

From Scroll to Spend: An Analytical Study of AI-Driven Social Media Algorithms and Their Influence on Gen-Z Purchasing Behaviour

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ABSTRACT

The fast development of artificial intelligence (AI) has impacted greatly on digital marketing approaches with the personalization of content offered using algorithms with social media networks. This paper will discuss how the use of artificial intelligence in social media algorithms has affected the buying habits of Generation Z customers, particularly on Instagram. The study examines three main dimensions, including how content personalization based on algorithms affects product discovery, how intactness to algorithmically selected product content affects purchase intention, and how targeted product suggestions affect impulse buying behaviour and discretionary expenditure behaviour. A quantitative cross-sectional study design was followed and primary data were gathered involving 130 social media users belonging to Gen Z in Nagpur by using a structured questionnaire that used a five-point Likert scale. Purposive and convenience sampling methods were used in the study and data collected evaluated by descriptive statistics, Pearson correlation, regression analysis and multivariate analysis through SPSS. The findings suggest that content personalization with the use of algorithms has a significant positive influence on product discovery in Gen Z consumers. Moreover, exposure to value-based product recommendations through an algorithmic design has a medium effect on purchase intention. The multivariate analysis also indicates that exposure to targeted product recommendations is a key factor in the impact of the impulse purchase behaviour and discretionary expenditure of Gen Z users. These results indicate the increased significance of AI-based personalization and recommendation systems in influencing consumer decision-making in the digital space. The research can be of great use to marketers and digital strategists who are eager to use algorithm-based platforms to manipulate the purchasing behaviour of younger consumers.

Keywords: *Artificial Intelligence, Algorithms, Social Media, Product Discovery, Purchase Intention, Impulse Purchasing, Digital Marketing.*

1. INTRODUCTION

The high rate of artificial intelligence (AI) and digital development has evidently altered the behavior of customers, particularly on social media where content, communication, and commerce are closely interlinked. The algorithms that are driven by artificial intelligence today significantly influence the content that a user is shown today based on their behaviour, tastes, and interaction patterns. This enables platforms to provide such a high level of personalization in terms of content and advertisement, which makes the overall experience more user-acceptable and captivating. This also means that now, marketers can target consumers more powerfully, and it does not only affect their product awareness but also in decision-making (Morales-Muñoz et al., 2026).

Instagram is one of these platforms and is one of the most favorable platforms to conduct digital marketing, especially among the Gen Z consumers. It can easily integrate entertainment contents, social interactions as well as promotional messages in a smooth manner due to its visual and interactive qualities. As Ingriana and Rolando (2025) note, Instagram has long since erased the content/advertising boundary since branded posts, influencer advertisements, and recommendations suggested by the algorithms are a natural part of the everyday scrolling process of the user. Such an environment tends to stimulate the impulsive, emotional and fast buying behavior by young users.

Moreover, Instagram influencer marketing is also a major contributor to the way Gen Z perceives and understands the products. As noted by Ghaleb and Alawad (2024) likes, comments, and shares represent a powerful signal, which can affect purchase intentions. Similarly, Clark (2025) notes that Gen Z consumers are receptive to brand-specific ads, although they do not only demand authenticity and transparency. In this study, the effects of personalized content, influence of influencers and selective promotions on the buying behaviour of the Gen Z consumers are examined based on the high power of Instagram and the increase in the influence of AI algorithms.

2. LITERATURE REVIEW

Available literature is a clear indication of the presence of the influential power of AI-powered and algorithm-based social media platforms in creating the behaviour of Gen Z consumers. Research by Morales-Muñoz et al. (2026) and Clark (2025) demonstrates that algorithms and AI-assisted advertising do not just show users what to see but also shape their thoughts, countenances, and decision-making, hence the personalization of an online experience is an

essential component of the digital experience. Equally, as highlighted by Kumar and Patel (2023) and Sharma and Verma (2022), personalized marketing and predictive analytics contribute to user engagement to a great extent, which ultimately results in greater buying behaviour. Regarding the content, Ghaleb and Alawad (2024) and Lee and Chen (2023) demonstrate that platforms such as Instagram and influencer-created content have a strong impact on the purchase intentions and brand relations of Gen Z and that social media promotions are a strong driver of impulse buying, which has a direct effect on consumer behavior.

Nevertheless, these good points do not make the literature less fragmented. The majority of the literature on personalization, engagement or impulse buying discuss these elements one at a time as opposed to investigating the interaction of these factors in the context of a larger process. Minimal studies have also been made linking psychological aspects such as purchase intention to the actual behavioural aspects in the form of impulse buying and discretionary spending on a single framework. This is especially significant when examining Gen z who are constantly online and interacting with online platforms and setting trends that evolve over time. As one of the solutions to it, the current research takes a more unified (combined) approach concerning the relationship between personalization, engagement, and targeted promotions, offering a more wholesome picture of how social media algorithms affect the entire consumer.

