

Marketing Mix in E-Commerce and Consumers' Purchase Decision among Online Shoppers: The Moderating Role of Demographic Profile

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Abstract

This study examined how the marketing mix (product, price, promotion, and place) influences online consumers' purchase decisions in Bongao, Tawi-Tawi, and the moderating effects of age, educational attainment, and employment status. The study utilized descriptive analysis, Pearson correlation, regression analysis, and moderation analysis. Results showed that the marketing mix was generally perceived as highly effective, with Promotion receiving the highest rating. Purchase decision was also high, with the pre-purchase stage receiving the highest evaluation. The relationship between marketing mix and purchase decision was weak but statistically significant. Regression analysis showed that age and employment status significantly predicted purchase decision, while moderation analysis showed that educational attainment and employment status significantly moderated the relationship between marketing mix and purchase decision. Age did not significantly moderate the relationship. The findings highlight the importance of targeted promotions, user-friendly online platforms, and demographic-based marketing strategies in influencing online consumer behavior.

Keywords: Marketing Mix; Online Shopping; Consumer Behavior; Purchase Decision; Demographic Profile

SDG Thrusts: #8 Decent Work and Economic Growth.; #9 Industry, Innovation, and structure

1.1. Introduction

Rapid changes in the business environment, driven by technology and the internet, have transformed consumer purchasing behavior by providing greater access to products, information, and digital marketplaces. Purchase decision is a critical stage in the consumer decision-making process, during which consumers evaluate product information, compare alternatives, and make the final buying decision (Kotler & Armstrong, 2018). The Consumer Decision Process Model of Engel, Kollat, and Blackwell (1968) further explains that purchase decisions result from the interaction between external marketing stimuli and consumers' internal characteristics.

One widely recognized determinant of purchase decisions is the marketing mix, consisting of product, price, promotion, and place (McCarthy, 1960). These elements influence consumers' perceptions, preferences, and purchasing behavior by creating value and satisfying customer needs (Stankevich, 2017). Previous studies have also shown that the marketing mix influences online purchasing behavior (Malau, 2020; Putra et al., 2019; Aisyah et al., 2021; Amanah et al., 2018; Inaolaji & Narci, 2022; Dela Cerna & Schneider, 2023).

Consumer behavior is also influenced by personal factors. Age, educational attainment, and employment status may affect consumers' purchasing preferences, financial capability, and responses to marketing activities. Sheth's (1977) Consumer Demographic Theory explains that demographic characteristics influence consumers' perceptions, motivations, and purchasing behavior.

Despite extensive literature on the marketing mix and consumer behavior, studies rarely consider geographically isolated areas and how personal factors interact with marketing strategies in the purchase decision-making process. This is relevant in Bongao, Tawi-Tawi, where limited goods and increasing reliance on online shopping create a distinct consumer environment.

Thus, this study examined the influence of the marketing mix on online consumers' purchase decisions in Bongao, Tawi-Tawi and determined whether age, educational attainment, and employment status moderate this

relationship. The study contributes to SDG 8, Decent Work and Economic Growth, and SDG 9, Industry, Innovation, and Infrastructure, by providing insights for businesses, marketers, and policymakers seeking to improve digital engagement and participation in Tawi-Tawi's growing online marketplace.

1.1.1. Research Gap

Although previous studies confirm the relationship between the marketing mix and purchase decision, limited research has examined how demographic characteristics interact with marketing strategies in geographically isolated areas. Existing studies rarely consider areas with limited local goods and greater reliance on online shopping.

This study addresses this gap by examining the relationship between Marketing Mix and Purchase Decision and determining whether Age, Educational Attainment, and Employment Status moderate this relationship among online consumers in Bongao, Tawi-Tawi.

1.1.2. Objectives of the Study

The study aimed to determine the influence of the Marketing Mix on the Purchase Decisions of online consumers in Bongao, Tawi-Tawi and the moderating effect of demographic profile. Specifically, it sought to determine the level of Marketing Mix in terms of Product, Price, Promotion, and Place; determine the level of Purchase Decision in terms of pre-purchase, purchase, and post-purchase; describe respondents' Age, Educational Attainment, and Employment Status; determine the relationship between Marketing Mix and Purchase Decision; identify variables that significantly predict Purchase Decision; and determine whether Age, Educational Attainment, and Employment Status significantly moderate the relationship between Marketing and Purchase Decision.

The following null hypothesis were tested at the 0.05 level of significance.

