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Data-Driven Marketing

AI Applications in Advertising from a Consumer Perspective:
Study on the Effect of Brand Attitudes in Programmatic Advertising

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Master Thesis

presented as partial requirement for obtaining a Master's Degree in Data-Driven Marketing

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

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

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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, 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 acknowledged the Rules of Conduct and Code of Honor from the NOVA Information Management School.

Francisco Maria Silva

Lisbon, 07 July 2024

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ABSTRACT

The rapid advancements in artificial intelligence (AI) have been revolutionizing the marketing and advertising landscape by automating key tasks such as media planning, AD design, and consumer targeting, which has led to increased efficiency and effectiveness. However, while AI has optimized many aspects of advertising, its usage in creating emotional content has raised consumer apprehensions and discomfort. The research explored the impact of brand attitudes from a consumer perspective in AI-emotion-created ADS to address these challenges by focusing on programmatic advertising. Through a conceptual model grounded in advertising literature, the findings (n = 166) offered valuable insights for future applications of programmatic advertising. Results indicated that a strong alignment between the brand, the cause, and the advertisement (AD) (cause brand-fit) significantly enhanced consumer attitudes. Brand associations were found to influence consumer attitudes by establishing a favorable connection between the brand promoted in the scenario and the participants. Brand importance significantly influenced purchase intentions by indicating that brands perceived as valuable for consumers were more likely to drive sales even with AI-generated emotional content.

KEYWORDS

Advertising 1; Artificial Intelligence 2; Brand Attitudes 3; Brand Variables 4; Programmatic Advertising 5

Sustainable Development Goals (SDG):



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LIST OF ABBREVIATIONS AND ACRONYMS

AI	Artificial Intelligence
AD (S)	Advertisement (s)
CAGR	Compound Annual Growth Rate
CRM	Cause-Related Marketing
DMP	Data Management Platforms
DSP	Demand Side Platforms
RTB	Real-Time Bidding
CTR	Click-through Rate
DCO	Dynamic Creative Optimization
PAC	Programmatic Advertisement Creative
PCPs	Programmatic Creative Platforms
CMPs	Content Management Platforms

1. INTRODUCTION

In recent years, the technological innovations we have been witnessing, have completely changed the marketing and advertising landscape. The adoption of artificial intelligence (AI), a set of revolutionary machines capable of substituting human intelligence and underlining patterns through machine learning, made every step of the advertising process more efficient and autonomous (G. Chen et al., 2019; Ford et al., 2023).

By automating key tasks such as consumer insight research, media planning and buying (programmatic buying), and, AD design and copywriting (programmatic creative), AI can now create advertisements (ADS) either partially or completely (Qin & Jiang, 2019; Wu & Wen, 2021). Such examples are the cases of Tranquilidade Generali and Volkswagen Group where consumers were exposed to AI-created ADS. Programmatic advertising integrates programmatic creative and programmatic buying (G. Chen et al., 2019). For example, in the case of Tranquilidade, using JCDcaux Portugal's new convergence with outdoor advertising and the internet, they used Digital Programmatic Out-Of-Home (dPOOH) to create campaigns with greater added value and a high level of flexibility that allowed them to have greater control over audience segmentation and metrics that wasn't possible to track in traditional media (Maria João Lima, 2023; Marketeer, 2023). Similarly, Volkswagen used programmatic buying to rely on an algorithm to forecast AD spend decisions and bid to the right ADS based on sales data (Falak Preet Kaur, 2024; Seb Joseph, 2018).

The adoption of AI in advertising has not only increased the efficiency of advertising processes but has also driven significant financial growth. In 2024, the total market value in programmatic advertising surpassed \$12.15 Billions with projections foreseeing a market size expected to reach \$97.39 Billion by 2031, at an annual growth rate (CAGR) of 29.71% from 2024 to 2031 (Verified Market Research, 2024). This significant growth has also been reflected in the numerous types of research focusing on the role and applications of AI in advertising. Some explored how AI technologies can now effectively predict consumer personalities during contextual interactions by matching their personality traits and congruent advertisement (AD) (Shumanov et al., 2022). Others, how programmatic tools deliver personalized advertising content in a matter of seconds by reshaping completely the traditional advertising processes (Qin & Jiang, 2019).

However, determining the benefits of using programmatic tools in the process of content creation for advertising must be weighed against the potential outcomes of their use. Bakpayev et al. (2022) and Waytz & Norton (2014) discovered that consumers showed apprehensions and discomfort when AI was used in emotion-oriented tasks, preferring ADS created by humans, especially for emotional or hedonic appeals. Arango et al. (2023), in the context of non-profit organizations for AI charity ADS, also observed that the use of synthetic content (AI Avatars) could result in lower donation intentions when used inappropriately and create a barrier in the relationship of trust between consumers and brands. Theoretically, in

the future, AI could create ADS that are more objective and that inhibit these negative judgments connected to their emotional capabilities, while humans “perform emotional tasks that require feelings” (Bakpayev et al., 2022, p. 90) but the existing novelty in the field of consumer reactions to programmatic content offered a wealth of research possibilities (Arango et al., 2023; Bakpayev et al., 2022; G. Chen et al., 2019; Rodgers, 2021; Wu & Wen, 2021).

One of the research possibilities for future investigations indicated by Wu & Wen (2021) and G. Chen et al. (2019) was the impact of brand attitudes in shaping consumer attitudes and purchase intentions in AI-generated ADS. Brand attitudes were already tested in the context of traditional advertising where authors observed a positive influence on consumer attitudes toward advertisements (ADS) (Jublee et al., 2023; Z. Li & Zhang, 2023). But it wasn't tested in the context of programmatic advertising where AI influences the advertising content-creation process (Bakpayev et al., 2022; G. Chen et al., 2019; Wu & Wen, 2021). Jublee et al. (2023), significantly focused on CRM campaigns and indicated that, for future research, other types of advertising should be studied, as well as purchase intentions when brand attitudes are involved. Recognizing this gap left by previous authors, evaluating the consumer responses to AI-generated ADS in the presence of positive brand attitudes emerged as a significant field that required exploration for future applications of programmatic advertising in organizations.

