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MODELLING THE PATH TO PURCHASE: A PLS-SEM APPROACH TO DIGITAL ADVERTISING EFFECTIVENESS

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Abstract
This study investigates the impact of Celebrity Endorsement, Creativity, Informativeness, and Time Frame on consumers' Purchase Intention in a digital marketing context. Data was collected and analysed to examine the direct effects of these variables on purchase behaviour. The results through smart PLS reveal that all four constructs positively and significantly influence Purchase Intention, with Celebrity Endorsement exerting the strongest effect, followed by Creativity, Informativeness, and Time Frame. The model explains 53.4% of the variance in Purchase Intention and satisfies all criteria for reliability, convergent validity, discriminant validity, and model fit. These findings underscore the importance of combining emotional appeal, informational content, creative design, and timely messaging in marketing strategies. The novelty of this study lies in its integrated approach, examining multiple advertising attributes simultaneously within a robust analytical framework. The research provides valuable theoretical contributions to consumer behaviour literature and offers practical insights for marketers seeking to enhance engagement and drive purchase decisions in a competitive digital environment.

Key Words: Purchase Intention, Celebrity Endorsement, Creativity, Informativeness, Time Frame, Digital Marketing, PLS-SEM, Consumer Behaviour, Advertising Effectiveness.

1. Introduction

In the rapidly evolving landscape of digital marketing, understanding the factors that influence consumer behaviour has become more critical than ever. With brands competing for visibility and engagement across various online platforms, digital advertisements play a pivotal role in shaping consumer perceptions and intentions. However, the effectiveness of such advertisements is not solely dependent on exposure; it is deeply rooted in how the audience perceives the content and its persuasive elements.

Purchase intention, defined as the likelihood that a consumer will plan or be willing to buy a product or service in the near future, serves as a key predictor of actual buying behavior. Numerous advertising strategies have attempted to stimulate this intention, yet the success of these strategies varies significantly based on the composition and delivery of the message. The psychological and emotional cues embedded within advertisements can trigger varying levels of consumer engagement, recall, and motivation to act.

Given the complexity of consumer decision-making in digital environments, it is essential to explore which advertising elements most significantly impact purchase intention. While past studies have explored this from various theoretical angles, there remains a need for empirical models that can accurately quantify these relationships within real-world digital contexts. Addressing this gap, the present study employs Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine how digital advertising attributes influence consumers' purchase intentions.

By leveraging the capabilities of PLS-SEM, this research aims to provide a nuanced understanding of the underlying structural relationships between ad characteristics and behavioral outcomes. This approach not only enables the assessment of latent variables but also accommodates complex models that are typical in consumer psychology and marketing

research. The findings are expected to enhance strategic advertising decisions and contribute to more targeted and effective digital marketing practices.

2. Literature Review

2.1 Informativeness

Ducoffe (1996) emphasized that informative content reduces consumer uncertainty and enhances purchase intention. This is supported by Yıldız (2023), who found that informativeness significantly influences mobile shopping adoption using PLS-SEM. Similarly, Karim, Islam, Ibrahim, Pan, and Rahman (2024) reported that perceived usefulness of ad information is a key driver of customer satisfaction and purchase intention in online marketing, using a combined PLS-SEM and ANN approach.

2.2 Time Frame (Urgency)

Cialdini's (2001) scarcity principle suggests that urgency cues, such as time-limited offers, prompt quicker decision-making. Aggarwal, Jun, and Huh (2011) provided empirical evidence showing how temporal constraints in online flash sales positively affect purchase urgency and behaviour. While contemporary studies are limited, the integration of urgency cues with informative and creative elements remains essential in digital advertising.

2.3 Creativity

Creative advertising has long been considered crucial in capturing attention and enhancing brand recall. Ang, Lee, and Leong (2007) proposed the "ad creativity cube," asserting that originality, appropriateness, and artistic value improve ad effectiveness. Dahlén, Rosengren, and Törn (2008) further found that creative ads elevate brand perceptions and consumer responses. More recently, Wang and Qiu (2024) demonstrated that immersive and vivid advertising in metaverse environments triggers impulsive purchase behavior, employing PLS-SEM and neural-network hybrid models.