3. RESEARCH METHODOLOGY

This paper examines the effect of AI-based social media algorithms in the purchasing behaviour of Gen Z shoppers. It dwells on three important points, such as whether a personalization based on algorithms can influence product discovery, whether a stronger involvement with curated content leads to a greater purchase intention, and whether exposure to relevant product recommendations motivates impulse purchase and discretionary expenditure. Using these questions, the study will be looking at the combination of personalization and engagement and targeted promotions in influencing consumer decision-making. In general, the goal of the work is to learn how the intentions and the real purchasing behaviour of Gen Z can be affected by the use of the algorithms-driven content.

Three hypotheses were developed to empirically test out these relationships. The initial hypothesis is that content personalization based on algorithms in social media platforms will only have an important impact on product discovery among Gen Z consumers. The hypothesis two is that the more the Gen Z consumers are experiencing a higher engagement with the algorithmically curated contents of products the higher the purchase intent is likely to be. It is

hypothesized that third, exposure to social media with targeted product promotions will have a significant impact on impulse purchase and discretionary spending by Gen Z consumers.

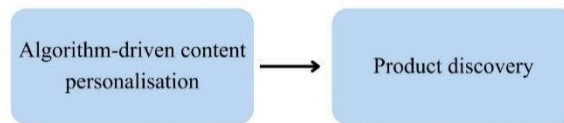


Figure 1: Conceptual Framework showing the influence of AI-Driven Social Media Algorithms on Gen Z Purchasing Behaviour

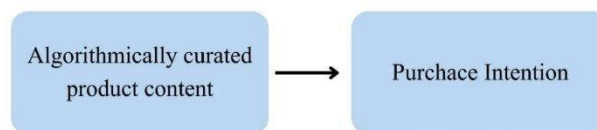


Figure 2: Conceptual Framework showing the influence of Algorithmically curated product content on purchase intention

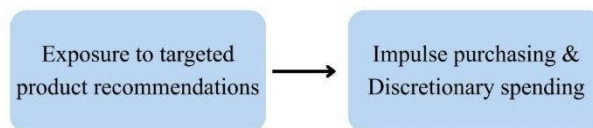


Figure 3: Conceptual Framework showing the influence of Exposure to targeted product recommendations on impulse purchasing & discretionary spending.

The research is based on a quantitative cross section survey to cognize the effect of algorithm-based customization on the consumer purchasing behaviour. The reason behind selecting this approach is that such a strategy will enable one to test relationships between variables objectively through statistical testing. The study targets the Gen Z social media users in Nagpur, which is any person born between 1997 and 2012 and is an active user of social media fuelled by algorithms. Structured questionnaire was a data collection tool through Google Forms in which the data involved perceptions and behaviours concerning individualized content, product discovery, purchase intention and impulse buying.

The answers were recorded on a five-point Likert scale in which a strongly disagree and strongly agree were on the scale. Purposive and convenience sampling was used to collect 130 valid responses. In order to select participants, the selection criteria were used, including being active users of the Instagram application and being exposed to personalized ads, which guaranteed relevance of the sample. The convenience sampling was also valuable, as it

contributed to the fact that participants, whom the researcher could reach very conveniently and respond to, were included.

The independent variables include the use of algorithms as a personalization mechanism, the use of curated content or the exposure to targeted promotions, whereas the dependent variables include product discovery, purchase intention, and spontaneous buying (under discretionary spending). The analysis was conducted in SPSS and Microsoft Excel with the descriptive statistics summarising the trends, Pearson correlation comparing the relationship between variables, and regression analysis assessing the effects of the two on the Gen Z consumer behaviour.

4. HYPOTHESIS TESTING

H1: Content personalization based on algorithms in social media platforms will only have an important impact on product discovery among Gen Z consumers.

To analyze the role of content personalization based on algorithms in product discovery in Gen Z consumers, a simple linear regression was performed. In this model, content personalization was considered to be the independent variable, and product discovery was seen as the dependent variable. The regression and ANOVA results are displayed below.