Accordingly, this study aimed to assess how brand attitudes could counter consumer apprehensions to AI-emotion-created advertisements (ADS) as well as influence their purchase intentions. The study developed a conceptual model embedded in the current advertising literature on the role of brand attitudes in advertising effectiveness and adopted a quantitative approach using Qualtrics to evaluate the potential effect on consumer attitudes and purchase intentions in an AI advertising scenario. The results contributed to the current literature by revealing the importance of brand variables in achieving a higher level of advertising effectiveness. Cause brand-fit demonstrated that influence by illustrating how the base of a good fit could counter the negative attitudes tied to AI-created emotional ADS. Moreover, the research revealed how positive brand associations within the consumer's memory could enhance brand trust and increase the effectiveness of AI-created emotional ADS. Lastly, we displayed how brand importance could enhance purchase intentions by highlighting that brands with significant value for consumers and a correctly aligned brand identity, positively increased their purchase intentions.

The research proceeded as follows: In the second section, we discussed the theoretical literature, hypothesis, and conceptual model. The methodology formed by the survey design, measurement, survey respondents, measurement model, and path analysis followed in section 3. Later, we discussed the results in section 4. Lastly, we discussed the study's theoretical contributions, practical implications, limitations, and future research in section 5.

2. LITERATURE REVIEW

2.1. PROGRAMMATIC ADVERTISING

Artificial intelligence (AI) encompasses a set of sophisticated technologies capable of learning and deriving insights from extensive datasets. It can be defined as “consumer-centered, data-driven, and algorithm-mediated brand communication” (H. Li, 2019, p.333) that simulates human intelligence and has the ability to learn and evolve, providing additional value in the advertising process (Ford et al., 2023).

The versatility of AI applications appears endless, and its rapid growth has led to several studies in the field of marketing. To understand how the different applications of AI increase efficiency and effectiveness in their operations (Kietzmann et al., 2018), most researchers delved into AI’s general applications (Baek, 2023; Ford et al., 2023), and explored its deployment in specific contexts (Arango et al., 2023), services (Huang & Rust, 2021; Yang et al., 2022), consumer behavior predictions (Shumanov et al., 2022), programmatic buying, programmatic creative and AD impact (G. Chen et al., 2019; Qin & Jiang, 2019).

Qin and Jiang (2019), from observations in the Chinese e-commerce market, analyzed how programmatic buying automated the AD placement while programmatic creative automated the AD creation process. From the buying side, publishers used DMP (Data Management Platforms) to segment consumer profiles by their search activity and user attributes from large data sets. Then, using DSP (Demand Side Platforms), each impression is carefully evaluated to strategically bid in real-time (RTB) to the right audiences in milliseconds and, generate revenue for advertisers by predicting the CTR (Click Through Rate) of each impression (G. Chen et al., 2019).

For the content-creation process, dynamic creative optimization (DCO) and programmatic advertisement creation (PAC) are the two components of programmatic creative platforms (PCPs). DCO automatically creates multiple AD combinations for different target audiences. Then advertisers see which performed better. By automating this process through algorithms capable of analyzing real-time performance, DCO and PAC increase the effectiveness of AI-generated designs. The objective is that content management platforms (CMPs) aggregate all the creative elements to allow PCP to produce user and content-specific advertisements (ADS) (G. Chen et al., 2019). For example, Air Asia, using programmatic creative techniques, created a campaign to frequent AirAsia customers where each segment received a distinct AD with specific designs that were automatically adjusted according to their attributes (Tahoora Palla, 2022).

Programmatic advertising is an integral component of the daily operations of advertisers, whether on Google's advertising platforms, Meta, affiliates, or others that use programmatic to leverage AD automation and efficiency (Ford et al., 2023). Despite its pervasive presence, there is a notable absence of studies exploring the specific elements that

stimulate varied consumer reactions to the integration of AI in the content creation process (programmatic advertising). G. Chen et al. (2019) recognized that it is still premature to think of replacing design teams completely and that many gaps remain unanswered. So, we argue the factors that must be taken into consideration for future applications in programmatic advertising.

2.2. AI EMOTION-CREATED ADVERTISEMENTS APPREHENSIONS

Artificial intelligence (AI) plays a pervasive role throughout the programmatic advertising process, covering from initial data analysis to the final delivery of advertisements (ADS). However, consumer apprehensions arise particularly when artificial intelligence (AI) is applied to tasks centered on emotions, as opposed to those focused on cognition (Wu & Wen, 2021). Waytz & Norton (2014) extensively explored this concern within the context of services, underlining that in cases where a service is predominantly standardized and repetitive, its execution is more effectively managed by mechanical AI. Contrarily, services requiring emotional understanding and experience are better suited for human intelligence, either exclusively or in pair with AI.

The prevailing sense of concern among consumers is embedded in the perception that artificial intelligence (AI) is short in its capacity to comprehend and experience emotional sentiments. While AI stands out for its effectiveness in objective tasks, particularly within the field of data analysis, is perceived as less proficient in subjective analyses that require the ability to make judgments and interpretations based on emotions and feelings (Wu & Wen, 2021).

In the research conducted by Bakpayev et al. (2022) which explored the varied applications of programmatic creativity in the context of hedonic and utilitarian products, the research revealed a substantial influence on consumers' attitudes and purchase intentions when exposed to AI-generated ADS incorporating emotional content, particularly in the case of hedonic products. Contrarily, for utilitarian products, where emotional considerations play a less prominent role, consumers exhibited a higher level of acceptance and comfort with the incorporation of AI in the content creation process.

The influence of emotions on consumers' perceptions of ADS created by AI poses a significant challenge to establishing trust-based relationships between consumers in both non-profit and for-profit organizations (Arango et al., 2023). For non-profit organizations, the synthetic manipulation of images can increase the perception of manipulations among consumers, leading to less empathy and lower donation intentions (Arango et al., 2023). In the case of for-profit organizations (e-commerce), the use of AI for hedonic products has been associated with negative evaluations, resulting in a decrease in purchase intentions (Bakpayev et al., 2022).

However, a key factor responsible for establishing an emotional connection between an AD and the consumer lies in the linkage between the brand and the advertisement (AD)

(Keller & Richey, 2006). Research has indicated that “brand-related user-generated content” substantially heightens emotional responses (Liu-Thompkins et al., 2020, p.399). Therefore, it is imperative to investigate how bringing the gap between programmatic advertising and brand-generated content can serve as a viable solution to counter the negative attitudes in consumers’ minds toward AI-emotion-created advertisements (ADS).