2.4 Celebrity Endorsement

Ohanian's (1990) tripartite model—trustworthiness, expertise, and attractiveness—remains foundational in celebrity endorsement research. Majeed (2024) emphasized that celebrity endorser credibility significantly enhances purchase intention. Timur and Ratnasari (2022) found that celebrity endorsers are more impactful than expert endorsers in shaping consumer intention, particularly in the halal fashion market, as validated through PLS-SEM.

2.5 Celebrity vs. AI Influencers

Recent research has begun to compare the influence of human celebrities with AI or virtual influencers. Song, Wang, and Zhang (2024) found that while human celebrities are more persuasive for experience products, AI influencers perform better for search goods—mediated by product–endorser congruence. Similarly, Yan, Tat, and Sade (2024) revealed that the credibility of AI influencers significantly affects purchase intention, especially when there's a strong fit between the product and the endorser.

2.6 Para social Interaction

Para social interaction (PSI)—the perceived personal relationship with a public figure—has become increasingly relevant in influencer marketing. Sharkasi and Rezakhah (2023) showed that PSI mediates the relationship between influencer and purchase intention using PLS-SEM.

2.7 Integrated Advertising Models

Modern frameworks emphasize the combined impact of informativeness, creativity, urgency, and endorsement credibility. Ott, Clement, and Fritze (2023) found that ad interactivity enhances informativeness, which in turn positively affects consumer attitudes and purchase intentions. Karim et al. (2024) further confirmed that informativeness, transparency, and interactivity together predict purchase behaviour in online marketing.

2.8 PLS-SEM in Digital Marketing Research

The foundation of Partial Least Squares Structural Equation Modeling (PLS-SEM) was laid by Herman Wold in the 1970s, who introduced it as a predictive modeling technique suitable for complex and exploratory models (Wold, 1982). Building on Wold's work, Hair, Ringle, and Sarstedt (2011) popularized PLS-SEM in modern marketing and social sciences research, emphasizing its applicability in studies involving latent constructs, small samples, and non-normal data distributions. PLS-SEM has gained popularity as a robust method for modeling complex relationships in marketing.

3. Conceptual Model and Hypothesis Development

This study proposes a conceptual framework grounded in advertising effectiveness theories and consumer behavior models. It examines how four critical advertising elements—Informativeness, Time Frame, Creativity, and Celebrity Endorsement—affect consumers' Purchase Intention within the context of digital marketing. The framework is tested using Partial Least Squares Structural Equation Modeling (PLS-SEM), a suitable technique for exploratory research and models with latent constructs (Hair, Ringle, &Sarstedt, 2011; Wold, 1982).

3.1 Informativeness and Purchase Intention

Informative ads help reduce ambiguity, improve decision quality, and enhance user engagement. Prior research confirms that high informational value directly boosts purchase intention (Ducoffe, 1996; Yıldız, 2023).

H1: Informativeness has a significant positive impact on Purchase Intention.

3.2 Time Frame (Urgency) and Purchase Intention

The presence of urgency cues, such as countdown timers or limited-time offers, leverages the scarcity principle, creating a fear of missing out (FOMO) that accelerates consumer action (Cialdini, 2001; Aggarwal et al., 2011).

H2: Time Frame has a significant positive impact on Purchase Intention.

3.3 Creativity and Purchase Intention

Creative advertisements that are original and meaningful increase attention and message retention, fostering stronger emotional connections with the brand (Ang et al., 2007; Dahlén et al., 2008).

H3: Creativity has a significant positive impact on Purchase Intention.

3.4 Celebrity Endorsement and Purchase Intention

Celebrity credibility—comprising trustworthiness, attractiveness, and expertise—has been shown to enhance consumers' brand attitudes and influence purchase decisions (Ohanian, 1990; Majeed, 2024).

