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Impact of Social Media on Consumer Purchasing Behavior via E-Marketing: An Empirical Study of Algerian University Students

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Abstract

The rapid rise of social media platforms has made them integral to digital marketing strategies, shaping consumer purchasing decisions across various demographics. The importance of these platforms has grown even further in the wake of the COVID-19 pandemic. This study aimed to investigate how social media influences consumer purchasing behavior through e-marketing, with a particular focus on gender and age differences. The research was conducted with students at the University of Algiers, with 845 electronic surveys distributed across multiple channels. The data were analyzed using SPSS version 24 and hierarchical linear regression. The findings revealed a strong relationship between social media usage and purchasing decisions driven by e-marketing. These results provide valuable insights for decision-makers at Algerian universities and academics, contributing to the existing literature on social media's role in shaping purchasing behavior.

Keywords: E-marketing, Social media, Consumer behavior, University students, Algeria, Empirical study

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Introduction

Throughout history, the world has experienced numerous developments, with one of the most transformative being the widespread growth of technology and media. These advancements have introduced new challenges and opportunities, particularly in the realm of virtual reality. Social media platforms, which have attracted millions of users across diverse demographics, have significantly impacted daily life, including how people shop, advertise, and engage in various purchasing activities.

The rise of social networks has resulted in the sharing of personal data by users, creating an environment rich in information. Today, more than half of social media users access their accounts multiple times a day, using them to evaluate the information they encounter in their daily lives. Furthermore, the creation of online content by users is on the rise [1, 2]. Social media has become a crucial tool for knowledge sharing, with platforms like Facebook and Twitter offering spaces for users to engage with each other and address their concerns.

Digital marketing, which utilizes electronic communication technologies to advertise products and services, has become an integral part of the online landscape. It involves internet-based advertising, leveraging extensive networks that connect users

and provide access to diverse information [3]. Social media platforms play a pivotal role in enhancing users' awareness of products and services, aligning with consumers' increasing preference for digital purchasing channels.

These platforms have revolutionized online networks by enabling businesses to interact directly with current and potential customers. According to Singh and Singh [4], young people use social media as a key marketing channel for businesses, leading to shifts in communication strategies to cater to this demographic's preferences. As a result, marketers are increasingly focusing on social media as a vital avenue for consumer engagement.

This study aims to explore university students' attitudes toward social media platforms concerning their purchasing decisions, taking into account gender and age differences. As digital natives, university students have significantly influenced consumer behavior due to their fluency with online platforms. The research will provide insights into how digital marketing campaigns on social media can better resonate with this group, offering recommendations on effective strategies while highlighting areas for improvement. The findings will help marketers understand the current landscape of digital marketing and consumer behavior, particularly in terms of how university students engage with online advertising.

The structure of this study is divided into six key sections: the introduction, a comprehensive review of relevant literature, the research methodology, an exploration of key findings, an in-depth discussion of these findings, and a conclusion. Each section will build upon the previous one to provide a thorough understanding of the research topic and its implications.

Literature review

Numerous studies have examined the influence of social media on consumer purchasing behavior in various sectors. For example, Miah *et al.* [5] investigated how social media affects apparel purchasing in Jaipur City. Their research explored the correlation between social media use and online shopping behaviors by analyzing data and reviewing previous literature. They found that social media platforms, such as Twitter, LinkedIn, and Facebook, offer marketers a direct means of engaging with consumers, creating spaces for personalized interaction and increasing consumer engagement.

In another study, Zulqurnain *et al.* [6] focused on how social media marketing impacts consumers' perceptions of brands and their buying decisions. The study, conducted among 145 university students, found that a large majority of respondents recognized the influence of social media marketing on their purchasing behaviors, with 97% of participants accepting the findings. This study highlighted the effectiveness of social media platforms in shaping consumer opinions and driving purchasing actions.