H₀₁: There is no significant relationship between Marketing Mix and Purchase Decision.

H₀₂: Marketing Mix and demographic characteristics do not significantly predict Purchase Decision.

H₀₃: Age, Educational Attainment, and Employment Status do not significantly moderate the relationship between Marketing Mix and Purchase Decision.

1.1.3. Significance of the Study

The study provides information for e-commerce businesses, local sellers, and MSMEs in developing marketing strategies and improving customer targeting. It may also assist policymakers and business organizations in promoting digital participation and local economic development.

The study contributes to SDG 8 by supporting digital entrepreneurship and economic participation and SDG 9 by emphasizing digital markets, innovation, and infrastructure. It may also serve as a reference for future studies on Marketing Mix, consumer behavior, and online Purchase Decision in geographically isolated communities. The manuscript specifically identifies businesses, marketers, policymakers, local sellers, and MSMEs as beneficiaries of these findings.

1.2. Review of Related Literature

Purchase decision refers to consumers' decision on what, whether, where, and how to buy (Kotler & Armstrong, 2018). It involves need recognition, information search, evaluation of alternatives, purchase decision, and post-purchase behavior. Consumers may consider product quality, price, advertising, product reviews, and other available information before making a purchase.

The marketing mix consists of product, price, promotion, and place. Product involves quality and characteristics that satisfy consumer needs, while price reflects the value consumers exchange for a product. Promotion communicates product information and encourages purchase, while place concerns product availability

and accessibility. Previous studies have found that these elements influence consumers' online purchase decisions (Malau, 2020; Putra et al., 2019; Aisyah et al., 2021; Amanah et al., 2018; Inaolaji & Narci, 2022).

Demographic characteristics may also influence consumer behavior. Age may affect consumers' preferences and familiarity with online shopping, educational attainment may influence how consumers evaluate information, and employment status may affect purchasing capability and preferences. These characteristics provide a basis for examining whether consumers respond differently to marketing strategies.

1.2.1. Theoretical Framework

The study is anchored on the Consumer Decision Process Model of Engel, Kollat, and Blackwell (1968), which explains that consumers undergo need recognition, information search, evaluation of alternatives, purchase decision, and post-purchase evaluation. This model provides the basis for examining consumers' purchase decisions.

McCarthy's (1960) Marketing Mix Theory also supports the study by identifying product, price, promotion, and place as marketing elements that influence purchasing behavior. Sheth's (1977) Consumer Demographic Theory explains that demographic characteristics influence consumers' perceptions, motivations, and purchasing behavior. Ajzen's (1985) Theory of Planned Behavior explains that individual characteristics influence behavioral intentions and purchasing decisions. These theories provide the basis for examining the relationship between marketing mix, demographic profile, and purchase decision. The manuscript already uses Consumer Demographic Theory and the Theory of Planned Behavior in interpreting demographic influences on purchasing behavior.

1.2.2. Conceptual Framework

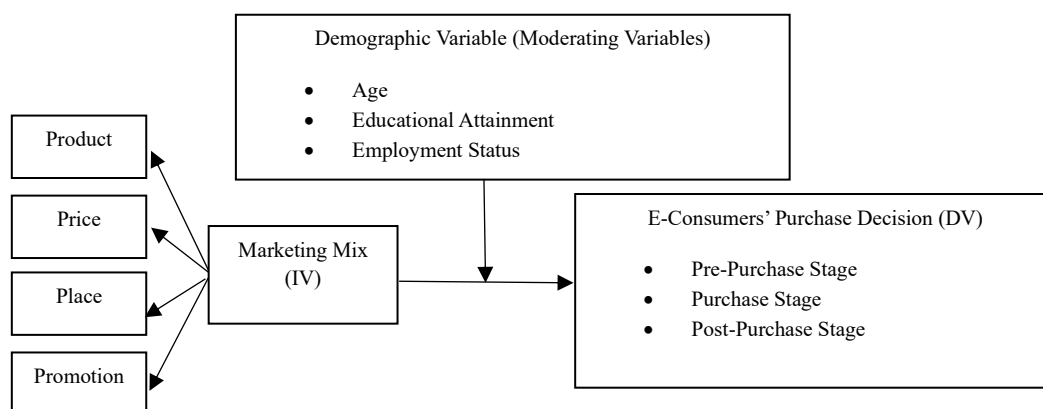


Figure 1. Conceptual Framework of the Study

Figure 1 presents the conceptual framework of the study; it considers Marketing Mix, composed of product, price, promotion, and place, as the independent variable and Purchase Decision, represented by the pre-purchase, purchase, and post-purchase stages, as the dependent variable. Demographic Profile, consisting of age, educational attainment, and employment status, serves as the moderating variable.

