

# Consumer Emotions Under the Influence of AI: A TPB-Based Approach to Impulse Buying Patterns in Personalized

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**Abstract**— This study explores the effect of artificial intelligence (AI)-based personalization on impulsive buying behavior by integrating the moderating role of emotions within the Theory of Planned Behavior (TPB) framework. Using data from 198 respondents, the analysis shows that AI-based personalization significantly influences impulsive buying reinforced by emotions as a moderator. Attitudes and perceived behavioral control also contribute positively to impulsive buying. Emotions are shown to strengthen the relationship between AI-based personalization, attitudes, and perceived behavioral control toward impulsive buying, but have no significant effect on the relationship with subjective norms. These findings provide theoretical contributions by extending the TPB framework through the integration of emotions and AI-based personalization, while also offering practical implications for digital marketing strategies to effectively utilize AI technology. This study also highlights the need for consumer literacy and ethical regulation in the use of AI to minimize negative impacts on buying behavior. **Keywords** AI-based personalization, emotions, TPB, impulsive buying.

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## INTRODUCTION

Technological advances have changed the way people live, including their purchasing behavior (Carvalho Vieira, Alcântara Pinto, and Yutaka Sugano<sup>1</sup> 2022; Ploythanachai, Taeshapotiwarakun, and Tananpang 2023). Consumer habits are starting to change, which are influenced by various factors and all of them affect consumer behavior when deciding to buy a product or service (Antosova, Purny, and Stavkova 2023). Consumer behavior data is very large and must be managed by companies and recommendations on customer satisfaction determine the level of success of the company. Today advanced tools based on artificial intelligence (AI) are needed to uncover consumer buying patterns and change the decision making process to be simpler for marketers, retailers, and companies (Haleem et al. 2022; Khan 2022). Before AI emerged, digital marketing was already underway and still influencing the consumer journey (Dwivedi et al. 2021).

The development of AI technology has had a significant impact on various sectors, including digital marketing (Abdul Moaz Alkhayyat and Ahmed Mohamud Ahmed 2022; Rahman et al. 2024). In the era of personalization, AI allows companies to deeply understand consumer behavior through big data analysis, machine learning, and predictive algorithms (Prasanthi et al. 2024). One of the phenomena that has emerged as a result of the application of this technology is the increase in consumer impulse buying patterns influenced by

personalized marketing messages (Van and Ly 2022). This phenomenon is relevant because impulse buying patterns often involve consumer emotions as the main driving factor, and this changing marketing landscape demands a deeper understanding of how AI technologies affect the psychological and behavioral dynamics of consumers.

In the context of digital marketing, consumer emotions act as a key mechanism mediating the relationship between marketing message personalization and impulsive purchase decisions (Utama et al. 2024).

However, studies on this aspect are still rare in the literature, especially in linking strong theoretical approaches such as the theory of planned behavior (TPB) to this phenomenon.

In addition, the increasing expectation of accuracy and relevance of AI-powered marketing personalization poses a new challenge, where marketers are faced with the dilemma between leveraging consumer data to improve the personalization experience and maintaining consumer trust and comfort (Kumar, Ashraf, and Nadeem 2024; Holmström and Larsson 2024).

As such, it is important to explore how consumer emotions stimulated by AI-based personalization can drive impulse purchase while considering the ethical implications of such an approach.

## LITERATURE REVIEW

### *Theory of Planned Behavior (TPB)*

TPB is a widely used theoretical framework for understanding and predicting human behavior (Hermin Istiasih et al. 2022; Istiasih 2023), which focuses on three main constructs that influence behavioral intentions: attitude toward behavior, subjective norms, and perceived behavioral control. In the context of AI-based marketing, TPB can be used to analyze how message personalization influences impulse purchase intentions through influences on consumers' attitudes, subjective norms, and perceived behavioral control (Istiasih 2023; Wang and Chen 2024).

### *The Role of Emotions in Purchasing*

Consumer emotions play an important role in purchase decision-making, particularly in impulse purchases (Yi and Jai 2020; Yi et al. 2023). Previous research shows that positive emotions such as excitement and enthusiasm can drive impulse purchases, while negative emotions such as fear of missing out (FOMO) can also be a trigger (Avci and Kula 2023; Lu and Lin 2022). In the context of AI-based personalization, these emotions can be enhanced through messages specifically designed to grab attention and create urgency.

### *AI-Based Personalization*

AI-powered personalization involves using consumer data to deliver marketing messages tailored to individual preferences (Haleem et al. 2022; Kasaraneni and Researcher n.d.). This approach can increase the relevance and appeal of messages that in turn influence consumers' emotions. However, personalization can also raise ethical challenges, such as the risk of privacy invasion and emotional manipulation.