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.533 ^a	0.284	0.281	0.50925
a. Predictors: (Constant), Algorithmic Driven Content Personalisation				
b. Dependent Variable: Product Discovery				

Table 1.1: Summary for Hypothesis 1

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	26.561	1	26.561	102.42	.000 ^b
	Residual	66.909	258	0.259		
	Total	93.47	259			
a. Dependent Variable: Product Discovery						
b. Predictors: (Constant), Algorithmic Driven Content Personalisation						

Table 1.2: ANOVA Test for Hypothesis 1

Coefficients ^a					
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.859	0.196		9.503	0
1 Algorithmic Driven Content Personalisation	0.522	0.052	0.533	10.12	0

a. Dependent Variable: Product Discovery

Table 1.3: Coefficients of Hypothesis 1

Regression analysis suggests that there is a medium-level positive correlation between product discovery and content personalization using algorithms and Gen Z consumers as shown by R value of 0.533. The fact that the R^2 is 0.284 indicates that 28.4 per cent of the change in product discovery is accounted for by the use of algorithmic personalization, and the adjusted R^2 of 0.281 is an indication that the model can be trusted with very little shrinkage. In addition, the results of ANOVA clearly show that the model is significant with a F-value of 102.42 and p-value of 0.000 which is far much less compared with the accepted value of 0.05. Such results categorically prove that the influence of content personalization based on algorithms is meaningful and cannot be ignored in terms of product discovery. Based on it, the hypothesis is approved, and it is recognized that the use of personalized content with the help of social media algorithms is important to influence the way Gen Z consumers learn about products.

H2: *The more the Gen Z consumers are experiencing a higher engagement with the algorithmically curated contents of products the higher the purchase intent is likely to be.*

Simple linear regression was used to investigate the impact of exposure to content in products filtering activities algorithmically on purchase intent in Gen Z consumers. In this model, engagement was used as the independent variable and purchase intention the dependent variable. Below are the results of regression and ANOVA analysis.

Model Summary ^b				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.595 ^a	0.354	0.351	0.56771

a. Predictors: (Constant), Engagement
b. Dependent Variable: Purchase Intention

Table 2.1: Summary for Hypothesis 2

ANOVA ^a						
Model	Sum of Squares	df	Mean Square	F	Sig.	
1	Regression	45.519	1	45.519	141.235	.000 ^b
	Residual	83.151	258	0.322		
	Total	128.67	259			

a. Dependent Variable: Purchase Intention
b. Predictors: (Constant), Engagement

Table 2.2: ANOVA Test for Hypothesis 2

Coefficients ^a						
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	
	B	Std. Error	Beta			
1	(Constant)	1.192	0.188		6.339	0
	Engagement	0.629	0.053	0.595	11.884	0

a. Dependent Variable: Purchase Intention

Table 2.3: Coefficient of Hypothesis 2

The regression analysis demonstrates that engagement with the content that is algorithmically curated has a moderately strong positive correlation with the purchase intent among Gen Z consumers as indicated by the value of R being 0.595. The R² of 0.354 indicates that 35.4 percent of the change in purchase intention can be attributed to engagement whereas the adjusted R² of 0.351 also tends to prove the robustness and dependability of the model. The results of the ANOVA also lead to the affirmation that the model is statistically significant as its F-value is 141.235 and p-value is 0.000 that is much lower than the acceptable value of 0.05. The results clearly point at the fact that increased exposure to the product content produced by algorithms has an outstanding impact on purchase intention. Thus, the hypothesis is approved, and it has been established that the engagement with the personal content is a key factor that can affect the intentions to purchase among Gen Z consumers.

H3: Exposure to social media with targeted product promotions will have a significant impact on impulse purchase and discretionary spending by Gen Z consumers.

The reason behind using a MANOVA to compare the effect of exposure to targeted product promotion on social media on impulse purchase and discretionary system among the Gen Z

consumers is that promotional exposure is considered to be an independent variable, and discretionary spending and impulse purchase act as dependent variables.

Multivariate Tests ^a						
Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's Trace	0.888	952.451 ^b	2	240	0	0.888
Wilks' Lambda	0.112	952.451 ^b	2	240	0	0.888

Table 3.1: Wilk's Lambda

Tests of Between-Subjects Effects							
Source	Dependent Variable	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	Impulse Purchase Behaviour	44.084 ^a	18	2.449	3.931	0	0.227
	Discretionary Spending	51.405 ^b	18	2.856	5.097	0	0.276
Intercept	Impulse Purchase Behaviour	991.683	1	991.683	1591.559	0	0.868
	Discretionary Spending	1002.627	1	1002.627	1789.345	0	0.881
Mean_ETP	Impulse Purchase Behaviour	44.084	18	2.449	3.931	0	0.227
	Discretionary Spending	51.405	18	2.856	5.097	0	0.276
Error	Impulse Purchase Behaviour	150.164	241	0.623			
	Discretionary Spending	135.04	241	0.56			
Total	Impulse Purchase Behaviour	2944.833	260				
	Discretionary Spending	2950.056	260				
Corrected Total	Impulse Purchase Behaviour	194.248	259				
	Discretionary Spending	186.445	259				
a. R Squared = .227 (Adjusted R Squared = .169)							
b. R Squared = .276 (Adjusted R Squared = .222)							