Kumar *et al.* [7] explored the role of social media in affecting consumer behavior in the Malaysian food and beverage industry. By reviewing the literature and conducting data analysis, the study aimed to understand how social media marketing influences the buying decisions of consumers in the food industry. Their findings underscored the significant impact social media has on shaping consumer behavior, with restaurants successfully leveraging these platforms to reach and engage target audiences.

These studies collectively demonstrate the substantial influence social media has across various industries, highlighting its role in shaping purchasing decisions, from fashion and food to other sectors. Social media continues to serve as a powerful tool for brands to interact with consumers and influence their purchasing choices.

Materials and Methods

This section outlines the approach employed in this research, describing the design, methodology, sample, variables, and the hypotheses tested to address the research problem.

Methodology

This study applied a quantitative research methodology, utilizing an inductive reasoning approach to draw conclusions from the sample data and generalize them to the broader population. The study targeted 845 students from the University of Algiers, all of whom are consumers engaging in purchasing via e-marketing through social media platforms.

Key variables

The following variables were identified and used for this research:

- Social media (independent variable): Social media refers to digital platforms and applications that enable users to create, share, and exchange information. This includes social networking sites, where individuals connect and engage in social interaction, content sharing, and collaboration through web-based platforms and mobile apps [8]. In this context, social media incorporates user-generated content and Web 2.0 applications [9], allowing global interactions and content dissemination [10].
- E-marketing (mediating variable): E-marketing refers to the use of digital tools and social media to promote and market products and services. Social media marketing (SMM) is a component of this, where brands interact with consumers through these platforms to fulfill their marketing goals [11].

- Purchase decision (dependent variable): The decision to purchase involves several stages such as gathering information, evaluating options, and making final purchasing decisions. Factors such as the complexity of the purchase, the level of uncertainty, and the variety of available choices influence these decisions [12]. Additionally, the consumer's perception and decision-making approach significantly impact the purchasing process.

Research design and data collection

The research model and hypotheses are visually represented in **Figure 1**. A survey-based approach was used to collect data, with questionnaires distributed electronically to the sample of 845 students at the University of Algiers. The data were then analyzed using statistical tools, including regression analysis, to examine the relationships between the key variables and test the proposed hypotheses.

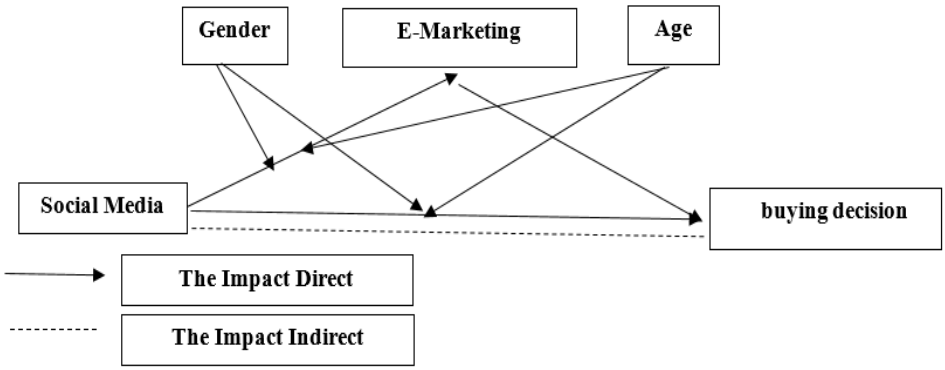

Figure 1. The model specification of study (source: by researchers).

Sample and population

The research targets all students enrolled at the University of Algiers, including those from its three branches, totaling an estimated population of 9,750 students. For the study sample, the researcher utilized electronic communication methods to distribute the questionnaire, receiving 845 valid responses suitable for analysis. This sample size represents approximately 10% to 20% of the total student population, which, according to Casteel and Bridier [13], is considered an adequate sample for such a study. Furthermore, Thompson [14] confirms that this sample size is statistically sufficient. The study population consists of undergraduate or diploma students and is homogeneous in terms of academic standing.