### *Impulsive Buying*

Impulse buying is the spontaneous purchase of goods, as well as without prior shopping planning (Morozova and Vlaev 2024; Azad Moghddam et al. 2024). It often occurs because limited-time discounts, limited-time offers and countdown times on websites can encourage consumers to make hasty decisions for fear of missing out (Online and Oberoi 2024). Impulse buyers are often influenced by emotions and opinions of others. To promote impulse purchases, marketers have used social media influencers, user-generated content, and consumer reviews to showcase the popularity and positive experiences associated with their products, thereby creating a sense of urgency (Loang 2024; (Yang et al. 2024). Some literature adopts the psychological perspective that online impulse purchases arise from the

interaction between individuals and the environmental attributes of websites (Chandrasekhar et al. 2024; Fang 2024).

## HYPOTHESIS DEVELOPMENT

### *The Relationship between AI-Based Personalization and Impulse Buying*

AI-based personalization enables marketing that is highly relevant to individual preferences, behaviors, and needs (Sodiq Odetunde Babatunde et al. 2024). This technology uses big data, predictive algorithms, and behavioral analysis to deliver personally tailored messages. In the context of impulse buying behavior, AI-based personalization can influence consumers through several mechanisms including AI-based personalization influencing impulse buying through increasing message relevance, stimulating consumer emotions, and strengthening psychological elements such as urgency and exclusivity (Widiatmo 2024).the proposed hypotheses are:

H1: AI-based personalization has a positive influence on impulse purchases.

### *The Relationship between Consumer Attitudes (TPB) and Impulse Buying*

In the Theory of Planned Behavior (TPB), attitude towards behavior refers to a person's positive or negative evaluation of a particular action (Fawehinmi et al. 2024). In the context of impulse purchases, consumer attitudes reflect the extent to which they view impulse buying as favorable, pleasant, or in accordance with their personal preferences, so the hypothesis is proposed as follows.

H2: Consumer attitudes have a positive influence on Impulse Purchases

### *Relationship between Consumer Subjective Norms (TPB) and Impulse Buying*

In the Theory of Planned Behavior (TPB), subjective norms refer to an individual's perception of social pressure or influence from people who are considered important (family, friends, or society) regarding whether an action should be taken (Husna et al. 2024 (Journal et al. 2023). In the context of impulse buying, subjective norms reflect the extent to which consumers feel that their social environment supports or expects impulse buying behavior. the proposed hypothesis is as follows.

H3: consumers' subjective norms have a positive influence on impulse purchases.

**The Relationship between Consumer Perceived Behavioral Control (PBC) and Impulse Buying**

In the Theory of Planned Behavior (TPB), Perceived Behavioral Control (PBC) refers to the extent to which a person feels able to perform or control a particular behavior, based on perceived resources, abilities, or barriers (Istiasih 2023; Journal et al. 2023; Hermin Istiasih et al. 2022). In the context of impulse buying, PBC reflects the level of ease or difficulty that consumers feel in controlling the urge to buy spontaneously, so the proposed hypothesis is:

H4: Consumer PBC has a positive influence on impulse purchases.

**Relationship between Consumer emotions and Impulse Buying**

Emotions play an important role in impulse purchase decisions (Huang et al. 2024). Consumer emotions, both positive and negative in nature, can be powerful triggers that drive spontaneous purchase behavior without prior planning. Consumer emotions have a significant moderating role in influencing the relationship between AI-based personalization, Theory of Planned Behavior (TPB) components, and impulse purchase behavior. This research assumes that consumer emotions strongly influence impulsive buying and this influence can be tested with the following hypotheses: Hypothesis 5a (H5a). emotions positively moderate the relationship between Ai-based personalization and impulsive purchases, Hypothesis 5b (H5b). consumer emotions positively moderate the relationship between attitudes and impulsive purchases, Hypothesis 5c (H5c).

consumer emotions positively moderate the relationship between subjective norms and impulsive purchases. Hypothesis 5d (H5d) consumer emotions positively moderate the relationship between perceived behavioral control and impulsive purchases.