H4: Celebrity Endorsement has a significant positive impact on Purchase Intention.

4. Problem Statement

In the competitive digital marketing landscape, understanding the psychological and informational triggers that shape consumers' purchase decisions is imperative. While numerous studies have explored isolated advertising elements, there is a significant gap in examining how informativeness, urgency (time frame), creativity, and celebrity endorsement simultaneously impact purchase intention—especially through a unified analytical approach like Partial Least Squares Structural Equation Modeling (PLS-SEM). The dynamic interaction of these variables in influencing consumer behavior remains underexplored in emerging markets. Therefore, this study aims to fill that gap by modeling the impact of these four variables on digital purchase intention, providing actionable insights for marketers and academicians alike.

5. Research Design

This study adopts a quantitative, cross-sectional research design aimed at empirically validating the relationships between four independent variables—Informativeness, Time Frame, Creativity, and Celebrity Endorsement—and the dependent variable, Purchase Intention.

Data Collection

- **Population & Sampling**:
  The target population includes digital consumers who have experienced online advertising across social media platforms. A purposive sampling technique is used to ensure participants have exposure to advertisements featuring elements such as celebrity endorsements or urgency cues.
- **Sample Size**:
  Based on the rule of thumb for PLS-SEM (minimum 10 times the number of maximum structural paths), and considering four predictor constructs, a minimum sample size of 150 respondents is considered adequate. However, the study aims to collect 300+ responses to improve statistical power and generalizability.
- **Instrument**:
  A structured questionnaire is developed using validated scales from previous literature. All items are measured using a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The questionnaire includes:
  - **Informativeness**: Adapted from Ducoffe (1996)
  - **Time Frame/Urgency**: Adapted from Aggarwal et al. (2011)
  - **Creativity**: Adapted from Ang et al. (2007)
  - **Celebrity Endorsement**: Adapted from Ohanian (1990)
  - **Purchase Intention**: Adapted from Yıldız (2023) and Wang &Qiu (2024)
- **Data Collection Method**:
  Data is collected via an online survey using Google Forms. Participation is voluntary, and anonymity is maintained.
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6. Data Analysis:

6.1 Descriptive Analysis:

Age Profile

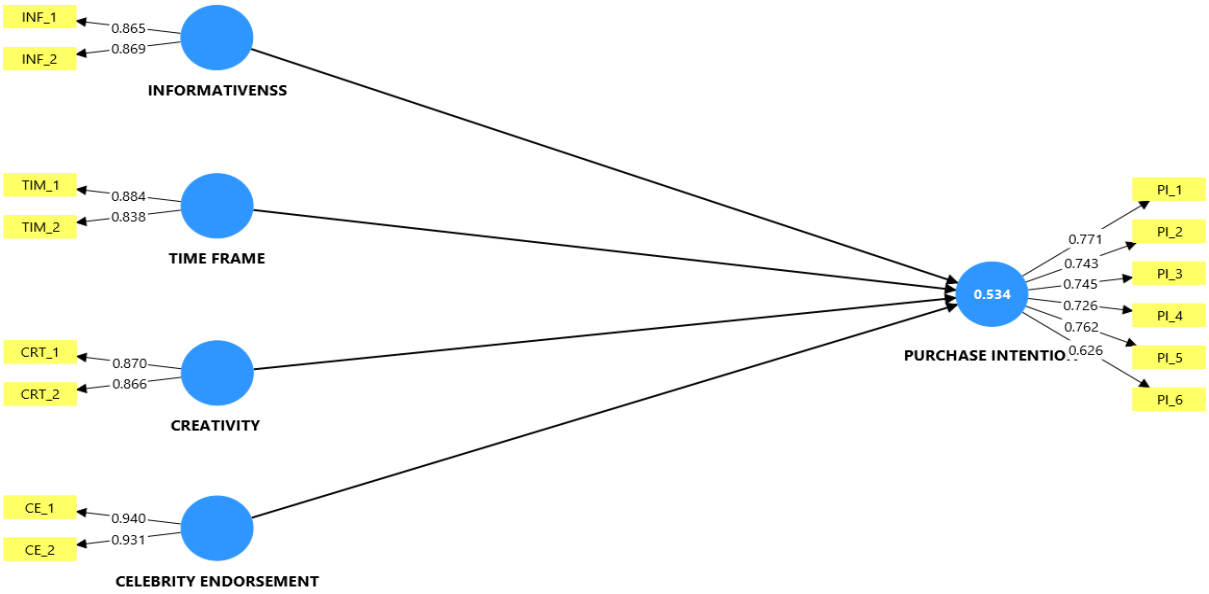
	Frequency	Percent	Valid Percent	Cumulative Percent
Up to 18	302	26.4	26.4	26.4
19-24	370	32.3	32.3	58.6
25-34	233	20.3	20.3	79.0
35 and above	241	21.0	21.0	100.0
Total	1146	100.0	100.0	

