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The impact of Personalization through Digital Marketing Tools

The impact of personalized social media advertisement on brand
engagement, customer loyalty

Matilde Figueiredo Alves

Dissertation

presented as partial requirement for obtaining the Master Degree Program in Data-Driven Marketing

NOVA Information Management School
Instituto Superior de Estatística e Gestão de Informação

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The impact of Personalization trough Digital Marketing Tools

The Impact of Personalized Social Media Advertisement On Brand Engagement, Brand Attachment And Customer Loyalty

By

Matilde Figueiredo Alves

Master Thesis / Project Work presented as partial requirement for obtaining the Master's degree in Data-Driven Marketing, with a specialization in Digital Marketing and Analytics.

Supervisor/Orientador(a): Marlon Dalmoro

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STATEMENT OF INTEGRITY

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism or any form of undue use of information or falsification of results along the process leading to its elaboration. I further declare that I have fully acknowledge the Rules of Conduct and Code of Honor from the NOVA Information Management School.

Matilde Figueiredo Alves
Amsterdam, 30/11/2023

ABSTRACT

With the rise of digital platforms and the increased use of personalized marketing strategies, understanding the nuanced effects of perceived personalization becomes valuable for marketing professionals. Drawing upon a quantitative research approach, the present study makes use of survey-based methodologies to gather insights from a diverse sample of social media users and examine the perceptual impact of personalized advertising within social media on key consumer-brand relationship dimensions: brand engagement, brand attachment and customer loyalty. The research showcases a significantly positive correlation between perceived personalization and brand engagement. Similarly, the research highlights the positive influence of perceived personalization on brand attachment and customer loyalty, albeit with varying degrees of impact across these three dimensions. Perceived personalization appears to exert a stronger influence on brand engagement compared to brand attachment and customer loyalty. This positive correlation highlights the importance of personalization in social media advertising for key facets of consumer-brand relationships, advocating for tailored marketing strategies aligned with evolving consumer behaviors in the digital era.

KEYWORDS

Personalization; Social Media Advertisement; Brand engagement; Brand attachment; Customer Loyalty.

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1. INTRODUCTION

We are moving towards an integration of the digital world into daily life, and the consumers of tomorrow are online, with technology and online activities incorporated into every part of their lives (Katz, Ogilvie, Shaw, & Woodhead, 2019). A big part of this digital integration is social media platforms. Reports show that, in 2022, the average internet user spent 2 hours and 30 minutes daily on social media platforms, with younger demographics spending up to 6 hours as a daily average (Georgiev, 2023).

This intense usage has also made customer data as available as ever with a gold mine of insights available to marketers (Ming-Hui & Rust, 2018). This has, in turn, made the possibilities of personalized marketing, which is defined as the process of using customer information to deliver a targeted solution to that customer (Peppers & Rogers, 1997) grow exponentially. A big part of personalized marketing in social media platforms is personalized advertisements, which use data obtained from the user's usage of the platforms or data obtained from the use of third-party services (Ads on Instagram, 2023). This form of advertising has become the norm and consumers seem to be reacting well to it, finding personalized ads useful and relevant (A. Al Qudah et al., 2020).

Thus, it becomes noteworthy to explore the impact this personalization has on key consumer brand relationships, namely its impact on customer loyalty, customer brand engagement, and brand attachment. These constructs have been studied in the literature in varying degrees and have been found to result in positive outcomes for brands (Verhoef, Reinartz, & Krafft, 2010) (Park et al., 2010) (Mao, 2010).

It has been found that personalization in advertisements might lead to increased advertising effectiveness and efficiency (Aiolfi, Bellini, & Pellegrini, 2021) as well as increased customer engagement and conversion rates, as it creates a sense of relevance and connection with customers (Hisham, Abdel, & Monem, 2021). The findings by (Indrabrata, A., Balqiah, T., 2020) also suggest that perceived personalization positively impacts consumers' brand engagement and brand attachments. Recent studies have also found some degree of positive relationships between ad personalization in the social media context and customer loyalty (Shanahan, Tran, & Taylor, 2019); (Indrabrata & Balqiah, 2020).

However the impact of perceived personalization specifically in social media advertisements on customer loyalty, customer brand engagement, and brand attachment is still unexplored, especially in the two latter. The present study therefore aims to deepen the understanding of the impact of personalized advertisement in the social media context on customer loyalty, brand engagement, and brand attachment and compare the impact of perceived personalization on the three.

2. LITERATURE REVIEW

2.1. PERSONALIZATION

The Oxford dictionary defines personalization as *“To design or change something so that it is suitable for the needs of a particular person.”* From this seemingly simple definition, however, stems a multitude of applications and alternative definitions of the concept. Overall, personalization is a very broad subject and, while it is a core concept of marketing, it also intersects with various fields, including business management, computer science, decision science, information systems, and psychology (Chandra et al., 2022). Besides being multidisciplinary, personalization, even when isolated in the marketing context, can still be understood from multiple perspectives, and be applied to different mediums and channels.

Some definitions are broader while others focus on describing specific personalized actions. For example, Ramhath (2005) looked at personalization as the tailoring of products or experiences to the tastes of an individual customer based on their preferences and personal information. While Imhoff (2001) described personalization as the ability of a company to treat its customers as individuals through personal messaging, targeted ads, special offers, and any other personal transactions. And, more recently Polk (2020) defined it as a process designed to create a relevant and individualized interaction to enhance customer experience.

Even though different definitions are common, personalization has a common base: to use a customer's information to deliver a targeted solution to that customer (Peppers & Rogers, 1997). From this common base, personalized marketing can then be understood and classified based on what exactly is personalized (functionality, content, interface, channel), for whom it is personalized (individual or group), and who does the personalization (customer-initiated or firm-initiated). (Poole & Fan, 2006)

This last classification plays an important role in the understanding of personalization and it was more clearly explained by (Kingsnorth, 2019), who categorized personalization into user-defined personalization (where individuals provide information about themselves such as interests, demographics, wants,...) and behavioral personalization (in which firms collect information about individuals through their behaviors (i.e., visiting a website, opening an email, etc.) by using emerging technologies, such as big data).

Personalization has been found to reduce customer fatigue and aid consumers in focusing on the options that meet their individual requirements, therefore easing their cognitive load. (Chandra et al., 2022) (Murthi & Sarkar, 2003)

Similarly, personalized ads have been found to be perceived as more relevant and informative compared to non-personalized ads (O'Donnell & Cramer, 2015) (Wirtz et al., 2017) and positive effects on ad recall and purchase intention have also been described (Jihoon et al., 2022).

Overall, personalized advertising has been found to lead to increased advertising effectiveness, as it allows marketers to target specific audiences based on their interests and behavior (Tran, 2017).

However, some drawbacks to personalized advertising have also been highlighted in the literature. Users may perceive personalized advertising as invasive or manipulative, leading to negative attitudes toward targeted brands (Brinson et al., 2018). Similarly, while users desire personalized experiences, they also have concerns about their privacy and the security of their personal data (Aguirre et al., 2016), (O'Donnell & Cramer, 2015).