**METHOD**

This research analyzes impulsive purchases among consumers in Malang City, East Java, Indonesia using a quantitative approach. This study aims to analyze how artificial intelligence (AI)-based personalization affects consumer emotions and impulse buying behavior in the context of personalized marketing. This research integrates the Theory of Planned Behavior (TPB) with a focus on the role of attitudes, subjective norms, and perceived behavioral control in influencing impulse purchase actions. Some successful findings and experiences in previous studies are used as references for measurement indicators. This study collected primary data using a questionnaire. The questionnaire was divided into four parts: first collecting respondents' personal information to gain demographic insights, second presenting scenarios for respondents to make decisions to test which direction of anticipated regret they were inclined towards, third examining the level of impulsivity in their personality and fourth assessing their online impulse purchase decisions. A total of 198 participants agreed to participate in this study. This study draws on the TPB framework and adds AI-based emotion and personalization variables to explore impulse buying. The proposed research conceptual framework for verification and analysis is shown in Figure 1:

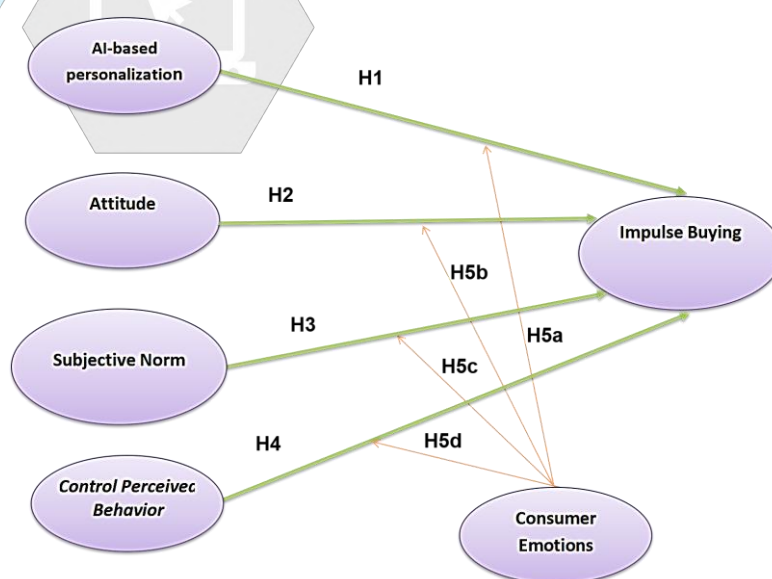


Figure 1. Research Model



**ANALYSIS AND RESULTS**

This study analyzed the data using the statistical package for social sciences and analysis of moment structure (AMOS) software. Other tests were used to assess multicollinearity and singularity, in this process tolerance values and variance confounding factors (VIF) were tested.

Tolerance is an indicator that shows the amount of variability of an independent variable that is not accounted for by other independent variables in the model (Sheykhfard et al. 2024).

The tolerance score and VIF score did not deviate from the recommended limit points. Tolerance values range

between 1.06 and 2.08. A VIF greater than 10 indicates a concern for multicollinearity.

This process was followed by exploratory and confirmatory factor analysis used to verify validity and reliability.

In addition, this study tested the convergent and discriminant validity of the latent factors by conducting first-order confirmatory factor analysis (CFA) in AMOS 21.

The convergent validity of the composite (which exceeded the accepted limit of 0.6) and the mean variance explained (which also exceeded the limit value of 0.5), as shown in table 1.

**Table 1. CFA and Validity Measures**

Measured Variables	Factor Loadings	Cronbach Alpha	Construct Reliability (CR)	AVE
AI-BP1	0.71	0.84	0.77	0.53
AI-BP2	0.88			
AI-BP3	0.65			
Att1	0.71	0.77	0.92	0.56
Att2	0.88			
Att3	0.78			
Att4	0.87			
Att5	0.81			
SN1	0.75	0.84	0.92	0.63
SN2	0.88			
SN3	0.87			
SN4	0.76			
PBC1	0.87	0.79	0.93	0.76
PBC2	0.89			
PBC3	0.85			
Emotion1	0.87	0.88	0.92	0.78
Emotion 2	0.93			
Emotion 3	0.84			
Emotion 4	0.72			
IB1	0.73	0.89	0.83	0.59
IB2	0.89			
IB3	0.65			

**AI-BP= AI-based personalization, Att = Attitude, SN = Subjective norm, PBC = Perceived behaviour control, Emotion = emotion, IB = Impulse buying**

All constructs in table 1 meet the criteria for good validity and reliability, namely Factor Loadings > 0.5, so that each indicator is relevant for its construct. Cronbach Alpha > 0.7, so the construct has high internal consistency, and CR > 0.7 and AVE > 0.5, where the construct has strong reliability and good convergent validity.

Theoretically, these results support the use of constructs in the research model conducted. These valid and

reliable constructs can be used to explain relationships between variables, such as the influence of AI-based personalization, emotions, and attitudes on impulse purchases.