Educational Profile

	Frequency	Percent	Valid Percent	Cumulative Percent
Under Graduate and Below	561	49.0	49.0	49.0
Graduate	219	19.1	19.1	68.1
Post Graduate and Above	366	31.9	31.9	100.0
Total	1146	100.0	100.0	

Occupational Profile					
		Frequency	Percent	Valid Percent	Cumulative Percent
	Student	627	54.7	54.7	54.7
	Job	296	25.8	25.8	80.5
	Self Employed	171	14.9	14.9	95.5
	Others	52	4.5	4.5	100.0
	Total	1146	100.0	100.0	

6.2 Measurement Model Evaluation



6.2.1 Cronbach's Alpha and Average Variance Extracted (AVE):

	Cronbach's alpha	Average variance extracted (AVE)
CELEBRITY ENDORSEMENT	0.858	0.875
CREATIVITY	0.773	0.754
INFORMATIVENSS	0.770	0.752
PURCHASE INTENTION	0.824	0.534
TIME FRAME	0.753	0.742

The internal consistency reliability of the constructs was assessed using Cronbach's Alpha. All constructs reported Cronbach's Alpha values above the threshold of 0.70, indicating acceptable to excellent reliability. Specifically, constructs like Celebrity Endorsement, Purchase Intention, and Informativeness demonstrated strong internal consistency, confirming the reliability of the measurement model. Furthermore, the Average Variance Extracted (AVE) values for all constructs exceeded the recommended benchmark of 0.50, establishing strong convergent validity. This implies that more than 50% of the variance in the observed variables was explained by their respective constructs.

6.2.2 Discriminant Validity: Fornell–Larcker Criterion

	CELEBRITY ENDORSEMENT	CREATIVITY	INFORMATIVENSS	PURCHASE INTENTION	TIME FRAME
CELEBRITY ENDORSEMENT	0.936				

CREATIVITY	0.160	0.868			
INFORMATIVENSS	0.434	0.327	0.867		
PURCHASE INTENTION	0.568	0.429	0.550	0.731	
TIME FRAME	0.490	0.308	0.458	0.557	0.861

Discriminant validity was examined using the Fornell–Larcker criterion, which compares the square root of AVE for each construct with its correlations with other constructs. The square root of AVE for each construct was greater than the inter-construct correlations, confirming discriminant validity. This demonstrates that each construct is distinct from the others in the model and measures what it is intended to measure.

6.2.3 Discriminant Validity: Cross loadings:

	CELEBRITY ENDORSEMENT	CREATIVITY	INFORMATIVENSS	PURCHASE INTENTION	TIME FRAME
CE_1	0.940	0.149	0.401	0.548	0.475
CE_2	0.931	0.151	0.411	0.513	0.441
CRT_1	0.157	0.870	0.257	0.376	0.258
CRT_2	0.121	0.866	0.311	0.369	0.276
INF_1	0.398	0.236	0.865	0.474	0.400
INF_2	0.355	0.331	0.869	0.480	0.395
PI_1	0.490	0.407	0.442	0.771	0.430
PI_2	0.446	0.279	0.393	0.743	0.423
PI_3	0.348	0.342	0.380	0.745	0.450
PI_4	0.452	0.251	0.401	0.726	0.429
PI_5	0.438	0.292	0.455	0.762	0.362
PI_6	0.283	0.302	0.329	0.626	0.341
TIM_1	0.465	0.231	0.403	0.514	0.884
TIM_2	0.374	0.306	0.387	0.440	0.838