In addition to privacy concerns, other researchers have suggested that personalized offerings might fail to provoke a response in target customers due to the acclimatization to personalized marketing (Pfiffelmann et al., 2020).

In the context of this study, we look at firm-initiated or behavioral personalization that takes space in the social media context. This type of personalization uses customer data obtained implicitly and is presented to the user in the form of personalized ads and personalized product recommendations.

With a combined user base of over 3 billion active users as of 2019, Facebook and Instagram, which are part of the social media conglomerate Meta, represent the biggest social media platforms in the world (Farah & N.H., 2023).

Instagram collects user data to show relevant, personalized ads throughout the platform. The most common data sources are the user's activity on Instagram (which is sometimes combined with the user's activity on Facebook if both accounts are linked), the user's created content, the user's activity on third-party websites and apps as well as information provided by third-party entities. (Ads on Instagram, 2023) The platform gives users some control to adjust their ad preferences, allowing them to choose topics they want to see less of. (What are my ad topic preferences and how can I adjust them on Instagram? , 2023) It also allows users to choose to only see ads that are based on their in-app activity and not on their activity on third-party websites or apps. Facebook operates personalized ads on a similar basis with the added option for users to hide advertisements from advertisers they have already been exposed to. (Control the ads you see, 2023).

2.2. BRAND ENGAGEMENT

Although engagement is a long-studied concept in fields such as psychology, engagement in relation to brands is a relatively more recent concept in the literature. (Hollebeek, 2011) (Vivek et al., 2012). Overall, engagement can be broadly understood as an *"individual-specific, motivational, and context-dependent variable emerging from two-way interactions between relevant engagement subject(s) and object(s)."* (Hollebeek, 2011)

In the context of marketing, customer engagement can be broadly defined as the customer's participation & connection with an organization's offerings & activities (Vivek et al., 2012). The literature seems to agree that this construct is a composition of different dimensions, most understood as cognitive, emotional and behavioural dimensions (Brodie et al., 2011), (Vivek et al., 2012), (Hollebeek, 2011).

Thus customer brand engagement construct can further be defined as *"the level of an individual customer's motivational, brand-related and context-dependent state of mind characterized by specific levels of cognitive, emotional and behavioural activity in direct brand interactions."*, (Hollebeek, 2011). Still according to Hollebeek (2011), cognitive activity can be seen as brand-related activities that reflect the customer level of engrossment in the brand, while emotional activity may be represented by a customer's level of brand-related inspiration and, finally, behavioural brand-related activity may be expressed through a customer's level of energy exerted in interacting with a certain brand.

The present study adopts the updated definition of customer brand engagement by the same author, where customer brand engagement is defined as a *"consumer's positively valenced brand-related cognitive, emotional and behavioural activity during or related to focal consumer/ brand interactions"* (Hollebeek et al., 2014). From this definition, Hollebeek (2014) derives the customer brand engagement dimensions 'cognitive processing', 'affection' and 'activation', which will be adopted in this study. 'Cognitive processing' can be understood as a consumer's level of brand-related thought processing in a certain interaction with the brand, while 'affection' refers to the degree of a consumer's positive affect towards the brand in a certain interaction and, finally, 'activation' can be understood as the level of effort and time a consumer is willing to spend on a brand in a certain interaction with that brand. Furthermore, in the same study, Hollebeek (2014) puts forward a customer brand engagement measuring 10-item scale, which measures customer brand engagement along the previously described dimensions.

2.2.1. Antecedents and consequences

Customer brand engagement has been found to have multiple consequences beneficial to brands. It is believed to increase retention, word-of-mouth and loyalty (Verhoef, Reinartz, & Krafft, 2010) (Hollebeek et al., 2014) and has also been linked to enhanced satisfaction, connection, emotional bonding, trust and commitment. (Brodie et al., 2011). Bleier (2018) found that tailored marketing strategies in the form of customization and personalization have the potential to stimulate customer engagement. These findings include, amongst others, personalization in communication based on past behaviors and personalization in recommendation systems focused on highlighting specific products that might be of interest to consumers. Similarly, it has been found that consumers react positively to websites that offer personalized content based on the user's browsing history, purchase patterns, and demographic information, leading to an increase in engagement (Johnson et al, 2020), (Zhang et al., 2008).

2.3. BRAND ATTACHMENT

The concept of brand attachment illustrates the deep and long lasting emotional connection that is often seen between consumers and certain brands. It can be looked at as the strength of the bond connecting the brand with the self (Escalas, 2004) (Malär et al. 2011), and can be characterized by deep feelings of connection, affection, and passion.

By recognizing the brand as part of themselves, consumers develop a sense of unity with the brand. The more strongly a consumer is attached to a brand the more willing they are to invest time, money and energy to maintain or deepen that relationship. (Park et al., 2010). This translates into consumers who have the intention to recommend, purchase, revisit the brand as well as a resilience to negative information and a tendency to defend the brand. It also translates into a willingness to pay premium prices and the likelihood of repeated purchases (W. Park, D. J. MacInnis & J. Priester, 2006).

Thomson, MacInnis and Park (2005) also explored the concept of brand attachment and defined the emotional attachment of consumers to a certain brand as an emotional bond characterized by feelings of connection (feeling connected, bonded, and attached), affection (feeling affectionate, loved, friendly, and peaceful) and passion (feeling passionate, delighted, and captivated). This notion of brand attachment was then translated into a 10-item measuring scale, allowing for measurement of brand attachment.

2.3.1. Antecedents of brand attachment

Grisaffe (2011) qualitatively identified five primary antecedents influencing emotional brand attachment, varying in degree of controllability by marketers. Controllable factors include traditional customer outcomes (value, satisfaction and differentiation) and superior marketing characteristics (Product, Place, Price, Promotion, Service). Medium controllable factors include user-derived benefits (sensory pleasure, self-oriented goals, social-oriented goals) while less controllable factors include sentimental memory and socialization with the brand. More recently, Tran (2023) found that when consumers perceive that the advertisements are customized to their specific needs, interests, and preferences, they develop a stronger connection with the brand. Personalization creates a sense of relevance and individual attention, which positively influences consumers' attitudes towards the brand in multiple dimensions, including brand attachment.

2.4. CUSTOMER LOYALTY

Customer loyalty is commonly connoted as *“the biased (non-random) behavioral response (purchase), expressed over time by some decision-making unit with respect to one or more alternative brands out of a set of brands and is a function of psychological processes”*. (Jacoby & Robert W., 1978)

(Rolph & Srini, 2003) added to this definition by highlighting that the positive attitudes of customers toward a company or brand result in repeated repurchasing behaviors, a lower sensitivity to price, and a lower sensitivity to offerings from competitors. (Moon-Koo, Myeong-Cheol, Jong-Hyun, Jimin & Eunhye, 2018) also highlighted that customer loyalty is about the strong commitment to repurchase a product or service.