Study hypotheses

Based on the conceptual framework, the following hypotheses have been formulated:

- Hypothesis 1:
  - The participants in this study hold positive opinions regarding the key variables under examination.
- Hypothesis 2:
  - Null hypothesis (H0): Social media does not significantly influence purchase decisions made through e-marketing channels among the students in this study, with a confidence level of 0.05 or greater.
  - Alternative hypothesis (H1): Social media significantly impacts the purchase decisions made via e-marketing channels among the students sampled for this study, with a confidence level of 0.05 or higher.
- Hypothesis 3:
  - Null hypothesis (H0): Gender does not result in significant differences in responses to the study's parameters, as measured by relevant statistical tests with a confidence interval of 0.05 or greater.
  - Alternative hypothesis (H1): Gender differences exist among the participants, and these differences influence responses on the studied parameters, as confirmed by statistical analysis with a confidence level of 0.05 or higher.
- Hypothesis 4:
  - Null hypothesis (H0): Age does not lead to significant differences in responses to the variables examined in this study, as indicated by statistical tests with a confidence level equal to or exceeding 0.05.
  - Alternative hypothesis (H1): Significant differences are present across age groups among the participants, based on their responses, with statistical significance at or above the 0.05 level.

Data analysis approach

This research adopted a quantitative approach to analyze and interpret the data, focusing on identifying correlational relationships and assessing the impact of the key variables. Inductive reasoning was employed to generalize the findings to the broader student population at the University of Algiers.

A structured questionnaire was the primary tool for data collection. The questionnaire was distributed via various electronic channels, and the responses from 845 students were analyzed. The questionnaire was divided into the following sections:

1. Personal information: This section collected demographic data, including gender, age, educational qualification, and the method of communication used.
2. Social media (independent variable): This section consisted of eight questions related to social media usage and its influence.
3. Electronic marketing (mediating variable): This section included six questions about how electronic marketing impacts purchasing decisions.
4. Purchase decision (dependent variable): Nine questions addressed the students' purchasing decisions and the factors influencing them.

The questionnaire used a Likert scale to assess participant responses.

Validity and reliability of the questionnaire

The validity of the questionnaire was ensured through a thorough review by subject-matter experts. Several items were revised, added, or reworded based on their feedback. After these modifications, the questionnaire was finalized.

To ensure the reliability of the instrument, both the alpha coefficient and split-half reliability measures were employed. The results of these reliability tests are presented in **Table 1**.

Table 1. Statistics of item-total

	Scale mean	Scale variance	Correlation	Alpha Cronbach
Q	94.4125	383.0068	0.56425	0.951
W	94.215	383.1422	0.584333	0.951167
B	94.95804	372.2326	0.673222	0.950333
Social media	94.4044	382.369	0.887	0.949
E-marketing	94.215	382.705	0.791	0.95
buying decision	94.958	371.535	0.9	0.948
ALL	94.5716	378.036	1	0.948

Sources: Output SPSS

The results from **Table 1** show that each item in the questionnaire has a reliability coefficient exceeding 0.90. Since this value is above the commonly accepted reliability threshold of 0.70, it is considered appropriate for use in scientific research. Furthermore, the overall reliability coefficient for the entire scale was found to be 0.95, indicating a high degree of consistency in the questionnaire.

According to the Central Limit Theorem, a sample is considered to follow a normal distribution if its size is sufficiently large [15].

The data analysis was carried out using SPSS (version 24). The statistical methods applied include the computation of mean, standard deviation, and correlation coefficient to facilitate identification and interpretation. Additionally, the f and t values were calculated to either support or challenge the hypotheses. The analysis utilized a hierarchical linear regression model [16] to examine significant differences between the variables in the study.

Descriptive statistics for study variables

Descriptive statistics for study variables are presented in **Table 2**.