The framework proposes that Marketing Mix is related to Purchase Decision and that the strength of this relationship may vary according to consumers' demographic characteristics.

1.3. Methods

1.3.1. Research Design

The study employed a descriptive-correlational, non-experimental quantitative research design. The descriptive approach determined the levels of Marketing Mix and Purchase Decision and described respondents' demographic profile. Pearson correlation determined the relationship between Marketing Mix and Purchase Decision. Moderation analysis determined whether Age, Educational Attainment, and Employment Status significantly moderated the relationship between Marketing Mix and Purchase Decision.

1.3.2. Respondents and Sampling

The respondents were employees of State Universities and Colleges (SUCs) and Private Higher Education Institutions (PHEIs) in Bongao, Tawi-Tawi who engaged in online shopping. Purposive sampling was used to select respondents based on the study's inclusion criteria.

Respondents were residents of Bongao, employees of participating SCUs or PHEIs aged 20 to 64, had completed online purchases, and voluntarily participated in the study. Valid responses varied across demographic variables because of missing responses.

1.3.3. Research Locale

The study was conducted in Bongao, Tawi-Tawi, the province's administrative, commercial, and educational center. The presence of educational institutions, business, transportation facilities, internet connectivity, and online shopping services makes Bongao an appropriate setting for examining e-commerce consumer behavior.

1.3.4. Research Instrument

The study used a structured questionnaire. Part I obtained respondents' demographic profile in terms of Age, Educational Attainment, and Employment Status. Part II measured Marketing Mix in terms of Product, Price, Promotion, and Place using items adapted from Garg et al. (2016). Part III measured Purchase Decision in terms of pre-purchase, purchase, and post-purchase using the instrument of Nartea et al. (2019).

As shown in Table 1, the five-point Likert scale measures respondents' level of agreement with each statement. The scale ranged from 1 (Strongly Disagree) to 5 (Strongly Agree). The weighted mean was used to determine respondents' perceptions of the marketing mix and purchase-decision variables. The following interpretation was used:

Table 1. Five-Point Likert Scale and Interpretation

Mean Range	Interpretation
4.20-5.00	Strongly Agree
3.40-4.19	Agree
2.60-3.39	Neutral
1.80-2.59	Disagree
1.00-1.79	Strongly Disagree

The questionnaire underwent content validation and pilot testing with 29 respondents. The coefficient of 0.88 indicated high internal consistency.

1.3.5. Statistical Treatment

Frequency and percentage were used to describe respondents' demographic profile, while mean and standard deviation described Marketing Mix and Purchase Decision. Pearson Product-Moment Correlation determined the relationship between Marketing Mix and Purchase Decision. Regression analysis identified significant predictors, while moderation analysis tested the interaction between Marketing Mix and Age, Educational Attainment, and Employment Status at the 0.05 significance level.

1.4. Results and Discussions

1.4.1. Marketing Mix in E-Commerce

Table 2. Level of Marketing Mix in E-Commerce

Indicators	SD	Mean	Interpretation
Product	0.55	3.92	Agree
Price	0.69	3.83	Agree
Promotion	0.63	4.07	Agree
Place	0.79	3.68	Agree
Overall	0.67	3.86	Agree

Result. Table 2 shows an overall Marketing Mix mean of 3.86 (SD = 0.67), interpreted as Agree. Promotion obtained the highest mean (M = 4.07), followed by Product (M = 3.92), Price (M = 3.83), and Place (M = 3.68).

Discussion. The findings indicate that respondents considered Product, Price, Promotion, and Place important in online shopping, with Promotion receiving the highest evaluation. This supports Marketing Mix Theory and previous findings that marketing activities influence consumers' purchasing behavior. Online businesses should therefore maintain effective promotions while ensuring product quality, competitive pricing, and accessibility.

1.4.2. Online Shoppers' Purchase Decision

Table 3. Level of Purchase Decision among Online Shoppers

Indicators	SD	Mean	Descriptive Level
Pre-purchase stage	0.64	4.32	Strongly Agree
Purchase stage	0.63	4.18	Agree
Post-purchase stage	0.65	3.97	Agree
Overall	0.64	3.86	Agree

Results. Table 3 shows an overall Purchase Decision mean of 4.16 (SD = 0.59), interpreted as Agree. The Pre-purchase Stage obtained the highest mean (M = 4.32), followed by Purchase (M = 4.18) and Post-purchase (M = 3.97).