Overall, customer loyalty has been found to have several benefits for brands such as increasing their market share, reducing costs, reducing the consumer's sensitivity to price, and, overall, strengthening the brand in the marketplace. (Eda, Şafak, & Serkan, 2005) (Mao, 2010). The lower cost of retaining existing customers compared to new customer acquisition costs has also been heavily documented in

the literature (Andrew & Gerald, 2000) (Larry J. Rosenberg, 1984), (Regan & Suzan, 2006). And, finally, it has been identified that another important benefit of customer loyalty for companies is that it gives the company more time to react to innovations from competitors as well as some advantage even in times of intensive price competition. (Aaker, 1996).

Early studies focused on the behavioral dimension of loyalty as a measure, often defined as a process of repeated purchases (Kahn Barbara , Kalwani, & Morrison, 1983) (Cunningham, 1966).

Although easy to measure, this purely behavioral view of customer loyalty does not consider the factors that contribute to repeated purchases. A high frequency of repeat purchases might be due to situational factors, such as the availability of certain brands at retailers, whereas a low frequency of repeat purchases could indicate diverse usage situations, a desire for variety, or a lack of brand preferences within a buying group. (Dick & Kunal, 1994).

Thus, in more recent literature customer loyalty is looked at from two dimensions, the aforementioned behavioral dimension and the attitudinal dimension (Dick & Kunal, 1994). The attitudinal dimension of customer loyalty is based on stated preferences, commitment, or purchase intentions of the consumers, usually obtained by surveying. Although this dimension is less likely to be influenced by random short-term fluctuations, it might not accurately reflect reality, as a consumer might rationalize his choice when questioned and make up an evaluation of brands even when no explicit evaluation is made in real shopping situations. In addition, these measures are based on data obtained at a single point in time, making them incidental in nature (Mellens, M.G., & J.E.B.M., 1996).

2.4.1. Antecedents and consequences of customer loyalty

Besides understanding how to measure customer loyalty, previous literature has also focused on defining and exploring its antecedents and consequences. A multitude of antecedents have been found to exert a positive effect on loyalty, namely: customer satisfaction, consumer trust, perceived quality, perceived value, relationship quality, relationship commitment, customer involvement, consumer perceptions, corporate social responsibility, customer engagement, value co-creation, firm reputation and switching costs, with customer satisfaction, commitment, and trust being pointed as the principal antecedents. On the other hand, customer retention, firm performance, customer value, competitive advantage, and cost reduction have all been found to be consequences of customer loyalty. (Tartaglione et al., 2019). Furthermore, research by Shanahan (2018) suggests that when consumers feel that a brand understands their individual preferences, interests, and needs, they are more likely to develop a sense of loyalty towards that brand, suggesting that personalization might also act as an antecedent of customer loyalty.

3. RESEARCH MODEL AND HYPOTHESIS

To study the impact of perceived personalization of social media advertisements the following research model is purposed.

The findings by (Indrabrata, A., Balqiah, T., 2020) suggest that perceived personalization positively impacts consumers' brand engagement and brand attachments. Similarly, (Tran, T., Sen, S., Steenburg, E., 2023) found that when consumers perceive that the advertisements are customized to their specific needs, interests, and preferences, they develop a stronger connection with the brand. Personalization creates a sense of relevance and individual attention, which positively influences consumers' attitudes towards the brand, including brand attachment. Furthermore, Bleier (2018) found that personalization in communication based on past behaviors and personalization in recommendation systems focused on highlighting specific products that might be of interest to consumers has the potential to stimulate customer engagement.

Therefore it is hypothesized that the personalization of advertisements on social media in specific will also positively impact brand attachment and brand engagement.

H1: Perceived personalization has a positive impact on brand engagement.

H2: Perceived personalization has a positive impact on brand attachment.

Research suggests by Shanahan, T., Tran, T., Taylor, E. (2018) that when consumers feel that a brand understands their individual preferences, interests, and needs, they are more likely to develop a sense of loyalty towards that brand, suggesting that personalization might also enhance loyalty. Recent studies have also found some degree of positive relationships between ad personalization in the social media context and customer loyalty (Shanahan, Tran, & Taylor, 2019); (Indrabrata & Balqiah, 2020). Therefore, the hypothesis is presented that the perceived personalization of advertisements on social media will positively impact the customer's loyalty to the brand.

H3: Perceived personalization has a positive effect on customer loyalty.

The hypothesis are visually represented with a conceptual model on figure 1.

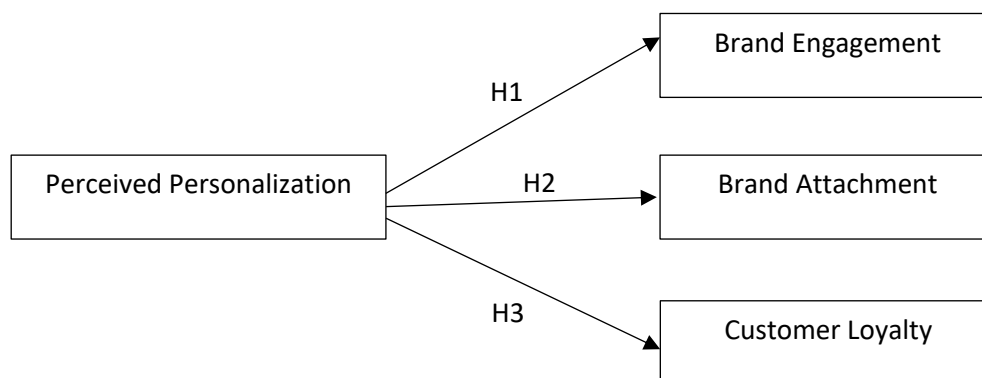


Figure 1 – Conceptual model

4. METHODOLOGY

4.1. DATA COLLECTION

The present study followed a quantitative research design, utilizing statistical data to generalize results from a sample to a larger population. A total of 223 responses to the distributed questionnaire were gathered. From the 223 responses, 67 were excluded since they did not meet the qualification criteria (did not use the social media platforms Instagram/Facebook and/or had never encountered a personalized advertisement on Instagram/Facebook), leaving a total sample of 156 social media users, including 119 females (76%) and 37 males (24%). The most represented age groups were the ranges from 18 to 24 years old (51%) and from 25 to 34 years old (18%).

Data was collected using a questionnaire which is presented in full questionnaire in Appendix A. The created questionnaire was made available in both English and Portuguese and was distributed via email and social media channels to respondents. Participants were informed about the purpose of the study and provided written consent before participation.

To make sure an accurate sample was collected, qualifying questions were first shown to respondents to make sure they used the social platforms Facebook and Instagram. Respondents were then shown the below detailed explanation of what a personalized ad entails and asked if they had encountered these types of ads before.

“Brands usually engage in personalized advertising on social media. This means brands collect user data to show relevant, personalized ads throughout the platforms. Put simply, imagine you have interacted with posts, stories, or reels that feature a certain product. Or you have looked for information and products on other apps and search engines. Sometime after that, ads for similar/related products show up on your feed, explore the page, and in between stories.”