The cross-loading analysis further confirmed discriminant validity. All measurement items loaded more strongly on their respective constructs than on any other constructs. No item demonstrated a higher loading on a different construct than its assigned one. This provides additional evidence that each construct is empirically unique and well-defined within the measurement model.

6.2.4 Collinearity Statistics (VIF):

	VIF
CE_1	2.294
CE_2	2.294
CRT_1	1.347
CRT_2	1.347
INF_1	1.340
INF_2	1.340
PI_1	1.710
PI_2	1.688

PI_3	1.632
PI_4	1.553
PI_5	1.709
PI_6	1.382
TIM_1	1.308
TIM_2	1.308

Variance Inflation Factor (VIF) values were used to assess Multicollinearity. All VIF values for the items were well below the acceptable threshold of 5, indicating no significant Multicollinearity among the predictor variables. This ensures that the regression estimates are stable and reliable in the structural model.

6.2.5 Co-efficient of Determination:

	R-square	R-square adjusted
PURCHASE INTENTION	0.534	0.532

The R-square value for the dependent variable, Purchase Intention, was 0.534. This indicates that approximately 53.4% of the variance in Purchase Intention is explained by the independent variables—Celebrity Endorsement, Creativity, Informativeness, and Time Frame. According to established guidelines, this level of explanatory power is considered moderate, suggesting that the model is reasonably effective in predicting the outcome variable.

6.2.6 Path Coefficients (β values)

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
CELEBRITY ENDORSEMENT -> PURCHASE INTENTION	0.321	0.321	0.031	10.421	0.000
CREATIVITY -> PURCHASE INTENTION	0.234	0.233	0.030	7.760	0.000
INFORMATIVENSS -> PURCHASE INTENTION	0.234	0.235	0.031	7.565	0.000
TIME FRAME -> PURCHASE INTENTION	0.220	0.221	0.029	7.693	0.000

The path coefficients (β values) between the independent constructs and Purchase Intention were all found to be positive and statistically significant at $p < 0.001$. Among them, Celebrity Endorsement had the highest impact on Purchase Intention, followed by Creativity and Informativeness, both having equal standardized coefficients, and finally Time Frame. The high t-statistics associated with each path further confirmed the robustness of these relationships. These findings provide empirical support for all the proposed hypotheses in the model.

6.2.7 Model fit:

	Saturated model	Estimated model
SRMR	0.068	0.068
d_ULS	0.484	0.484
d_G	0.274	0.274

Chi-square	2083.764	2083.764
NFI	0.660	0.660

The model fit was assessed using the Standardized Root Mean Square Residual (SRMR), Normed Fit Index (NFI), and other metrics. The SRMR value of 0.068 is below the threshold of 0.08, indicating a good fit between the observed and estimated models. Although the NFI value of 0.660 is slightly below the ideal threshold, it is acceptable for exploratory research using PLS-SEM. Other metrics such as d_ULS and d_G also support the acceptability of the model structure.

7. Discussion and Conclusion:

The primary objective of this study was to analyze the role of Celebrity Endorsement, Creativity, Informativeness, and Time Frame in shaping consumer Purchase Intention. The findings clearly establish that all four constructs significantly contribute to purchase behaviour, with Celebrity Endorsement emerging as the strongest predictor. This reinforces the idea that consumers are not just buying products—they are buying into personas, trust, and perceived value conveyed by public figures.