Practically, this study provides a strong basis to suggest that AI-based strategies should focus on emotionally relevant personalization as emotion is shown to be an important factor in driving impulse purchases.

**Table 2. Socio demographic characteristics of respondents.**

Variables	n = 198	
	Frequency	%
<b>Gender</b>		
Male	83	41.9
Female	115	58.1
<b>Education</b>		
Masters	83	41.9
Bachelors	48	24.2
Diploma	21	10.6
Basic education	46	23.3
<b>Monthly income</b>		
>5 <u>Million</u>	98	49.5
3 <u>Million</u> - 5 Million	87	43.9
<3 <u>Million</u>	13	6.6
<b>Professional</b>		
Firm employee	63	31.8
Civil servant	90	45.5
Businessman	45	22.7

The results of the description of respondents from this study for a demographic sample consisting of 83 (41.9%) were male and 115 (58.1%) were female. Respondents were dominated by women (58.1%), which means that this study involves more female perspectives in relation to impulse buying or the variables studied. This could be an indication that the behaviors or emotional influences studied are more relevant in the context of female consumers than male. Level of monthly income more than 5 million there are 98 people (49.5%); 3 Million - 5 Million: 87 people (43.9%) and less than 3 Million: 13 people (6.6%), so almost half of the respondents had a monthly income of more than 5 million, and the majority were in the 3-5 million range. Only a small proportion of respondents had incomes below 3 million. This shows that most respondents are from the middle to high income group, who may be more likely to make impulse purchases due to greater purchasing power. Level of professional there is firm employees there are 63 people (31.8%); civil servant: 90 people (45.5%) and businessman: 45 people (22.7%). At this professional level, respondents were dominated by civil servants (45.5%), followed by company employees (31.8%) and businessmen (22.7%). Civil servants tend to have stable incomes, which may contribute to more planned purchasing decisions but remain prone to impulse purchases under the influence of AI technology and personalization. Level of education there are Masters 83 people (41.9%); Bachelors: 48 people (24.2%); Diploma: 21 people (10.6%) and Basic education: 46 people (23.3%). in this study the majority of respondents had higher education (Masters and Bachelors, 66.1% in total), indicating that this sample mainly consists of individuals with relatively good

education levels. This could indicate that respondents have a higher level of understanding of AI technologies or more complex purchasing decisions, level as shown in table 2.

Based on the analysis of the socio-demographic characteristics of respondents table, this study provides important insights into the profile of respondents that form the basis for interpreting impulse buying behavior in the context under study. The majority of respondents were women (58.1%), which indicates that this study highlights the perspectives and behaviors of female consumers more than men. In the context of impulse buying, women tend to be more influenced by emotional and personalization factors, so the results of this study are likely to be relevant for understanding the role of gender in spontaneous purchasing decisions.

In terms of education, most respondents have a high level of education, with 66.1% having completed a bachelor's or master's degree. This indicates that respondents have the capacity to understand more complex technologies, such as AI-based personalization, and its impact on their purchasing decisions. With this educational background, respondents tend to be more conscious of their consumption behavior, although they remain susceptible to emotional influences and personalization that trigger impulse purchases. From an income perspective, almost half of the respondents have incomes above 5 million, while most of the others are in the 3 to 5 million range. This shows that this sample is dominated by the middle to high income group, who have enough purchasing power to afford impulse purchases.

**Table 3. Hypothesized direct and moderation effects.**

Hypothesis	Statement	Estimate	Significance	Results
H1	AI-based personalization has a significant positive effect on impulse buying	0.149	0.000	Supported
H2	Attitude has a significant positive effect on impulse buying	0.129	0.010	Supported
H3	Subjective norms <u>has</u> a significant positive effect on impulse buying	0.158	0.335	Supported
H4	The perceived behavioral control has a significant positive effect on impulse buying	0.229	0.002	Supported
H5a	Emotion positively moderates the relationship between AI-based personalization and impulse buying	0.189	0.005	Supported
H5b	Emotion positively moderates the relationship between attitudes and impulse buying	0.118	0.038	Supported
H5c	Emotion positively moderated the relationship between subjective norms and impulse buying	-0.197	0.227	Not Supported
H5d	Emotion positively moderates the relationship between perceived behavioral control and impulse buying	0.229	0.005	Supported

Hypothesis 1 (H1) states that AI-based personalization has a significant positive effect on impulse buying, where the estimate is 0.149; significance 0.000 and the results are supported. This study states that AI-based personalization is proven to significantly encourage impulse buying behavior. This shows that personalization using AI technology creates a strong attraction for consumers to make unplanned purchases. In H2 states that attitude has a significant positive effect on impulse buying with an estimate of 0.129; Significance 0.010; and the results are supported. Consumer attitudes towards a product or service affect the tendency to make impulse buying. A positive attitude strengthens the urge to buy spontaneously. H3 which states that subjective norms have a significant positive effect on impulse buying with an estimate of 0.158; significance 0.335 and the results are supported. Subjective norms have a significant influence on impulse buying behavior. Hypothesis 4, namely perceived behavioral control, has a significant positive effect on impulse buying with an estimate of 0.229; Significance of 0.000; and the results are Supported. The ability perceived by consumers to control their actions significantly encourages impulse buying behavior. This shows that even though consumers feel they have control, the urge to buy impulsively remains high.