If the answer was positive, respondents were allowed to move forward to the next section of the questionnaire. If not, respondents were cut off from the data. In the next section of the questionnaire, respondents were asked to think about a brand for which they have encountered personalized advertisement. In relation to the brand they were asked to think about, respondents then answered a series of items used to measure the degree of perceived personalization (Srinivasan et al., 2002) of the encountered personalized advertisement.

Then, participants were asked to think about the brand they had encountered a personalized advertisement for and then asked to answer a number of questionnaire items adapted from the relevant literature (items are summarized in table 1). For all questionnaire items, a standard measurement Likert scale was used, where 1 represents “strongly disagree” and 7 “strongly agree”.

Finally, some demographic questions (age, gender, and country of respondents) were also presented to get an overview of the acquired sample.

A pre-test was done on 10 respondents. The respondents were given information on the nature and objective of the study and then completed the survey. After completing the survey the respondents were asked whether they had encountered any technical issues and whether the survey questions had

been clear to them. In regards to the clarity of the survey, respondents mostly indicated the survey was clear and understandable.

The questionnaire was distributed via email and social media between 21st of June of 2023 and 5th of November of 2023. All responses received after the 5th of November were not considered. All participants were sufficiently informed about the treatment of their data during the study and the details of their participation in the first section of the questionnaire. In order to proceed with the questionnaire, all participants gave their informed consent.

Table 1 – Measurement Scales

Perceived Personalization (Srinivasan, Anderson, & Ponnavolu, 2002)	1. This ad makes purchase recommendations that match my needs. 2. I think that this ad enables me to order products that are tailor-made for me. 3. Overall, this ad is tailored to my situation. 4. This ad makes me feel that I am a unique customer. 5. I believe that this ad is customized to my needs.
Consumer-Brand Engagement (Hollebeek, Glynn, & Brodie, 2014).	1. Average score of items of "activation" factor: -I spend a lot of time using [brand], compared to other [category] brands. -Whenever I'm using [category], I usually use [brand]. -[Brand] is one of the brands I usually use when I use [category]. 2. Average score of items of "affection" factor - I feel very positive when I use [brand]. - Using [brand] makes me happy. - I feel good when I use [brand]. - I'm proud to use [brand]. 3. Average score of items of "cognitive processing" factor - Using [brand] gets me to think about [brand]. - I think about [brand] a lot when I'm using it. - Using [brand] stimulates my interest to learn more about [brand].

Brand attachment (Thomson, MacInnis, & Park, 2005)

1. Average score of items of "affection" factor
When thinking about the brand, do you feel?
 - a. Affectioned
 - b. Loved
 - c. Peaceful
2. Average score of items of "connection" factor
When thinking about the brand, do you feel?
 - a. Attached
 - b. Bonded
 - c. Connected
3. Average score of items of "passion" factor
When thinking about the brand, do you feel?
 - a. Passionate
 - b. Delighted

4.2. DATA PROCESSING

Given the quantitative nature of this study, statistical analyses were conducted using SPSS (version 29). To capture the multidimensional nature of the constructs, composite variables composed of the different dimensions of each construct were computed.

To create the composite variable of *Perceived Personalization*, a summation of the scores of the selected Likert scale items was performed. The resulting composite score thus represented an aggregate measure of participants' Perceived Personalization of advertisements on social media and from here on is referred to as the independent variable of *Perceived Personalization*.

The variable *Brand Engagement* is a second-order composite variable computed to represent the overarching construct of "Brand Engagement". To achieve this, the lower-order composite variables that captured specific dimensions of brand engagement, namely the "*Activation factor*" "*Affection factor*," and "*Cognitive processing factor*", were aggregated. Each of these lower-order composite variables was created by summing the scores of individual Likert scale items associated with the respective dimension.

The variable *Brand Attachment* is a second-order composite variable computed to represent the overarching construct of "Brand Engagement". To achieve this, the lower-order composite variables that captured specific dimensions of brand engagement, namely the "*Affection factor*" "*Connection factor*" and "*Passion factor*", were aggregated. Each of these lower-order composite variables was created by summing the scores of individual Likert scale items associated with the respective dimension.

The variable *Customer Loyalty* is a second-order composite variable computed to represent the overarching construct of "Customer Loyalty". To achieve this, the lower-order composite variables that

captured specific dimensions of brand engagement, namely the "*Attitudinal loyalty measures*" and "*Behavioral loyalty measures*", were aggregated. Each of these lower-order composite variables was created by summing the scores of individual Likert scale items associated with the respective dimension.

The created second-order composite variables allow for synthesizing information from multiple lower-order dimensions, providing a holistic representation of *Brand Engagement*, *Brand Attachment* and *Customer Loyalty*. This approach facilitated a nuanced analysis of the broader constructs, considering their multidimensional nature.

After computing the composite variable *Perceived Personalization* and second order composite variables *Brand Engagement*, *Brand Attachment* and *Customer Loyalty*, descriptive statistics were computed to characterize the sample and the aforementioned variables of interest.

A Pearson correlation coefficient (r) was then computed to assess the strength and direction of the linear relationship between *Perceived Personalization* and each of the dependent variables, brand engagement, brand attachment, and customer loyalty. This analysis provided an initial indication of the association between perceived personalization and brand engagement, brand attachment, and customer loyalty.

Then, to reach the goal of measuring the impact of perceived personalization on brand attachment, brand engagement, and customer loyalty, three simple linear regression analyses were conducted. These analyses aimed to explore the effect of the independent variable "Perceived Personalization" on the dependent variables "Brand attachment", "Brand engagement" and "Customer loyalty".

5. RESULTS

5.1. THE IMPACT OF PERCEIVED PERSONALIZATION ON BRAND ENGAGEMENT

A simple linear regression analysis was conducted to examine the relationship between brand engagement and perceived personalization.

Before analyzing the results, the necessary assumptions for linear regression were tested. Based on the ANOVA Output Table, value sig. Deviation from linearity of 0.416 > 0.05, it can be concluded that there is a linear relationship between the variables of *Perceived Personalization* and *Brand Engagement*.

Table 2 – ANOVA test for linearity Brand Engagement

			Sum of Squares	df	Mean Square	F	Sig.
Brand Engagement * Perceived Personalization	Between Groups	(Combined)	96.773	27	3.584	3.941	<.001
		Linearity	72.057	1	72.057	79.222	<.001
		Deviation from Linearity	24.717	26	.951	1.045	.416
	Within Groups		116.423	128	.910		
	Total		213.196	155			

Assumption of homoscedasticity was checked through visual inspection of residual plots, where the spread of residuals remained roughly constant as the values of the independent variable increase.

