithmic bias on digital platforms. The dissemination of culturally relevant messages can be impeded by this bias, which unrepresentative data, incorrect design assumptions, or the influence of preexisting social and cultural institutions can cause.

In addition, local media play a significant role in shaping cultural perceptions and mediating interactions between digital content and consumers. However, little research explores how local media and specific cultural contexts interact to influence digital marketing performance. This study finds that marketing strategies that ignore the role of local media tend to be less effective in reaching target audiences, mainly due to differences in media consumption and digital literacy levels across regions.

Consumer digital literacy in Indonesia and Malaysia is crucial in understanding and responding to digital marketing messages. Consumers with lower levels of digital literacy tend to have difficulty understanding messages, especially when they contain complex cultural elements. In contrast, consumers with higher levels of digital literacy can better evaluate marketing communications critically and appreciate culturally relevant content. Therefore, effective digital marketing must consider the balance between cultural adaptation, digital algorithms, and the role of local media to achieve optimal impact.

The study's findings provide new insights into how algorithmic bias,local media, and digital literacy influence the success of culture-based marketing. The study's practical consequences indicate that businesses and digital marketers should be more careful in understanding how algorithms and local media can influence the distribution and reception of marketing messages while improving consumers' digital literacy to respond more effectively.

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