Explanation of moderation by emotion, H5a states that emotion positively moderates the relationship between AI-based personalization and impulse buying with an estimation of 0.189; significance of 0.005 and the result

is supported. Consumer emotions strengthen the relationship between AI-based personalization and impulse buying. When consumers feel more emotional, the impact of AI personalization becomes stronger in triggering impulse purchases. H5b, namely emotions positively moderate the relationship between attitude and impulse buying with estimation 0.118; significance 0.038 and the results are supported. Where consumer emotions strengthen the relationship between attitude and impulse buying.

When emotions increase, consumers' positive attitudes towards a product will further encourage impulse buying. H5c with the statement that emotions moderate the relationship between subjective norms and impulse buying with an estimate of -0.197; significance 0.227 and the results are rejected. This states that emotions do not moderate the relationship between subjective norms and impulse buying.

This indicates that social expectations remain irrelevant even when consumer emotions are high. H5d with the statement emotions positively moderate the relationship between perceived behavioral control and impulse buying, with an estimate of 0.229; significance of 0.005 and the results are supported.

Emotions strengthen the relationship between perceived behavioral control and impulse buying. When consumers feel emotional, perceived self-control becomes less effective in deterring impulse buying.

## CONCLUSION

This study explores the relationship between AI-based personalization, emotions, subjective norms, attitudes, perceived behavioral control, and impulse buying. The results suggest that AI-based personalization plays a significant role in influencing impulse buying behavior, which is strengthened by the interaction with various psychological and social factors.

### *The Role of AI-based Personalization on Impulse Buying*

AI-based personalization has a positive and significant impact on impulsive buying. This suggests that AI-based technologies designed to personalize the consumer experience are capable of driving spontaneous purchase decisions. This finding underscores the importance of implementing AI-based strategies in marketing to increase consumer engagement through more relevant and engaging shopping experiences.

### *Influence of Attitude, Subjective Norm, and Perceived Behavioral Control*

- Attitude has a positive and significant influence on impulsive buying, indicating that consumers' positive views of impulsive buying drive the behavior.
- Subjective Norm has a significant positive influence, indicating that the influence of social pressure from others on impulsive buying is dominant.
- Perceived Behavioral Control has the most significant influence. Consumers who feel they have the ability to control their behavior tend to be more easily influenced to make impulsive purchases, especially when triggered by emotions or personalization strategies.
- The role of emotion as a moderator emotion has been shown to be a significant moderator in several relationships:
- Emotion moderates the relationship between AI-based personalization and impulsive buying, strengthening the effect of AI technology in influencing purchasing behavior.
- Emotion moderates the relationship between attitude and impulsive buying, indicating that the influence of positive attitudes on impulsive buying is stronger when consumers are in a certain emotional state.
- Emotions do not moderate the relationship between subjective norms and impulsive buying, which confirms that social pressure is not strongly related to emotional states.
- Emotions moderate the relationship between perceived behavioral control and impulsive buying,

indicating that consumers' ability to control their purchases can change drastically under the influence of emotions.

### *Instrument Validity and Reliability*

The results of the validity and reliability tests show that all research constructs have factor loadings, Cronbach Alpha, Construct Reliability (CR), and AVE that meet academic criteria. This ensures that the constructs and variables used in this study consistently and accurately measure the phenomena studied. Thus, the research results are reliable and have high academic relevance.

## IMPLICATIONS

This study provides in-depth insights into the relationships between AI-based personalization, emotions, subjective norms, attitudes, perceived behavioral control, and impulse buying. Overall, this study provides valuable guidance for marketing practitioners, academics, and policymakers. Practitioners can leverage the research findings to develop more effective marketing strategies through the integration of AI and emotional elements. Academically, this study offers significant contributions to the literature on consumer behavior and marketing technology. Meanwhile, policymakers can use these findings to regulate the ethical use of AI technology, ensure consumer protection, and support the sustainability of the e-commerce industry.

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