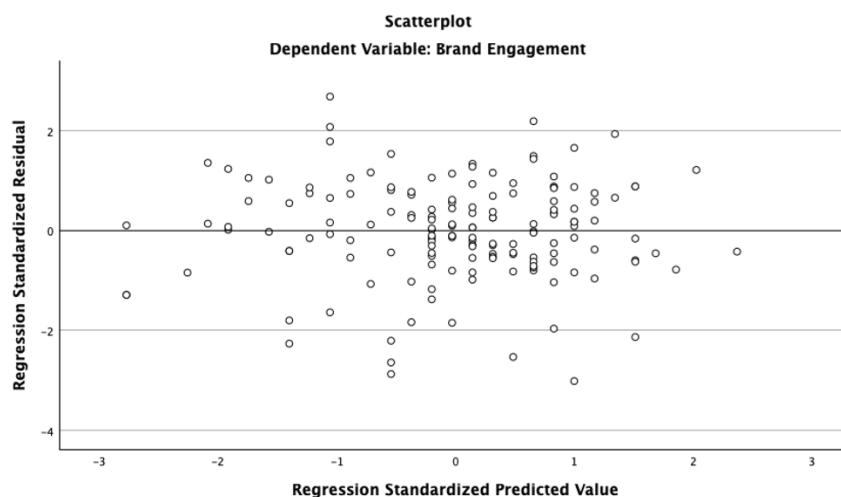


Figure 2 – Residual Scatterplot Brand Engagement

In addition, the calculated Durbin-Watson statistic (1.960) fell within the acceptable range (between 1.5 and 2.5), confirming the assumption that observations are independent.

Table 3 – Model Summary Perceived Personalization and Brand Engagement

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.581 ^a	.338	.334	.95733	.338	78.623	1	154	<.001	1.960

a. Predictors: (Constant), Perceived Personalization

b. Dependent Variable: Brand Engagement

Finally, the normality of residuals was examined through a histogram and a P-P plot. The histogram of residuals displayed a roughly symmetric distribution around zero, indicating that the assumption of normality was met. Additionally, the P-P plot showed that the residuals followed the diagonal line, once again confirming normality.

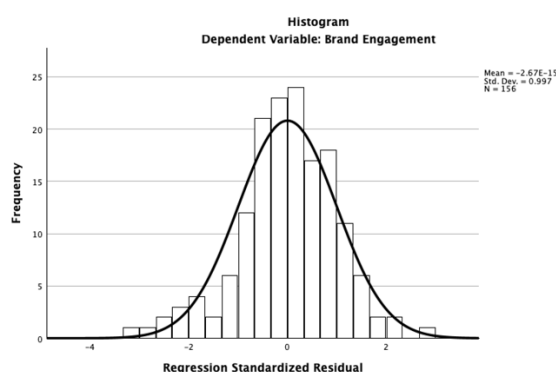


Figure 3 – Histogram of residuals Brand Engagement

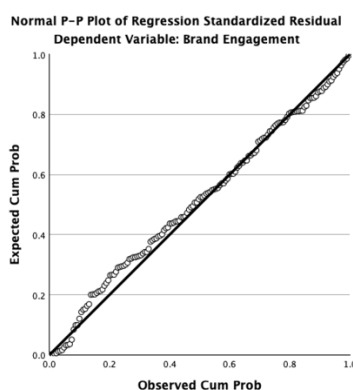


Figure 4 – P-P plot of residuals Brand Engagement

Overall, the assumption testing results indicated that the data met the necessary assumptions for conducting a linear regression analysis. Therefore, the subsequent regression model was considered appropriate for further interpretation and inference.

First, a Pearson correlation coefficient was performed to assess the relationship between perceived personalization and brand engagement. The results suggested a significant moderate positive correlation between *Perceived Personalization* and *Brand Engagement*, ($r = 0.581$, $n = 156$, $p < 0.001$).

Table 4 – Correlation Coefficients Brand Engagement

		Brand Engagement	Perceived Personalization
Pearson Correlation	Brand Engagement	1.000	.581
	Perceived Personalization	.581	1.000
Sig. (1-tailed)	Brand Engagement	.	<.001
	Perceived Personalization	.000	.
N	Brand Engagement	156	156
	Perceived Personalization	156	156

Then, a simple linear regression analysis was conducted to attest the influence of *Perceived Personalization* on *Brand Engagement*. The regression model was statistically significant ($F(1, 154) = 78.623$, $p < 0.001$), indicating that *Perceived Personalization* significantly predicted *Brand Engagement*. Furthermore, the model accounted for 33,8% of the variance in *Brand Engagement* ($R = 0.338$), indicating *Perceived Personalization* explained 33,8% of the variance in *Brand Engagement*.

Table 5 – Model Summary Perceived Personalization and Brand Engagement

					Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.581 ^a	.338	.334	.95733	.338	78.623	1	154	<.001	1.960

a. Predictors: (Constant), Perceived Personalization

b. Dependent Variable: Brand Engagement

The effect size, as indicated by the standardized coefficient (Beta), was 0.581 ($\beta = .581$, $t = 8.867$, $p < .001$), suggesting a moderate to strong effect of perceived personalization significantly predicted on brand engagement. This indicates that for every one-unit increase in perceived personalization, we would expect an estimated increase of 0.58 units in brand engagement.

Table 6 – Model Coefficients Personalization and Brand Engagement

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.648	.289		5.698	<.001	1.077	2.220
	Perceived Personalization	.584	.066	.581	8.867	<.001	.454	.714

a. Dependent Variable: Brand Engagement

Given the data, H1 was supported by the results.

H1: Perceived personalization has a positive impact on brand engagement

Table 7 – Summary of statistical findings on the impact of perceived personalization on brand engagement

Hypothesis	Regression Weights	Beta Coefficient	R2	F	p-value	Hypotheses Supported
H1	PP → BE	0.581	0.338	78.623	<0.001	Yes

Note: *p <0.001. PP: Perceived Personalization, BE: Brand Engagement

5.2. THE IMPACT OF PERCEIVED PERSONALIZATION ON BRAND ATTACHMENT

A simple linear regression analysis was conducted to examine the relationship between brand engagement and perceived personalization.

Before analyzing the results, the necessary assumptions for linear regression were tested. Based on the ANOVA Output Table, value sig. Deviation from linearity of 0.304 > 0.05, it can be concluded that there is a linear relationship between the variables of *Perceived Personalization* and *Brand Attachment*.

Table 8 – ANOVA test for linearity Brand Attachment

			Sum of Squares	df	Mean Square	F	Sig.
Brand Attachment * Perceived Personalization	Between Groups	(Combined)	104.328	27	3.864	2.370	<.001
		Linearity	55.847	1	55.847	34.257	<.001
		Deviation from Linearity	48.481	26	1.865	1.144	.304
	Within Groups		208.670	128	1.630		
	Total		312.998	155			

Assumption of homoscedasticity was checked through visual inspection of residual plots, where the spread of residuals remained roughly constant as the values of the independent variable increase.