Table 2. Descriptive statistics

Variable	Observations	Min	Max	Mean	Standard deviation
Q	845	1	5	2.8762	0.9633
W	845	1	5	4.0657	1.0205
B	845	1	5	3.3226	1.3036
Social media	845	1.88	5	3.8762	0.7169
E-marketing	845	1.17	5	4.0657	0.7896

Buying decision	845	1	5	3.4659	0.9325
All variables	845	1.35	5	4.021	0.6986

Source: SPSS output

Interpretation of descriptive statistics

To classify the variables based on their mean values, we apply the following rule to calculate the range:

Range = (5−1)3 = 1.33\text{Range} = \frac{(5 - 1)}{3} = 1.33Range = 3(5−1) = 1.33

Using this, the variables are classified as:

- Weak: Between 1 and 1.33
- Average: Between 1.34 and 3.46
- Strong: Between 3.47 and 5

For the **"social media"** variable, the average score of 3.88 highlights its significant role in the study, indicating that the participants regard it as an important factor. The low standard deviation, below 2, reflects a relatively consistent set of responses. This result is consistent with the study by Jacobs *et al.* [17], although it contrasts with Van Aelst *et al.* [18], who found that television holds more weight than social media for news consumption in certain countries.

Concerning **"E-Marketing,"** the mean value was 4.0657, paired with a standard deviation of less than 1. These findings support Trainor *et al.* [19], who explained that electronic marketing incorporates technology, human resources, and business strategies that improve company performance. The results from Zaoui *et al.* [20] also confirm that market orientation and technological integration in e-marketing positively affect customer satisfaction and retention.

The **"buying decision"** variable yielded a mean score of 3.4659, suggesting a moderate influence on purchasing behavior. The standard deviation was between 1 and 2, indicating a greater spread in responses. This aligns with McGrath *et al.* [21], whose research with 122 university students showed that trust in online platforms strongly influences purchasing decisions, especially when website features are trustworthy. This was also reinforced by Sharma and Klein (2020).

Finally, the cumulative average score across all questions was 3.7090, with minimal variation (less than 1), signaling uniformity in the responses. This supports the first hypothesis, indicating that respondents generally have favorable opinions on the study's variables. Further analysis in the subsequent sections will delve deeper into these findings.

Results and Discussion

In this section, we examine the hypotheses proposed in our study and provide a detailed interpretation of the findings. The results of the second hypothesis reveal a significant relationship between social media usage and purchasing decisions facilitated by digital marketing among students in the sample. This finding contradicts the assumption outlined in the null hypothesis, which proposed no such impact.

To fully comprehend how these effects influence the dependent variables, we will analyze the equation models proposed by Lai *et al.* [16], which were specifically designed to capture these dynamics.

A – Initial Model:

$$Y_i = a_i + b_1 * X_i + \varepsilon_i \quad (1)$$

B – Reduced Model:

$$Y_i = a_i + b_1 * X_i + b_2 * Z_i + \varepsilon_i \quad (2)$$

C – Final Model:

$$Y_i = -1.18E - 14 + 0.889 * X_i + 0.123 * Z_i + 2.556 * X_i * Z_i + \varepsilon_i \quad (3)$$

Our hypothesis was evaluated by calculating the determination coefficient, as well as the F and T values across all three relevant models. These models incorporate variables such as X (independent), Y (dependent), Z (mediating), and XZ (the interaction between the independent variable and the mediator).

A – Initial Model: Yi=ai+b1·Xi+ϵiY_i = a_i + b_1 \cdot X_i + \epsilon_iYi=ai+b1·Xi+ϵi

Table 3. ANOVA test

Model	Sum of squares	df	Mean square	F	Sig.
1	Regression	222.566	1	222.566	702.213
	Residual	229.471	724	0.317	--
	Total	452.037	725	--	--
2	Regression	367.556	2	183.778	351.981
	Residual	377.496	723	0.522	-
	Total	745.052	725	-	-
3	Regression	669.338	1	669.338	6400.41
	Residual	75.714	724	0.105	-
	Total	745.052	725	-	-