2.3. BRAND-GENERATED CONTENT AND BRAND ATTITUDES

With the increase in the amount of online advertising, advertisers are taking advantage of using more and more consumer data to achieve deeper personalization and targeting of ADS (Boerman et al., 2017). Generic ADS are becoming less effective, and the increased personalization of ADS is proving to be a differentiating factor in the way consumers perceive and interact with an AD (Bleier & Eisenbeiss, 2015; Kononova et al., 2020).

By AD personalization, we can understand how it reflects a person's interests and preferences. At a higher level of AD personalization, this data can include the way a person has browsed website pages, revealing their main interests (Bleier & Eisenbeiss, 2015). However, because AD personalization is based only on consumer data (demographics, psychographics, and online behavior indicators) authors have questioned the role of brand data as input in optimizing content and AD attitudes (Yun et al., 2020).

Van Noort et al. (2020) argue this effect by introducing the concept of automated brand-generated content (ABC Model). The model involved achieving a balance between the use of consumer data and brand data to generate personalized messages for the target audience according to their consumer journey, giving greater preponderance to brand data in the initial journeys. While consumer data refers to attributes of consumers, brand data focuses on the inherent values and identities attributed to the brand in the minds of consumers (brand equity). The synergy of these two data types holds the potential to achieve a higher level of optimization and brand trust.

The values that a brand embodies in the minds of consumers are linked to the brand associations that are transmitted to them (Keller Lane Kevin, 2013). The degradation of these associations represents a threat to brand equity (Keller, 2003), with the potential to erode trust in the brand (van Noort et al., 2020). Conversely, a cohesive association between the brand and the consumer in advertisements (ADS) is expected to promote a positive perception of consumer attitudes.

The challenge lies in tailoring the right messages to the right audiences while balancing the pursuit of a cohesive brand representation across several consumer segments and journeys (van Noort et al., 2020). Jublee et al. (2023), in the context of cause-related marketing (CRM), discovered that enhancing a cohesive brand representation involves the continual improvement of the brand identity, its experience, and its knowledge. By ensuring a strong alignment between the causes the brand supports and its core values, consumers affected by the advertisements (ADS) are inclined to have a higher level of trust in the brand. This

strengthened connection is promoted through the associations they identify and the causes the brand supports. As a result, this alignment exerts a positive influence on consumer attitudes toward advertisements (ADS).

The examination of how brands exert a positive influence on consumer attitudes toward advertisements (ADS) remains relatively unexplored when considered in conjunction with programmatic advertising (G. Chen et al., 2019; Wu & Wen, 2021). Van Noort et al. (2020), underline the necessity of studying the influence of brand elements, particularly the consistency of brand identity. Similarly, Jublee et al. (2023) highlighted the positive impact of brand associations, their importance, and the cause it represents in the context of cause-related marketing (CRM). But neither took programmatic advertising in the process of emotion-created advertisements (ADS).

Despite overall negative perceptions among consumers when AI is involved in the content creation for emotional ADS, we theorize that the robustness of the bond between the brand and the consumer possesses the potential to supersede the negative associations tied to AI-generated ADS featuring emotional content. As a result, the presence of positive brand attitudes emerged as a potential factor capable of fundamentally altering the landscape of AI content creation in advertising.

Before building the hypothesis, it is imperative to comprehend the concept of the brand variables that positively influenced the research conducted by Jublee et al. (2023) in their advertising context. This understanding is crucial for discerning how these brand variables that demonstrated an impact on attitudes toward advertising in their study, can similarly play a constructive role in promoting a positive perception in consumer attitudes toward programmatic emotional advertisements (ADS).

2.3.1. BRAND ASSOCIATIONS

The concept of association or identification can be defined as the link that establishes a connection between a brand and its members (S. C. Chen & Lin, 2019). These connections encompass a volunteer cognitive process choice, in which a series of unique, strong, and favorable associations are formed to establish bonds within the consumer's memory and fortify brand trust and identity (Bhattacharya & Sen, 2003; Dutton et al., 1994; Keller, 2001; Lam et al., 2012).

From a programmatic advertising perspective, how consumers establish this cognitive bond is linked to the associations that brands communicate and the inherent value it has for them (Dutton et al., 1994; Keller Lane Kevin, 2013; Lam et al., 2012). The establishment of these associations, in turn, can act as decisive factors when consumers are exposed to ADS, by positively or negatively affecting their attitudes toward this type of advertisement (AD) (Dutton et al., 1994; Lam et al., 2012; Z. Li & Zhang, 2023; van Noort et al., 2020).

H1: Brand associations (a) positively influences consumer attitudes and (b) purchase intentions toward programmatic emotional advertisements;

2.3.2. BRAND IMPORTANCE

Research findings highlighted that a consumer's perceived importance of a brand contributes positively to their attitudes toward advertisements (ADS), emphasizing the significance of not only conveying products and services but also reinforcing brand equity (Jublee et al., 2023; Keller & Richey, 2006).

Two key factors that determine the way brands are perceived as important for consumers are the level of alignment with brand identity and the value it represents for them. To build this value, brands at the early stages of communication must align their identity with consumers and create the right meaning for them (S. C. Chen & Lin, 2019; van Noort et al., 2020). Achieving this alignment successfully will increase the chances of consumers perceiving the brand and its products as relevant to their needs and the likelihood of establishing a lasting and trusting relationship (Keller, 2001; Keller & Richey, 2006; van Noort et al., 2020).

From the perspective of programmatic advertising, this underscores that brands with a consumer base that is more aligned with the identity they represent may be more likely to purchase a product from that specific brand. However, achieving this requires brands to carefully manage their associations to fortify their value in consumers' minds (Keller, 2001; van Noort et al., 2020).

H2: Higher perceived brand importance (a) positively influences consumer attitudes and (b) purchase intentions toward programmatic emotional advertisements;

2.3.3. CAUSE BRAND-FIT

Within the framework where social identities shape the importance consumers allocate to a brand, the alignment between a brand's identity and a cause are similarly influenced (Jublee et al., 2023). This fit typically happens when consumers perceive that there exists a degree of similarity between the brand, the cause, and the advertisement (AD), primarily when this is aligned with their attitudes (D.R. Edmondson & B.A. Lafferty, 2007; Lafferty et al., 2004).