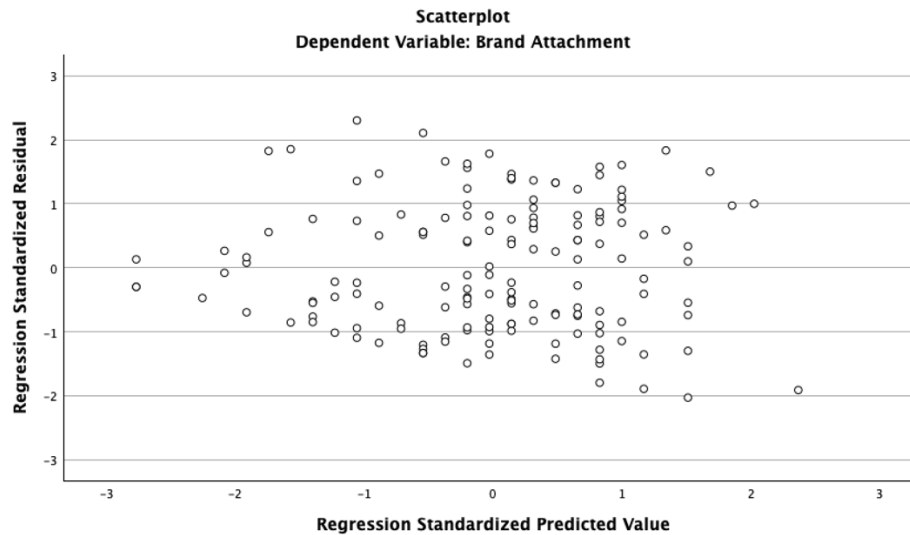


Figure 5 – Residual Scatterplot Brand Attachment

In addition, the calculated Durbin-Watson statistic (2.015) fell within the acceptable range (between 1.5 and 2.5), confirming the assumption that observations are independent.

Table 9 – Model Summary Perceived Personalization and Brand Attachment

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.422 ^a	.178	.173	1.29221	.178	33.445	1	154	<.001	2.015

a. Predictors: (Constant), Perceived Personalization

b. Dependent Variable: Brand Attachment

Finally, the normality of residuals was examined through a histogram and a P-P plot. The histogram of residuals displayed a roughly symmetric distribution around zero, indicating that the assumption of normality was met. Additionally, the P-P plot showed that the residuals followed the diagonal line, once again confirming normality.

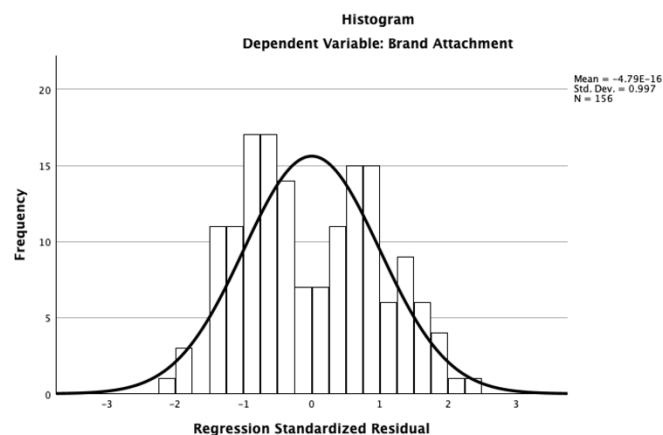


Figure 6 – Histogram of residuals Brand Attachment

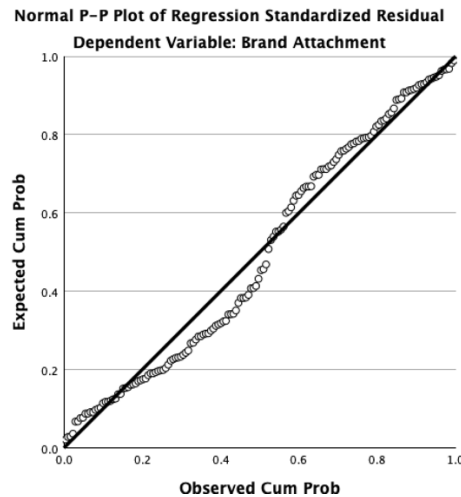


Figure 7 – P-P plot of residuals Brand Attachment

Overall, the assumption testing results indicated that the data met the necessary assumptions for conducting a linear regression analysis. Therefore, the subsequent regression model was considered appropriate for further interpretation and inference.

First, a Pearson correlation coefficient was performed to assess the relationship between perceived personalization and brand engagement. The results suggested a significant moderate positive correlation between perceived personalization and brand attachment, ($r = 0.422$, $n = 156$, $p < 0.001$).

Table 10 – Correlation Coefficients Brand Attachment

		Brand Attachment	Perceived Personalization
Pearson Correlation	Brand Attachment	1.000	.422
	Perceived Personalization	.422	1.000
Sig. (1-tailed)	Brand Attachment	.	<.001
	Perceived Personalization	.000	.
N	Brand Attachment	156	156
	Perceived Personalization	156	156

Then, a simple linear regression analysis was conducted to the degree of *Brand Attachment* based on *Perceived Personalization*. The regression model was statistically significant ($F(1, 154) = 33.445$, $p < 0.001$), indicating that *Perceived Personalization* significantly predicted *Brand Attachment*. Furthermore, the model accounted for 17,8% of the variance in *Brand Attachment* ($R = 0.178$), indicating perceived personalization explained 17,8% of the variance in *Brand Attachment*.

Table 11 – Model Summary Perceived Personalization and Brand Attachment

					Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.422 ^a	.178	.173	1.29221	.178	33.445	1	154	<.001	2.015

a. Predictors: (Constant), Perceived Personalization

b. Dependent Variable: Brand Attachment

The effect size, as indicated by the standardized coefficient (Beta), was 0.422 ($\beta = .422$, $t = 5.783$, $p < .001$), suggesting a moderate to strong effect of *Perceived Personalization* significantly predicted on *Brand Attachment*. This indicates that for every one-unit increase in perceived personalization, we would expect an estimated increase of 0.42 units in *Brand Attachment*.

Table 12 – Model Coefficients Personalization and Brand Engagement

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	.871	.390		2.232	.027	.100	1.643
	Perceived Personalization	.514	.089	.422	5.783	<.001	.338	.690

a. Dependent Variable: Brand Attachment

Given the data, H2 was supported by the results.

H2: Perceived personalization has a positive impact on brand attachment.

Table 13 – Summary of statistical findings on the impact of perceived personalization on brand engagement

Hypothesis	Regression Weights	Beta Coefficient	R2	F	p-value	Hypotheses Supported
H2	PP → BA	0.422	0.178	33.445	<0.001	Yes

Note: *p < 0.001. PP: Perceived Personalization, BE: Brand Attachment

5.3. THE IMPACT OF PERCEIVED PERSONALIZATION ON CUSTOMER LOYALTY

A simple linear regression analysis was conducted to examine the relationship between brand engagement and perceived personalization.

Before analyzing the results, the necessary assumptions for linear regression were tested. Based on the ANOVA Output Table, value sig. Deviation from linearity of $0.527 > 0.05$, it can be concluded that there is a linear relationship between the variables of *Perceived Personalization* and *Customer Loyalty*.