Note: The dependent variable (DV) is E-marketing.
Source: SPSS output

Table 4. Model summary

Model	R	R squared	Adjusted R squared	Std. error
1	0.815	0.673	0.673	0.6345
2	0.818	0.584	0.591	0.8337
3	0.948	0.898	0.898	0.32338

Note: The dependent variable (DV) is E-marketing.
Source: SPSS output

Table 5. Coefficients summary

Model	Unstandardized coefficients	Standardized coefficients	t	Sig.	Collinearity statistics
	B	Std. error	Beta	t-value	Sig.
1	Constant	1.07	0.115	-	9.305
	Social media	0.773	0.029	0.702	26.499
2	Constant	-0.569	0.202	0.0001	-3.17
	Social media	0.791	0.112	0.597	17.212
	E-marketing	0.161	0.048	0.125	3.376
3	Constant	-1.18E-14	0	-	-
	Social media	0.889	0	0.629	16.465
	E-marketing	0.667	0	0.519	80.003
	All	2.556	0	1.89	174.332

Note: The dependent variable (DV) is E-marketing.
Source: SPSS output

The analysis showed a strong negative correlation coefficient of 0.70, indicating a significant relationship between social media and electronic marketing **(Tables 3-5)**. The adjusted R-squared (R^2) value was 0.49, suggesting that social media explains 50% of the variation in electronic marketing behavior. The F-value of 702,213 with a significance of 0.000 further supports the validity of the initial model. No multicollinearity issues were found, as the VIF value stood at 1.000. The regression coefficient for social media concerning electronic marketing was 0.773, with a T-value of 26.499, which is highly significant at a level of 0.000 (< 0.01).
The equation for the model is:

$$Y\_i = 1.07 + 0.773*X\_i + \varepsilon\_i \quad (4)$$

The findings from the reduced model indicate a solid relationship between social media, electronic marketing, and purchase decisions, as evidenced by a negative correlation coefficient of 0.818. The adjusted R-squared value of 0.584 shows that social media and electronic marketing together account for approximately 49.3% of the variation in purchase decisions **(Table 4)**. Interestingly, despite the inclusion of electronic marketing as an additional variable, the explanatory power of the model did not significantly improve compared to the initial model. This suggests that adding electronic marketing does not substantially enhance the relationship between social media and purchase decisions. The F-value of 351,981 with a significance of 0.000 supports the model's validity **(Table 3)**. These results align with the research by Suryani and Margery [22] and Iblasi *et al*. [23].
When electronic marketing was introduced, the regression coefficient for social media increased to 0.861, indicating a strengthened relationship between social media and purchase decisions. This supports the mediation concept proposed by

Baron and Kenny (1986). The T-values of 17,212 for social media and 3,376 for electronic marketing, both with significance levels of 0.000 and 0.001 respectively (less than 0.05), confirm the model's validity **(Table 5)**.

$$Y_i = -0.668 + 0.861 * X_i + 0.161 * Z_i + \varepsilon_i \quad (5)$$

C- The final model: $Y_i = a_i + b_1 * X_i + b_2 * Z_i + b_3 * X_i * Z_i + \varepsilon_i$

The correlation coefficient between social media, electronic marketing, and purchasing decisions reached a high positive value of 0.95, indicating a strong relationship. Furthermore, the VIF value of 1.000 confirms that there is no multicollinearity, ensuring that the components of the variables do not interfere with one another **(Table 4)** [24].

The relationship between social media and electronic marketing has enhanced the connection with purchase decisions, as evidenced by the stronger correlation in the final model compared to the initial and reduced models. The adjusted R-squared value of 0.9 indicates that 90% of the variance in purchase decisions can be explained by the interaction between social media and electronic marketing. This suggests that when social media and electronic marketing interact as a mediating variable, the explanatory power of the model significantly improves, positively influencing purchase decisions **(Table 3)**.

Additionally, the F-value of 6400.410 with a significance level of 0.000 supports the adoption of the final model. These results are consistent with findings by Priansa and Suryawardani [3] and Al-Azzam and Al-Mizeed [25], which highlighted the influence of digital marketing on purchase decisions **(Table 5)**.