From a programmatic advertising perspective as well, the fit between the brand and the cause could significantly influence consumer reactions to the use of programmatic advertising (D.R. Edmondson & B.A. Lafferty, 2007; Lafferty, 2007). An inconsistent fit will lead to negative associations and reactions, while a perfect fit positively affects attitudes toward an AD (Lafferty, 2007). However, before launching a campaign into the air, the base of a good fit requires a comprehensive understanding of the "brand's core" and social "mission and objectives" (Jublee et al., 2023, p.11). A poor alignment will potentially cause a negative fit and damage the brand's reputation and credibility.

H3: A strong alignment between the brand, the cause, and the advertisement (a) positively influences consumer attitudes and (b) purchase intentions toward programmatic emotional advertisements;

2.4. CONCEPTUAL MODEL

To summarize the proposed hypothesis in Table 1, a conceptual model was developed to illustrate the relationship between the independent variables (brand variables) and the dependent variables (consumer attitudes and purchase intentions).

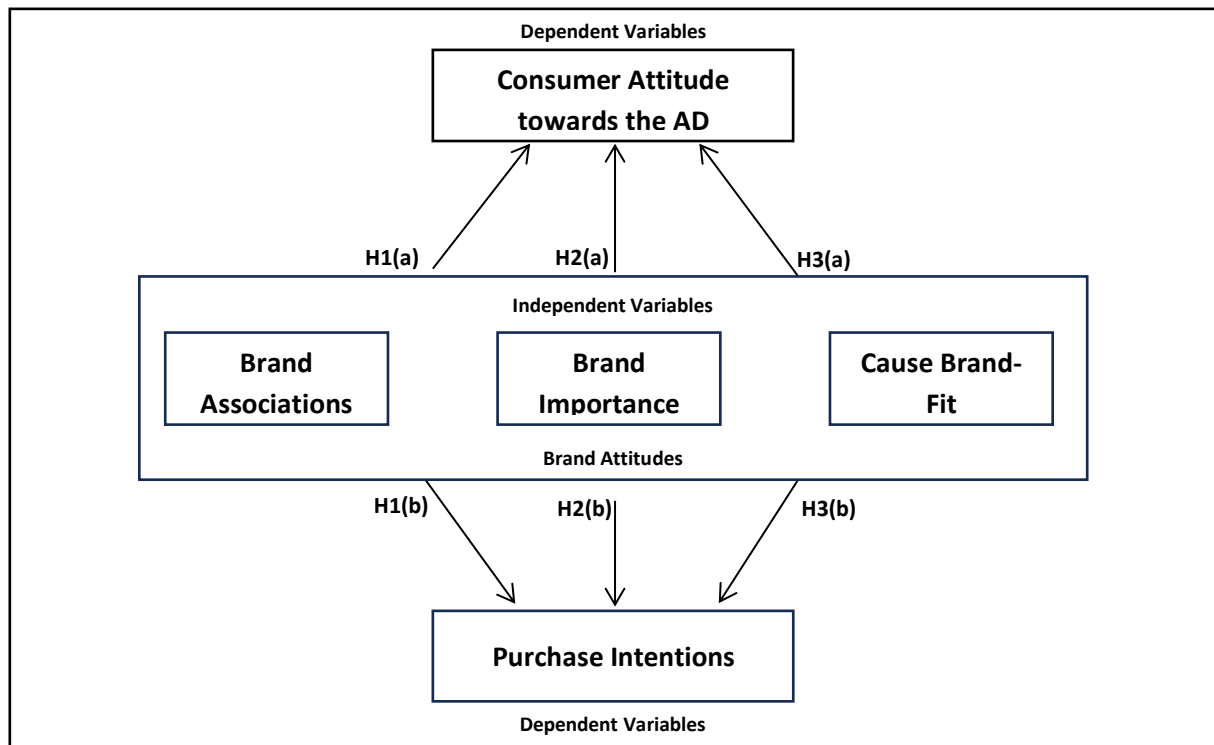


Figure 1 – Conceptual Model.

Table 1 – Hypothesis.

Hypothesis
H1 - Brand associations (a) positively influences consumer attitudes and (b) purchase intentions toward programmatic emotional advertisements;
H2 - Higher perceived brand importance (a) positively influences consumer attitudes and (b) purchase intentions toward programmatic emotional advertisements;
H3 - A strong alignment between the brand, the cause, and the advertisement (a) positively influences consumer attitudes and (b) purchase intentions toward programmatic emotional advertisements;

3. METHODOLOGY

3.1. SURVEY DESIGN

To validate the conceptual model under investigation, a quantitative approach was performed using an online survey through Qualtrics (see [Appendix B – Survey](#) for a detailed view of the survey structure). Participants were initially presented with a comprehensive introduction outlining the study's objectives where they were requested to fill out a consent form. A note was later provided, explicitly stating the usage of artificial intelligence (AI) in the creation of the advertisement (AD) before participants were exposed to the scenario. This inclusion was deemed essential, as concerns regarding AI-generated ADS featuring emotional content, were found to be more pronounced when consumers were informed or conscious of its usage.

Following the AI awareness note, participants were exposed to an emotional video advertisement (AD) from a well-known brand (Apple) showcasing a product (Apple Watch Series 7). After viewing it, they were then directed to the survey where all variables in the conceptual model were systematically tested, beginning with the independent variables, and progressing to an examination of the dependent variables.

Later, to ensure awareness of the scenario, two attention checks were implemented. First, they were asked whether it was generated by AI or not and then, about their perception of the advertisement (AD) being emotional or rational. Incorrect responses were eliminated from the database to maintain the integrity of the gathered data. Demographic information was then collected at the end of the survey.

3.2. MEASUREMENT

All the items used for the construction of the measurement model were derived from reliable and valid data sources with established credibility. [Table 2](#) illustrates the association of all items with their respective source measures. Brand importance and brand associations were measured using three items each from Jublee et al. (2023) and presented on a 7-point Likert Scale. Cause brand-fit was measured using 3 items from Lafferty et al. (2004) and presented on 7-point bipolar scale. Consumer attitudes were measured using 4 items from Mitchell & Olson (1981) and presented on 7-point bipolar scale. Purchase intentions were measured using 1 item from Mitchell & Olson (1981) and presented on 7-point bipolar scale. The adopted measures then underwent to a validation process with live feedback obtained from 10 participants, to ensure clarity and minimize potential confusion during the survey. A final simulated pilot was then conducted with 20 participants to ensure the questionnaire's reliability.