Interestingly, Creativity and Informativeness also had equal and significant influence, highlighting the dual need for content that not only grabs attention but also delivers meaningful substance. This suggests that marketers must strike the perfect balance between storytelling and information delivery. Simply put, consumers are drawn to content that sparks curiosity while answering their questions.

Time Frame, although the least powerful among the four, still played a crucial role. The significance of this factor confirms that timing isn't just everything—it's the final push. A well-timed message can turn intent into action.

These findings underscore the importance of combining emotional appeal, informational content, creative design, and timely messaging in marketing strategies. The "magic mix" of celebrity credibility, message clarity, visual creativity, and campaign urgency can transform how consumers perceive and engage with brands.

For marketers, this research offers a clear roadmap:

☞Tell a compelling story through a credible face.

☞Make the message sharp, useful, and timely.

☞Wrap it in creativity that stands out and sticks.

This integrated model provides fresh direction for creating campaigns that don’t just get noticed—but get remembered and acted upon.

This research contributes meaningful insights into the design of effective marketing communications. The findings confirm that the path to consumer purchase begins with emotional resonance, moves through cognitive engagement, and ends with a nudge from urgency. Among the variables studied, Celebrity Endorsement had the greatest influence, but all variables—Creativity, Informativeness, and Time Frame—worked synergistically to drive Purchase Intention.

What makes this study novel is its holistic approach to advertising effectiveness. While many studies isolate single constructs, this research integrates multiple dimensions into a single model to reflect the real-world complexity of consumer decision-making.

For marketers, this means no single strategy is a silver bullet. Instead, the combination of tactics—credible faces, clever messaging, relevant details, and time-bound calls to action—creates a compelling value proposition that resonates and converts.

To stand out in a saturated market, marketing campaigns must go beyond "selling." They must connect, inform, entertain, and act with perfect timing. When brands align all these elements, they don't just generate intent—they generate action.

In short, if content is king, then credibility is the crown, creativity is the robe, information is the sword, and timing is the throne. Mastering this blend is what will separate thriving brands from forgotten ones in today's attention econ

References

- Ang, S. H., Lee, Y. H., & Leong, S. M. (2007). The ad creativity cube: Conceptualization and initial validation. *Journal of the Academy of Marketing Science, 35*(2), 220–232.
- Cialdini, R. B. (2001). *Influence: Science and practice* (4th ed.). Allyn& Bacon.
- Ducoffe, R. H. (1996). Advertising value and advertising on the Web. *Journal of Advertising Research, 36*(5), 21–35.
- Hair, J. F., Ringle, C. M., &Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice, 19*(2), 139–152.
- Karim, K. S., Islam, M. E., Ibrahim, A. M., Pan, S.-H., & Rahman, M. M. (2024). Online marketing trends and purchasing intent: Advances in customer satisfaction through PLS-SEM and ANN approach. *Advances in Decision Sciences, 27*(4), 24–54.
- Majeed, M. (2024). Selection of celebrity endorser and purchase intention: A new model. *Indian Journal of Management and Language, 1*(1), 1–9.
- Sharkasi, N., &Rezakhah, S. (2023). Sequential mediation of parasocial relationships for purchase intention: PLS-SEM and machine learning approach.
- Song, Y., Wang, L., & Zhang, Z. (2024). AI or human: How endorser shapes online purchase intention? *Journal of Consumer Psychology*.
- Timur, Y. P., &Ratnasari, R. T. (2022). Celebrity endorsers vs expert endorsers: Who can affect consumer purchase intention? *JurnalEkonomidanBisnis Islam, 8*(2).
- Wang, X., &Qiu, X. (2024). How AI brand endorsers influence Generation MZ's consumer behavior in metaverse marketing scenarios. *MDPI*.
- Wold, H. (1982). Soft modeling: The basic design and some extensions. In K. G. Jöreskog& H. Wold (Eds.), *Systems under indirect observation* (Vol. 2, pp. 1–54). North-Holland.
- Yıldız, O. (2023). A PLS-SEM approach to the consumer adoption of shopping via mobile apps. *International Journal of Mobile Communications*.