Table 3.2: Tests of Between Subjects Effects

The multivariate analysis results show that exposure to the targeted product promotion on the social media significantly influences the impulse purchase and discretionary spend among Gen Z generations with a Trace value of 0.888, the F-value of 952.451, and the p-value of 0.000, below the 0.05 criteria of significance. The very strong overall effect size is also already indicated by the Partial Eta Squared value of 0.888. The Tests of Between-Subjects Effects are much more informative and show the results that the exposure to the advertisements has a significant impact on impulse buying ($F = 1591.559$, $p = 0.000$) with a high effect size (Partial Eta Squared = 0.868) and discretionary spending ($F = 1789.345$, $p = 0.000$) with the even higher effect size (Partial Eta Squared = 0.881). These findings are a clear indication that careful promotions on social media do not only elicit unplanned purchasing behaviour, but also considerably influence the discretionary spending behaviour of the Gen Z shoppers. Thus, the hypothesis is accepted and confirms that the impact of exposure to the promotions of the specific products on social media is significant and considerable in the areas of impulse buying and discretionary spending.

5. DISCUSSION

The results of this paper are a good indicator to suggest that algorithm-based social media platforms are a major determinant of the behaviour of Gen Z consumers with an interference on their product discovery, engagement, and purchase. Findings of Hypothesis 1 demonstrate that content personalization via algorithm is an active process and effective in product discovery, meaning that feed curation is not passive but actually effective in the awareness-building. Expanding on the same, Hypothesis 2 validates that the higher the interaction with the customized content, the greater is the purchase intention, and the development of the relationship between discovery and intent is clearly shown through interaction between the user.

Foremost, Hypothesis 3 shows that targeted product promotions are all too influential on impulse purchase and discretionary spending where the effect sizes are very strong. This implies that these types of promotions have more than merely an influencing effect, they can go to the extent and influence spontaneous purchasing behaviour and expenditure patterns. All in all, these results are in line with the current theories in digital consumer behaviour, such as the importance of personalization and engagement in decision-making. Practically, the paper underlines the significance of marketers utilizing algorithmic targeting and content that captures the interests and purchase potential of Gen Z clients, as well as adding to a more interconnected knowledge of digital consumer behaviour.

6. RECOMMENDATION

The results of this paper indicate that social media settings, which are driven by the algorithms, do not only impact but also shape Gen Z consumers, which is why marketers should consider adopting more sophisticated and conscientious digital practices. Brands ought to go beyond the simple targeting and invest in the enhanced personalization that provides relevant and situational content that is delivered in line with personal tastes. Meanwhile, the issue of user engagement should be considered as one of the driving factors because it is closely related to purchase intention. It may be done by using interactive content, by telling stories that are close to heart and platform-based approaches, particularly on visual-oriented platforms such as Instagram.

Moreover, as targeted promotions are associated with a great influence on impulse purchases and discretionary spending, marketers should take them into special consideration balancing the application of this strategy with ethical implications to prevent consumer overture and excessive spending. It is also becoming increasingly important to have platforms and policymakers focus on ensuring a degree of transparency in algorithmic recommendations so that consumers could be aware of the way their decision-making is being manipulated. To conduct future research, further investigations of those effects in other cultures and through time would be more informative. In general, this paper suggests a transition to more interconnected, consumer-oriented, and ethically friendly marketing related to acknowledging the strength of algorithms as well as the value of consumer welfare.

7. CONCLUSION

All of that added up, this paper makes it clear that social media, particularly those that tend to engage people in an algorithm-driven manner, has become entrenched in decision making processes among Gen Z consumers to a profound degree. What begins as just exposure to the personalized content gradually turns into an engagement, and ultimately, into genuine purchasing behavior. The results underline the fact that Gen Z does not scroll passively; they are somehow exploring items, building preferences, and making buying choices according to what the algorithms want to display to them. The high correlation between engagement and purchase intention also highlights the fact that the more engaged the users are to the content, the more they can trust and take actions in relation to it. Most particularly, the targeted promotions can be very powerful in impulse buying and discretionary spending, and they may imply the existence of possible influence of the targeted promotional tools in defining what consumers purchase, as well as the ways in which they purchase at their discretion. This is a

sign of a change in the traditional and rational way of making decisions to a more active and emotion-based consumption pattern. In even a greater sense, the research highlights the importance of the businesses shifting their efforts to go beyond generic marketing and concentrate on developing personal, interesting, and deliberately oriented content. Simultaneously, there are also considerations of consumer awareness that it also brings significant misgivings as more exposure to personalized promotions can result in unintentional spending patterns. All in all, this study proves how digital consumerism is changing and how social media algorithms can play a significant role in influencing the buying process of Gen Z, becoming one of the most critical points of interest to marketers and future studies.

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