Table 2 – Measures and Sources.

S. Number	Construct/Items adapted	Source
1.	BI BI1 BI2 BI3	Brand Importance I tend to give more importance to Apple Brand products. The Apple brand products mean a lot to me. The Apple brand products are very relevant and significant.
2.	BA BA1 BA2 BA3	Brand Associations I am aware of Apple brand products. I can recognize Apple brand products. I can identify some characteristics of Apple brand products.
3.	CBF CBF1 CBF2 CBF3	Cause Brand-Fit Not consistent-Consistent Not Complementary-Complementary Does Not Make Sense-Makes Sense
4.	AD_ATT AD_ATT1 AD_ATT2 AD_ATT3 AD_ATT4	Consumer Attitudes Toward Advertisement Bad-Good Dislike-Like Irritating-Not Irritating Uninteresting-Interesting
5.	PI PI1	Attitude Toward the Act of Purchasing Not at All likely to buy – Very Likely to Buy

3.3. SURVEY RESPONDENTS

For data collection, a random sample of 177 participants was obtained through Qualtrics. After undergoing the attention check validation, the final sample yielded in 166 valid responses. The sample included 54.82% women and 45.18% men, with an average age of 35 years (see detailed information in [Table 3](#)).

Table 3 – Demographic Information.

Demographic	Frequency	%
Gender		
Male	75	45,18
Female	91	54,82
Age		
18-25	59	35,54
26-35	60	36,14
36-45	4	2,41
46-55	14	8,43
56-64	27	16,27
> 65	2	1,20
Income		
Less than 1 000€	16	9,64
1 000€ to 2 500€	101	60,84
2 500€ to 5 000€	41	24,70
5 000€ to 7 000€	6	3,61
7 000€ to 9 000€	1	0,60
More than 9 000€	1	0,60
Education Level		
Less than high School	0	0
High School	9	5,42
Professional Degree	2	1,20
Bachelor's Degree	59	35,54
Postgraduate Degree	19	11,45
Master's	75	45,18
Doctorate	2	1,20
Total	166	100

3.4. MEASUREMENT MODEL

To validate the measurement model, a comprehensive series of analyses was carried out focusing on assessing the reliability, construct validity, and discriminant validity of all measures, using SmartPLS software.

Reliability and construct validity were assessed using composite reliability (CR), average variance extracted (AVE) values and loadings. The CR scores, which ranged from 0.832 to 0.919 (as shown in Table 4), were higher than 0.7, indicating satisfactory reliability. Similarly, the AVE scores, ranging between 0.790 and 0.890 (diagonal values in bold in Table 4), exceeded 0.5, demonstrating adequate construct validity. The loadings were above 0.5 (see Table 5), which further supported the construct validity and reliability.

Table 4 – Correlations, Compose Reliability (CR), Average Variance Extracted (AVE).

Constructs	Mean	SD	CR	AD_ATT	BA	BI	CBF
Attitudes Toward AD (AD_ATT)	6.29	0.81	0.877	0.802			
Brand Associations (BA)	6.32	0.87	0.907	0.347	0.875		
Brand Importance (BI)	5.56	1.16	0.919	0.299	0.457	0.890	
Cause Brand-Fit (CBF)	6.21	0.76	0.832	0.540	0.261	0.385	0.790

Numeric values in Bold are the AVE square root;
SD = Standard Deviation;

Table 5 – Loadings & Cross Loadings – Latent Variables.

Constructs	Item	AD_ATT	BA	BI	CBF
Attitudes Toward AD (AD_ATT)	AD_ATT_1	0.844	0.257	0.264	0.484
	AD_ATT_2	0.876	0.255	0.258	0.519
	AD_ATT_3	0.638	0.257	0.196	0.299
	AD_ATT_4	0.830	0.360	0.236	0.398
Brand Associations (BA)	BA_1	0.287	0.884	0.463	0.174
	BA_2	0.285	0.852	0.348	0.249
	BA_3	0.339	0.889	0.368	0.278
Brand Importance (BI)	BI_1	0.266	0.382	0.868	0.332
	BI_2	0.242	0.349	0.919	0.331
	BI_3	0.291	0.490	0.882	0.365
Cause Brand-Fit (CBF)	CBF_1	0.457	0.136	0.316	0.838
	CBF_2	0.327	0.302	0.276	0.708
	CBF_3	0.474	0.218	0.318	0.816

Discriminant validity was then confirmed by calculating the square root of the AVE for each construct and comparing it with corresponding correlations. They were found to be higher, meeting the Fornell and Larcker criterion (bold values in Table 4 compared to non-bold). The loadings were also greater than their cross-loadings (bold values in Table 5 compared to non-bold) and the heterotrait-monotrait ratio (HTMT) values lower than 0.9 (Table 6).

Ultimately, a collinearity statistics (VIF) test was calculated, indicating a favorable fit for the current data, with values for all items ranging between 1 and 3 (Table 7).

Table 6 – Heterotrait-Monotrait Ratio (HTMT).

Constructs	AD_ATT	BA	BI	CBF	PI
Attitudes Toward AD (AD_ATT)					
Brand Associations (BA)	0.423				
Brand Importance (BI)	0.355	0.523			
Cause Brand-Fit (CBF)	0.691	0.366	0.492		
Purchase Intentions (PI)	0.378	0.324	0.541	0.395	

Table 7 – Collinearity Statistics (VIF).

Constructs	Item	VIF
Attitudes Toward AD (AD_ATT)	AD_ATT_1	2.285
	AD_ATT_2	2.672
	AD_ATT_3	1.507
	AD_ATT_4	2.095
Brand Associations (BA)	BA_1	1.862
	BA_2	2.184
	BA_3	2.286
Brand Importance (BI)	BI_1	2.049
	BI_2	2.280
	BI_3	2.321
Cause Brand-Fit (CBF)	CBF_1	1.472
	CBF_2	1.323
	CBF_3	1.355

3.5. PATH ANALYSIS

Following the validation of the measurement model, a path analysis was conducted to assess the proposed hypotheses outlined in the literature review. The analysis indicated a statistical impact of brand associations on consumer attitudes towards the advertisement (AD) ($p=0.010$) but did not show an effect on purchase intentions ($p=0.183$), thus **confirming H1(a)** but **not H1(b)**. Brand importance didn't show an effect on consumer attitudes ($p=0.978$) but demonstrated a statistically significant influence on purchase intentions ($p=0.000$), thus **failing to support H2(a)** but **supporting H2(b)**. Cause brand-fit exerted a statistically significant influence on consumer attitudes ($p=0.000$) but didn't affect purchase intentions ($p=0.185$), thus **confirming H3(a)** but **not H3(b)**.