Table 14 – ANOVA test for linearity Customer Loyalty

			Sum of Squares	df	Mean Square	F	Sig.
Customer Loyalty * Perceived Personalization	Between Groups	(Combined)	83.691	27	3.100	2.647	<.001
		Linearity	54.477	1	54.477	46.518	<.001
		Deviation from Linearity	29.214	26	1.124	.959	.527
	Within Groups		149.901	128	1.171		
	Total		233.591	155			

Assumption of homoscedasticity was checked through visual inspection of residual plots, where the spread of residuals remained roughly constant as the values of the independent variable increase.

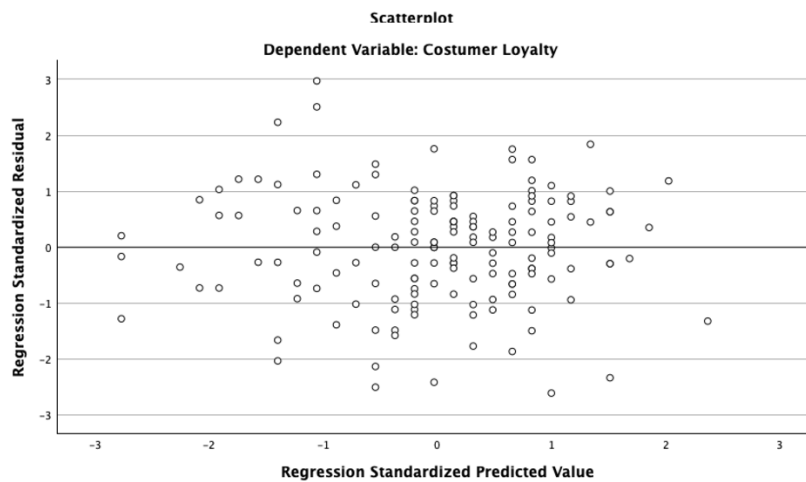


Figure 8 – Residual Scatterplot Customer Loyalty

In addition, the calculated Durbin-Watson statistic (1.773) fell within the acceptable range (between 1.5 and 2.5), confirming the assumption that observations are independent.

Table 15 – Model Summary Perceived Personalization and Customer Loyalty

					Change Statistics					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.483 ^a	.233	.228	1.07846	.233	46.838	1	154	<.001	1.773

a. Predictors: (Constant), Perceived Personalization

b. Dependent Variable: Customer Loyalty

Finally, the normality of residuals was examined through a histogram and a P-P plot. The histogram of residuals displayed a roughly symmetric distribution around zero, indicating that the assumption of normality was met. Additionally, the P-P plot showed that the residuals followed the diagonal line, once again confirming normality.

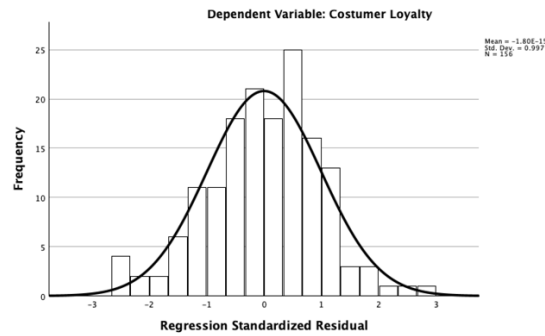


Figure 9 – Histogram of residuals Customer Loyalty

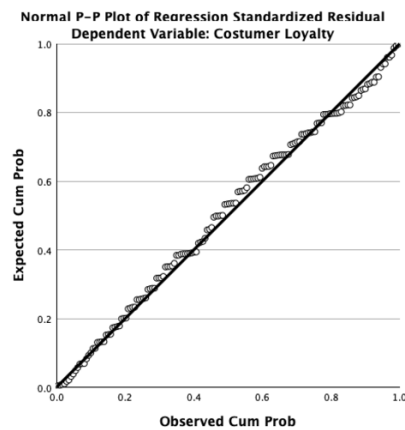


Figure 10 – P-P plot of residuals Customer Loyalty

Overall, the assumption testing results indicated that the data met the necessary assumptions for conducting a linear regression analysis. Therefore, the subsequent regression model was considered appropriate for further interpretation and inference.

First, a Pearson correlation coefficient was performed to assess the relationship between *Perceived Personalization* and *Customer Loyalty*. The results suggested a significant moderate positive correlation between *Perceived Personalization* and *Customer Loyalty*, ($r = 0.483$, $n = 156$, $p < 0.001$).

Table 16 – Correlation Coefficients Customer Loyalty

		Customer Loyalty	Perceived Personalization
Pearson Correlation	Customer Loyalty	1.000	.483
	Perceived Personalization	.483	1.000
Sig. (1-tailed)	Customer Loyalty	.	<.001
	Perceived Personalization	.000	.
N	Customer Loyalty	156	156
	Perceived Personalization	156	156

Then, a simple linear regression analysis was conducted to attest the influence of *Perceived Personalization* on *Customer Loyalty*. The regression model was statistically significant ($F(1, 154) = 46.838, p < 0.001$), indicating that perceived personalization significantly predicted customer loyalty. Furthermore, the model accounted for 23,3% of the variance in *Customer Loyalty* ($R = 0.233$), indicating perceived personalization explained 23,3% of the variance in *Customer Loyalty*.

Table 17 – Model Summary Perceived Personalization and Customer Loyalty

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					
					R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
1	.483 ^a	.233	.228	1.07846	.233	46.838	1	154	<.001	1.773

a. Predictors: (Constant), Perceived Personalization

b. Dependent Variable: Customer Loyalty

The effect size, as indicated by the standardized coefficient (Beta), was 0.483 ($\beta = .483, t = 6.844, p < .001$), suggesting a moderate to strong effect of perceived personalization significantly predicted on brand engagement. This indicates that for every one-unit increase in perceived personalization, we would expect an estimated increase of 0.48 units in customer loyalty.

Table 18 – Model Coefficients Personalization and Customer Loyalty

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
		B	Std. Error	Beta			Lower Bound	Upper Bound
1	(Constant)	1.872	.326		5.745	<.001	1.228	2.516
	Perceived Personalization	.508	.074	.483	6.844	<.001	.361	.654

a. Dependent Variable: Customer Loyalty

Given the data, H3 was supported by the results.

H3: Perceived personalization has a positive impact on customer loyalty.

Table 19 – Summary of statistical findings on the impact of perceived personalization on customer loyalty

Hypothesis	Regression Weights	Beta Coefficient	R2	F	p-value	Hypotheses Supported
H3	PP → CL	0.483	0.233	46.838	<0.001	Yes

Note: *p < 0.001. PP: Perceived Personalization, CL: Customer Loyalty

6. DISCUSSION

The results revealed a significant positive correlation between *Perceived Personalization* and *Brand Engagement*, suggesting that the perceived personalization of social media advertisements positively impacts consumer's brand engagement.