Discussion. The findings indicate that respondents placed greater emphasis on pre-purchase activities, including searching for product information, comparing alternatives, and considering reviews. This supports the Consumer Decision Process Model, which explains that consumers evaluate information before making purchase decisions.

1.4.3. Profile of the Respondents

Table 4. Profile of the Respondents

Variable	Categories	Frequency (f)	Percentage (%)
Age	20-27 years old	107	36.77
	28-34 years old	66	22.68
	35-41 years old	25	8.59
	42-48 years old	45	15.46
	49-55 years old	16	5.50
	56-64 years old	32	11.00
	Total	291	100.00
Education Attainment	Elementary or High School	10	3.31
	Associate or Diploma	9	2.98
	Bachelor's Degree	226	74.83
	Master's Degree	50	16.56
	Doctorate's Degree	7	2.32
	Total	302	100.00
Employment Status	Permanent	124	43.36
	Contractual	102	35.66
	Contract of Service	60	20.98
	Total	286	100.00

Note: Percentage are based on valid responses for each demographic variable.

Results. Table 4 shows that the largest age group was 20-27 years old (36.77%). Most respondents had a Bachelor's Degree (74.83%), while permanent employees comprised the largest employment group (43.36%).

Discussion. Respondents represented different age groups, educational background, and employment statuses. These differences provide a basis for examining whether demographic characteristics influence consumers' responses to Marketing Mix, consistent with Consumer Demographic Theory.

1.4.4. Correlation between Marketing Mix and Purchase Decision

Table 5. Correlation between Marketing Mix and Purchase Decision

Paired Variable	Pearson Correlation	P-Value	Decision on H ₀	Remarks
Marketing Mix & Purchase Decision	0.128	0.025	Reject H ₀	Significant

Results. Table 5 shows a weak positive but statistically significant correlation between Marketing Mix and Purchase Decision ($r = 0.128$, $p = 0.025$). Thus, the null hypothesis was rejected.

Discussion. The result indicates that Marketing Mix is significantly associated with Purchase Decision, although the relationship is weak. This suggests that Product, Price, Promotion, and Place are associated with consumers' decisions when purchasing online, but the strength of this relationship is limited. The finding supports Marketing Mix Theory, which explains that marketing elements influence consumers' purchasing behavior. However, the weak relationship also suggests that other factors beyond the Marketing Mix may contribute to online purchasing behavior and Purchase Decisions.

1.4.5. Predictors of Online Shoppers' Purchase Decision

Table 6. Regression Model for Marketing Mix and Demographic Profile on Purchase Decision

Model	Variables	R-Squared	F-Statistic	P-Value	Remarks
1	MarkMix	0.016	5.085	0.025	Significant
2	MarkMix, Educ, Age, Employ	0.053	4.2	0.003	Significant

Results. Table 6 shows that Marketing Mix significantly predicted Purchase Decision in Model 1 ($R^2 = 0.016$, $p = 0.025$), explaining 1.6% of the variance in Purchase Decision. When the demographic variables were included in Model 2, the model remained statistically significant ($R^2 = 0.053$, $p = 0.003$) and explained 5.3% of the variance in Purchase Decision. Thus, including demographic variables increased the model's explanatory power, although the proportion of variance explained remained modest.

Discussion. The findings indicate that demographic characteristics provide additional information in explaining Purchase Decision. However, the modest explained variance suggests that other factors may also influence online purchasing behavior. This is consistent with Consumer Demographic Theory, which explains that demographic characteristics influence consumers' perceptions and purchasing behavior. It interprets the relatively modest increase in variance as evidence that demographic differences are linked to purchasing behavior.

Table 7. Significant Variables of Purchase Decision among Online Shoppers

Model	Variables	Coefficient	P-Value	Remarks
1	MarkMix	0.173	0.025	Significant
2	MarkMix with Demographics	0.130	0.091	Not Significant
2	Educ	-0.063	0.145	Not Significant
2	Age	-0.055	0.006	Significant
2	Employ	-0.094	0.02	Significant

Results. Table 7 shows that Age ($p = 0.006$) and Employment Status ($p = 0.02$) significantly predicted Purchase Decision, while Marketing Mix with demographics ($p = 0.091$) and Educational attainment ($p = 0.145$) were not significant predictors in the final model. These values correspond to the reported regression results.