Furthermore, an examination was conducted to evaluate the influence of demographic variables on the dependent ones. The findings revealed one statistically significant association between age and purchase intentions ($p=0.019$), indicating that younger respondents were more inclined to purchase the advertised product compared to older respondents.

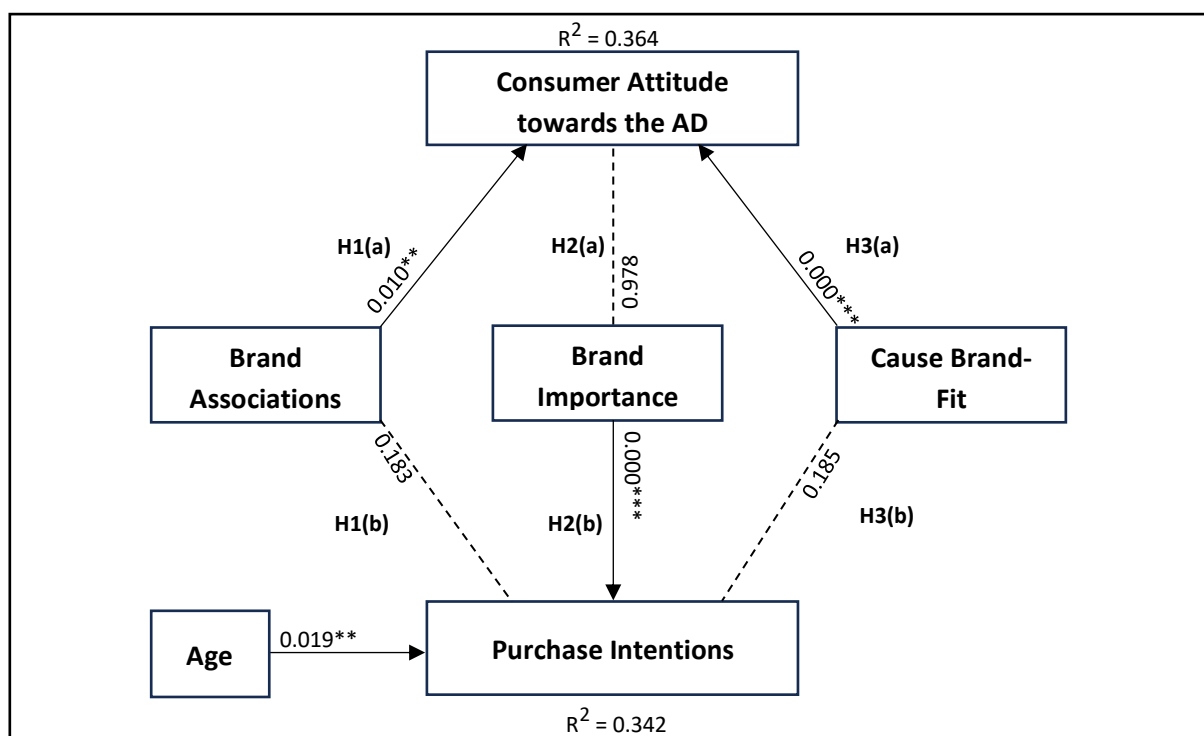


Figure 2 – Conceptual Model with Path Coefficients.

Notes: *** $p<0.001$; ** $p<0.01$; * $p<0.05$; Dashed arrows represent not supported hypothesis; Continuous arrows represent the supported hypothesis.

H1 – Brand associations (a) positively influences consumer attitudes and (b) purchase intentions toward programmatic emotion advertisements;

H2 – Higher perceived brand importance (a) positively influences consumer attitudes and (b) purchase intentions toward programmatic emotion advertisements;

H3 – A strong alignment between the brand, the cause, and the advertisement (a) positively influences consumer attitudes and (b) purchase intentions toward programmatic emotion advertisements;

4. DISCUSSION

This research delved deeply into exploring the strength of the connection between the brand and its consumers, providing a detailed analysis for future applications of programmatic advertising. By understanding how brand variables could shape positive consumer attitudes towards programmatic emotional advertisements (ADS), we gained valuable insights into how they could effectively counter the negative connotations associated with AI-emotion-created ADS.

The findings highlighted that the alignment between the brand, the cause, and the advertisement (AD) (known as cause brand-fit), played the most significant role in shaping positive consumer attitudes. Not only does this align with previous studies that investigated the role of cause brand-fit in advertising effectiveness (Becker-Olsen & Hill, 2006; Jublee et al., 2023; Lafferty, 2007; Lafferty et al., 2004) but illustrates how the base of a good fit in the advertisement (AD) can counter the negative attitudes tied to AI-emotion-created ADS.

Regarding brand associations, we concluded that establishing a coherent brand association between the consumer and the advertising positively influences consumer attitudes toward AI-emotion-created ADS. This aligns with previous research (Dutton et al., 1994; Jublee et al., 2023; Keller, 2001, 2003), underscoring that strong brand associations within the consumer's memory will promote trust in the ADS, therefore, increasing advertising effectiveness. However, it is important to note that brands must manage these associations carefully, as consumers may change their attitudes if they perceive that these associations are no longer in line with their values.

Moreover, the research observed that the strength of the connection between a brand and its consumers referred to as brand importance, had a significant impact on purchase intentions, aligning with previous research (S. C. Chen & Lin, 2019; Keller, 2001, 2003; van Noort et al., 2020). This indicates that brands are advised to emphasize a unified brand identity and cultivate a strong brand meaning to enhance their chances of establishing a durable relationship. This, in turn, will amplify its overall importance to consumers and positively influence purchasing intentions toward AI-emotion-created ADS.

Additionally, contrary to initial assumptions, we found no influence of brand associations and cause brand-fit on purchase intentions. Despite the alignment between a brand and the cause promoted in the advertisement (AD), this alignment does not translate into enhanced purchase intentions. It suggests that while consumers may associate a brand positively with a particular cause or theme within an AD, this fit alone will not influence their actual intentions of purchasing a product. Issues such as price or the type of product can influence the conclusions since even if a person considers an AD to be good or has positive associations with that brand, they may not be willing to pay the price or have the need to have that product unless they consider that product to be important to them.