The interaction effect between electronic marketing and social media on purchase decisions has a regression coefficient of 2.5560. According to Preacher *et al*. (2006) and Aiken and West (1991), interactions involving a mediating variable validate the mediation model. In this case, electronic marketing mediates the relationship between social media and purchasing decisions. The model's validity is confirmed by the significance level of 0.000, and the relationship can be expressed as:

$$Y_i = -1.18E - 14 + 0.889 * X_i + 0.123 * Z_i + 2.556 * X_i * Z_i + \varepsilon_i \quad (6)$$

Where:

Based on the information, social media plays a significant role in influencing purchasing decisions through electronic marketing.

Hypothesis 3 testing

- H0: There are no statistically significant gender-related differences in the research variables among the sample students at the 0.05 confidence level.
- H1: Gender-related differences in the research variables among the sample students are statistically significant at the 0.05 confidence level.

Table 6. Gender-based group statistics

Variable	Gender	N	Mean	Standard deviation	Standard error mean
Social media	Female (F)	530	4.8482	0.56257	0.03256
	Male (M)	313	4.1001	0.78585	0.04567
E-marketing	Female (F)	532	4.1081	0.83076	0.03602
	Male (M)	313	3.9493	0.65172	0.04679
Buying decision	Female (F)	532	3.3954	1.02782	0.04456
	Male (M)	313	3.1231	0.94831	0.06808

Sources: SPSS output

Analysis of Hypothesis 3: Table 6 illustrates that no significant gender differences were observed in responses related to electronic marketing or purchase decisions. This suggests that gender does not influence the students' behaviors regarding social media usage or their purchasing habits. This is in line with Kanwal *et al.* [26], who found no relationship between gender and online buying behavior. Therefore, we can conclude that there are no significant gender-based differences in how social media influences purchase decisions among students at the 0.05 confidence level.

Hypothesis 4 testing

- H0: There are no significant differences in the study variables based on the student's age at the 0.05 confidence level.
- H1: There are significant differences in the study variables based on the student's age at the 0.05 confidence level.

Analysis of Hypothesis 4: While there were no statistically significant differences in communication methods based on age, significant differences were found concerning electronic marketing and purchasing decisions. This indicates that age affects students' maturity, which in turn impacts their online shopping behavior. Kanwal *et al.* [26] also observed that age influences

online shopping habits, supporting the idea that cognitive maturity plays a role in how students engage with electronic marketing.

Conclusion

The purpose of this research was to understand how social media channels influence purchasing behaviors, with a focus on e-marketing targeting students at the University of Algiers. The study sought to explore the impact of social media on buying behavior and identify strategies that businesses can use to engage with consumers. Data was collected through a quantitative survey, and the results provide key insights for businesses targeting this demographic.
From the findings, we can conclude the following:

- The study participants viewed the research factors positively, indicating that social media use is an influential factor in various processes performed by individuals in high-impact media roles.
- The data analysis revealed that social media platforms have a significant influence on purchasing decisions, with a stronger focus on social media content boosting electronic marketing efforts. The study also demonstrated that e-commerce platforms are shaped by electronic and social media marketing, influencing shopping decisions. The path analysis, based on a sample of 125, showed that social media marketing affects consumer decisions by 45.35% and purchase decisions by 35.73%. Furthermore, social media marketing has an 81.08% influence on purchase decisions.
- The research revealed no gender-based differences in social media usage or electronic marketing's effect on purchasing, indicating that gender does not affect the students' responses to the study variables.
- However, the study did find significant age-based differences in responses, which can be attributed to the cognitive maturity that comes with age, affecting students' decision-making processes when engaging with social media for purchases.
- This research underscores the growing influence of social media platforms in shaping purchasing decisions through electronic marketing. Businesses can leverage this insight to enhance their messaging strategies across various social media platforms, ultimately impacting consumer behavior.

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