Discussion. The findings indicate that Purchase Decision varies with Age and Employment Status, which may affect purchasing preferences, financial capability, and responsiveness to marketing strategies. Educational Attainment did not significantly predict Purchase Decision. The findings support the Theory of Planned Behavior, which explains that individual characteristics may influence behavioral intentions and purchasing decision. They are also consistent with Ansari and Farooqi (2017), who found that age influences online shopping behavior, and Safitri et al. (2024), who reported that employment status influences consumers' e-commerce purchase preferences and payment. These findings suggest that online businesses may consider Age and Employment Status when developing marketing strategies for different consumer groups.

1.4.5. Moderating Effect of Demographic Profile

Table 8. Moderating Effect of Demographic Profile on the Relationship between Marketing Mix and Purchase Decision

Moderator	Valid n	Interaction Tested	F	P-Value	Decision on H_0	Moderating Effect
Age	291	MarkMix x Age	0.529	0.754	Fail to Reject H_0	Not Significant
Education Attainment	302	MarkMix x Educ	3.290	0.012	Reject H_0	Significant
Employment Status	286	MarkMix x Employ	6.076	0.003	Reject H_0	Significant

Results. Table 8 shows that Educational Attainment ($F = 3.290, p = 0.12$) and Employment Status ($F = 6.076, p = 0.003$) significantly moderated the relationship between Marketing Mix and Purchase Decision. Age ($F = 0.529, p = 0.754$) did not significantly moderate the relationship. Thus, the null hypotheses for Educational Attainment and Employment Status were rejected, while the null hypothesis for Age was not rejected.

Discussion. The findings indicate that the relationship between Marketing Mix and Purchase Decision varies by Educational Attainment and Employment Status but not Age. Educational Attainment may affect how consumers evaluate product information and alternatives, while Employment Status may influence purchasing preferences and responses to marketing activities. These findings support Consumer Demographic Theory, which explains that demographic characteristics influence consumers' perceptions and purchasing behavior.

Tables 7 and 8 also show *differences in prediction and moderation*. Age significantly predicted Purchase Decision but did not significantly moderate the relationship. Educational Attainment was not a significant predictor but was a significant moderator, while Employment Status was significant as both a predictor and a moderator.

1.5. Conclusion

The study found that Marketing Mix was generally perceived highly by shoppers in Bongao, Tawi-Tawi, with Promotion receiving the highest rating. Purchase Decision was also highly perceived, particularly in the Pre-purchase Stage, indicating that consumers considered product information, alternatives, and reviews before purchasing. The respondents represented different age groups, educational backgrounds, and employment statuses.

The marketing mix had a statistically significant but weak positive relationship with Purchase Decision. Regression analysis showed that Age and Employment Status significantly predicted Purchase Decision, whereas Educational Attainment did not. Moderation analysis showed that Educational Attainment and Employment Status significantly moderated the relationship between Marketing Mix and Purchase Decision, while Age did not. The modest explanatory power of the regression indicates that other factors may also influence online purchasing behavior.

Overall, the findings support the Consumer Decision Process Model, Marketing Mix Theory, Consumer Demographic Theory, and Theory of Planned Behavior in explaining online consumers' Purchase Decisions in Bongao, Tawi-Tawi. It also shows how the descriptive and inferential findings aligned with these theoretical foundations.

1.6. Recommendations

Based on the findings, online sellers and e-commerce businesses in Bongao, Tawi-Tawi should strengthen their marketing strategies by improving areas that received comparatively lower ratings, particularly by providing more accurate product information, transparent pricing, reliable delivery services, and responsive customer support. Continuous improvement to platforms' usability improves consumers' online shopping experience.

The Department of Trade and Industry (DTI), the Local Government Unit (LGU), and business organizations may use the findings to develop digital marketing capability programs for local entrepreneurs and MSMEs. Since age and employment status significantly influenced consumers' responses to marketing strategies, businesses should adopt customer segmentation approaches that address the needs and preferences of different consumer groups.

Future researchers are encouraged to replicate the study in other localities using larger samples and probability sampling techniques. They may also examine additional variables, such as consumer trust, perceived risk, online payment security, electronic word-of-mouth, customer satisfaction, and brand loyalty, to provide a more comprehensive explanation of online purchase decisions.

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