Lastly, the study revealed that the perceived importance of a brand to a consumer didn't lead to more favorable attitudes toward AI-emotion-created ADS contrary to what was observed in Jublee et al. (2023) research in the case of CRM advertisements (ADS). Even if a consumer highly values a brand, this sentiment alone will not be significant enough to deviate from the negative attitudes tied to AI-emotion-created ADS.

5. CONCLUSIONS

The results of this research confirmed the study's objective by revealing the positive impact of brand attitudes in mitigating consumer apprehensions to AI-emotion-created advertisements (ADS) and second, influence purchase intentions. Through the insights gathered in this research, we discovered how cause brand-fit and brand associations were pivotal in fostering positive consumer attitudes and increasing advertising effectiveness. Moreover, we learned how these variables could enhance brand trust and mitigate the negative consumer apprehensions of AI-emotion-created advertisements (ADS). At last, we discovered the significant role of brand importance in positively impacting consumers' purchase intentions, therefore confirming the second research objective.

5.1. THEORETICAL CONTRIBUTION

One of the primary theoretical contributions of this study was to investigate the factors that could counter the negative associations and attitudes tied to AI-emotion-created advertisements (ADS). As the use of artificial intelligence (AI) in advertising processes becomes more prevalent among marketer professionals, the research focused on analyzing the drivers that could enhance consumers' attitudes and purchase intentions to AI-emotion-created advertisements (ADS). We took a unique approach by following the gap open by Wu & Wen (2021) on the impact of brand-related variables in AI advertising from a consumer perspective. Previous research has examined the role of these variables in other contexts and advertising. However, the work centered on the context of programmatic advertising, thereby adding new literature (G. Chen et al., 2019).

Second, the study extended the literature from Jublee et al. (2023) that revealed the significant impact of brand-related and cause-related variables in cause-related marketing (CRM) strategies, by extending to programmatic advertising. We demonstrated how brand-related variables that exhibit a substantial effect in their work, could similarly play a constructive role in programmatic emotional advertisements (ADS). The results revealed that cause-brand fit and brand associations could counter the negative attitudes tied to emotional ADS by showing a significant impact on consumer attitudes. As such, the findings opened a new gap for future research on the role of these variables in other types of advertising that use AI and are susceptible to the negative associations tied to emotional ADS.

Another contribution of this study was also to extend the research from Jublee et al. (2023) on the impact on purchase intentions. A gap that was indicated by the authors for future research. We found that brand importance significantly impacted consumer intentions to purchase the product indicating that consumers who value more a brand and who are successfully aligned with the brand identity, will be more willing to buy the product from that brand. This demonstrates the need to cultivate a true brand value with consumers to increase the chances of consumers perceiving the brand and its products as relevant to their needs.

Last, the research offered a theoretical understanding of automated brand-generated content (ABC Model) in programmatic advertising (van Noort et al., 2020) by showing the importance of brand data to achieve a higher level of optimization and brand trust. Drawing from the concepts of this model, the way consumers build a strong brand connection in their memories is intricately linked to the favorable, unique brand associations passed to them at the various stages of the consumer journey. At an early stage in the journey, it will be more important to build a strong brand identity and create an appropriate brand value to increase brand trust associations, while in a later stage, once a positive brand responds, it will be more important to cultivate and maintain a quality relationship to improve their overall brand importance. The findings that both brand-related variables positively influenced consumer attitudes and purchase intentions prove that it is possible to use programmatic for emotional ADS as long as the communication is personalized according to the various stages of the consumer journey and exists a balance between the use of consumer data and brand data, thereby adding new literature.

5.2. PRACTICAL IMPLICATIONS

In complement to the previous theoretical contributions, the results of this study allow us to provide some meaningful recommendations for future applications of programmatic advertising for emotional campaigns. The results underscored the strategic importance of aligning brands with relevant causes in programmatic emotional advertisements (ADS). The fit significantly influenced consumer attitudes toward AI-emotion-created ADS, mitigating the negative connotations tied to the use of AI for emotional advertisements (ADS). Marketers should conduct thorough market research to identify causes that resonate with target audiences and develop programmatic campaigns that showcase genuine alignment between brand values, causes, and the advertisement (AD).

Furthermore, the study emphasized the importance of establishing coherence and robust brand associations with consumers to enhance the effectiveness of programmatic advertising for emotional content. Marketers should implement consistent branding elements across all touchpoints of the ADS and use storytelling and emotional narratives in ADS to create memorable brand associations that engage with consumers.

The research findings also underscored that brands perceived as more important for consumers positively influence purchase intentions in AI-emotion-created ADS. This stresses that marketers should allocate additional resources toward consumer loyalty campaigns to foster and maintain trust-based relationships with customers. Maintaining such relationships reduces customer acquisition costs and enables marketers to concentrate on more conversion-centric campaigns targeted at these loyal consumers.

Lastly, we also recognized the significance of personalized communication strategies tailored to different consumer journey stages in programmatic emotional ADS. Marketers should utilize data analytics and AI-driven insights to understand consumer behaviors and

preferences at each stage. Through the implementation of personalized messaging and content across different phases, they can amplify brand relevance and foster stronger connections throughout the consumer journey.

5.3. LIMITATIONS AND FUTURE RESEARCH

The research of this study provided meaningful insights for future applications in programmatic advertising in emotional advertisements (ADS). However, as with any other study, it presents its limitations. First, the results were mostly based on a sample of 166 young respondents (71,68% between 18 and 35) from Portugal which limited the findings to different cultural and demographic environments to the advertising presented on the survey. Future research should consider testing different cultural and demographic groups as well as the size of the sample since the connection with brands could vary across different cultures and countries.

Moreover, the survey method of data collection only had one scenario from a well-known brand (Apple), which may have posed some limitations. Although it has proved that strong brand attitudes could significantly counter the negative attitudes tied to AI-created ADS, future studies could consider experimental studies between different brands, products, and stages of consumer journeys to see how the presence of different scenarios could affect consumer and brand attitudes. Also, other brand variables could be tested.