A significant positive correlation between *Perceived Personalization* and *Brand Attachment* was also recorded, suggesting that the perceived personalization of social media advertisements positively impacts consumer's brand engagement. This is in line with similar findings in the literature that suggested that when consumers perceive that the advertisements are customized to their specific needs, interests, and preferences, they develop a stronger connection with the brand. (Tran, T., Sen, S., Steenburg, E., 2023)

Furthermore, a significant positive correlation between *Perceived Personalization* and *Customer Loyalty* was recorded, suggesting that the perceived personalization of social media advertisements positively impacts consumer's brand loyalty. This is in line with similar findings in the literature that suggested that when consumers feel that a brand understands their individual preferences, interests, and needs, they are more likely to develop a sense of loyalty towards that brand. (Shanahan, T., Tran, T., Taylor, E., 2018)

Besides providing support for the hypothesis that perceived personalization and, in specific, perceived personalization of advertisements on social media, has a positive impact on *Brand Engagement*, *Brand Attachment*, and *Customer Loyalty*, the results also revealed that *Perceived Personalization* does not seem to affect *Brand Engagement*, *Brand Attachment*, and *Customer Loyalty* in the same proportion. The analysis showed that the greatest impact of *Perceived Personalization* was seen in *Brand Engagement*, followed by *Customer Loyalty*. The lowest impact of *Perceived Personalization* was seen on *Brand*. Hence, it can be said that the perceived personalization of social media advertisements has a markedly stronger effect on brand engagement than it has on customer loyalty and brand attachment.

The described results represent a central contribution to the understanding of the relationship between the modern marketing practice that is personalized advertisements on social media and key consumer brand relationships brand engagement, brand attachment and customer loyalty. Particularly, the study of these relationships contributes to the general understanding of consumer behavior towards brands within the social media environment.

The results further give insight into the consumer-brand relationships of brand engagement, brand attachment and customer loyalty, strengthening the view that personalization has a positive impact on the former. Furthermore, it specifically delimitates that the personalization of advertisements in the social media context has a positive impact on the mentioned constructs, highlighting the importance that being able to offer these types of advertisements has on building consumer-brand relationships.

Marketing practice should continue to invest in the personalization of advertisements in the social media context to reap the benefits that brand engagement, brand attachment and customer loyalty bring to brands, namely, repeated purchases, word of mouth and customer satisfaction.

7. CONCLUSIONS

The present study reveals that the perceived personalization of personalized advertisements in the social media context has a positive influence on brand engagement, brand attachment and customer loyalty, highlighting the benefits of utilizing consumer information to deliver personalized advertisement offers to consumers. Additionally, it reveals that perceived personalization has a markedly stronger impact on brand engagement than on brand attachment and customer loyalty..

However, there are several limitations that should be considered and used to guide future research on this topic. One of the primary limitations of this study is the relatively small sample size, which may limit the generalizability of the findings to broader populations. Future research with larger and more diverse samples is recommended to enhance the validity of the results.

Another limitation lies with the type of research conducted. The present study utilized a questionnaire, which is subject to some limitations. The reliance on self-reported responses in the questionnaire may have introduced response bias and the interpretation of questionnaire items might vary among respondents, leading to subjective understandings of the questions and potentially influencing the obtained results.

Furthermore, this study lacks an experimental approach. While the current research employed a questionnaire, which obtained data heavily relies on the perception of the respondents. Given the behavioral nature of the research questions, future research on an experimental level could provide more tangible data compared to self-reported responses in questionnaires, potentially offering stronger insights into the cause-and-effect relationships under study.

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APPENDIX A

Introduction

This survey has been made available in both English and Portuguese. Before starting the survey, please select the desired language on the top right corner.

This survey aims to study the impact that perceived advertisement personalization has on customer loyalty, consumer-brand engagement and brand attachment.

Personalized advertisements are advertisements which use data obtained from the user's usage of social media platforms or data obtained from the use of third-party services. This form of advertising has become more prevalent and is changing the way consumers make purchase decisions.

This survey takes around 15 minutes to be completed and participation is voluntary and anonymous. All responses will be used for academic purposes only.

This survey is destined for participants over 18 years old. By moving forward in the survey you confirm that you are of the required age.

Thank you in advance for your participation.

Questions

Q1. Do you use the social media platforms Instagram/Facebook?

1. Yes
2. No

Q2. How many hours per day do you spend on Instagram/Facebook?

1. Less than 1 hour
2. 1 - 2 hours
3. 3 -4 hours
4. 5 - 6 hours
5. More than 6 hours

Q3. The brands we know often have a prevalent presence on Instagram/Facebook platforms. Do you follow any brands on these platforms?

1. Yes
2. No

Q4. Brands usually engage in personalized advertising on social media. This means brands collect user data to show relevant, personalized ads throughout the platforms.

Q5. Put simply, imagine you have interacted with posts, stories or reels that feature a certain product. Or you have looked for information and products on other apps and search engines. Some time after that, ads for similar/related products show up on your feed, explore page and in between stories.

Q6. Based on the previous description, have you ever encountered a personalized advertisement on Instagram/Facebook?

1. Yes
2. No

Q7. Now, please think back on the latest personalized advertisement you have seen on Instagram/Facebook. Try to recall the advertisement and what was advertised.

In relation to the advertisement you have in mind, please rate the following items.

	Strongly Disagree	Disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly Agree
This ad makes purchase recommendations that match my needs.						
I think that this ad enables me to order products that are tailor-made for me.						
Overall, this ad is tailored to my situation.						
This ad makes me feel that I am a unique customer.						
I believe that this ad is customized to my needs.						

Q8. Thinking of the personalized ad you encountered, were you familiar with the brand?

1. Yes
2. No

Q9. Now, please think of your relationship with this brand and rate the following items accordingly.

	Strongly Disagree	Disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly Agree
I spend a lot of time using the brand, compared to other brands in the same product category.						
Whenever I'm using the product category of the brand, I usually use this brand.						
The brand is one of the brands I usually use when I use this product category.						
I feel very positive when I use the brand.						
Using the brand makes me happy.						
I feel good when I use the brand.						
I'm proud to use the brand.						
Using the brand gets me to think about the brand.						
I think about the brand a lot when I'm using it.						
Using the brand stimulates my interest to learn more about the brand.						

	Strongly Disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly Agree
I prefer the brand over competitors.							
I enjoy doing business with the brand.							
I consider the brand my first preference.							
I have a positive attitude toward the brand.							
I really like the brand.							
I think about the brand a lot when I'm using it.							
I feel good when I use the brand.							
I often buy products/services from the brand.							
I only buy products/services from the brand.							
The last time I purchased a product/service, I bought from the brand.							
I frequently buy from the brand.							
I buy most from the brand.							

Q10. Now, thinking of your relationship with this brand, how do you feel when you think about it?
Score each feeling according to its intensity from 1 - 7.

When thinking about the brand, do you feel?

	1	2	3	4	5	6	7
Affectioned							
Loved							
Peaceful							
Friendly							
Attached							
Bonded							
Connected							
Passionate							
Delighted							
Captivated							

Q11. What is your age?

1. 18 - 24
2. 25 - 34
3. 35 - 44
4. 45 - 54
5. 55 - 64
6. 65 +

Q12. What is your gender?

1. Female
2. Male
3. Other

Q13. What is your country of residence?

(Open ended question)