Additionally, although all the sources were taken from renowned journals with established credibility like the Journal of Marketing Research, purchase intentions were only tested with one item. SmartPLS is a software categorized by only using latent variables (variables measured with more than one item), meaning that for reliability, construct, and discriminant validity issues, we couldn't present the analysis. For robust validation purposes in future research, it is advisable to use variables containing more than one item. This will help mitigate validation issues, even when drawing from well-established literature.

Lastly, the study only focused on programmatic advertising for for-profit organizations. As AI becomes more prevalent in the advertising process, future research could focus on non-profit organizations and other types of advertising as AD variations using experimental studies or AD personalization based on consumer motivations.

BIBLIOGRAPHICAL REFERENCES

- Arango, L., Singaraju, S. P., & Niininen, O. (2023). Consumer Responses to AI-Generated Charitable Giving Ads. *Journal of Advertising*, 52, 486–503.
<https://doi.org/10.1080/00913367.2023.2183285>
- Baek, T. H. (2023). Digital Advertising in the Age of Generative AI. *Journal of Current Issues and Research in Advertising*, 44(3), 249–251.
<https://doi.org/10.1080/10641734.2023.2243496>
- Bakpayev, M., Baek, T. H., van Esch, P., & Yoon, S. (2022). Programmatic creative: AI can think but it cannot feel. *Australasian Marketing Journal*, 30(1), 90–95.
<https://doi.org/10.1016/j.ausmj.2020.04.002>
- Becker-Olsen, K. L., & Hill, R. P. (2006). The impact of sponsor fit on brand equity: The case of nonprofit service providers. *Journal of Service Research*, 9(1), 73–83.
<https://doi.org/10.1177/1094670506289532>
- Bhattacharya, C. B., & Sen, S. (2003). Consumer-Company Identification: A Framework for Understanding Consumers' Relationships with Companies. *Journal of Marketing*, 67, 76–88. <https://journals.sagepub.com/doi/10.1509/jmkg.67.2.76.18609>
- Bleier, A., & Eisenbeiss, M. (2015). The Importance of Trust for Personalized Online Advertising. *Journal of Retailing*, 91(3), 390–409.
<https://doi.org/10.1016/j.jretai.2015.04.001>
- Boerman, S. C., Kruikemeier, S., & Zuiderveen Borgesius, F. J. (2017). Online Behavioral Advertising: A Literature Review and Research Agenda. *Journal of Advertising*, 46(3), 363–376. <https://doi.org/10.1080/00913367.2017.1339368>
- Chen, G., Xie, P., Dong, J., & Wang, T. (2019). Understanding Programmatic Creative: The Role of AI. *Journal of Advertising*, 48(4), 347–355.
<https://doi.org/10.1080/00913367.2019.1654421>
- Chen, S. C., & Lin, C. P. (2019). Understanding the effect of social media marketing activities: The mediation of social identification, perceived value, and satisfaction. *Technological Forecasting and Social Change*, 140, 22–32.
<https://doi.org/10.1016/j.techfore.2018.11.025>
- D.R. Edmondson, & B.A. Lafferty. (2007). Cause Related Marketing: A Model of Consumer's Attitude toward the Cause-Brand Alliance. *Society for Marketing Advances*, 20–23.
<https://www.yumpu.com/en/document/read/6711269/advances-in-marketing-concepts-models-and-theories>

- Dutton, J. E., Dukerich, J. M., & Harquail, C. V. (1994). Organizational Images and Member Identification. In *Quarterly* (Vol. 39, Issue 2).
- Falak Preet Kaur. (2024, May 15). *10 Real-Life AI Marketing Examples and Use Cases*. Mailmodo. <https://www.mailmodo.com/guides/ai-in-marketing-examples/>
- Ford, J., Jain, V., Wadhvani, K., & Gupta, D. G. (2023). AI advertising: An overview and guidelines. *Journal of Business Research*, 166, 01–15. <https://doi.org/10.1016/j.jbusres.2023.114124>
- Huang, M. H., & Rust, R. T. (2021). Engaged to a Robot? The Role of AI in Service. *Journal of Service Research*, 24(1), 30–41. <https://doi.org/10.1177/1094670520902266>
- Jublee, D. I., Kasilingam, D., & Stephen, G. (2023). Investigating the impact of brand vs cause interaction on cause related advertisements. *Journal of Retailing and Consumer Services*, 75, 01–13. <https://doi.org/10.1016/j.jretconser.2023.103524>
- Keller, K. L. (2001). Building Customer-Based Brand Equity: A Blueprint for Creating Strong Brands. In *Marketing Science Institute*. http://thearf-org-unified-admin.s3.amazonaws.com/MSI/2020/06/MSI_Report_01-107.pdf
- Keller, K. L. (2003). Papers Understanding brands, branding and brand equity. *Interactive Marketing*, VOL.5 NO.1, 07–27. <https://link.springer.com/content/pdf/10.1057/palgrave.im.4340213.pdf>
- Keller, K. L., & Richey, K. (2006). The importance of corporate brand personality traits to a successful 21st century business. *Journal of Brand Management*, 14(1–2), 74–81. <https://doi.org/10.1057/palgrave.bm.2550055>
- Keller Lane Kevin. (2013). *Strategic Brand Management Building, Measuring, and Managing Brand Equity Global Edition*. <https://vulms.vu.edu.pk/Courses/MKT724/Downloads/Keller%20Strategic%20Brand%20Management.pdf>
- Kietzmann, J., Paschen, J., & Treen, E. (2018). Artificial intelligence in advertising: How marketers can leverage artificial intelligence along the consumer journey. In *Journal of Advertising Research* (Vol. 58, Issue 3, pp. 263–267). World Advertising Research Center. <https://doi.org/10.2501/JAR-2018-035>
- Kononova, A., Kim, W., Joo, E., & Lynch, K. (2020). Click, click, ad: the proportion of relevant (vs. irrelevant) ads matters when advertising within paginated online content. *International Journal of Advertising*, 39(7), 1031–1058. <https://doi.org/10.1080/02650487.2020.1732114>

- Lafferty, B. A. (2007). The relevance of fit in a cause–brand alliance when consumers evaluate corporate credibility. *Journal of Business Research*, 60(5), 447–453. <https://doi.org/10.1016/J.JBUSRES.2006.09.030>
- Lafferty, B. A., Goldsmith, R. E., & Hult, G. T. M. (2004). The impact of the alliance on the partners: A look at cause-brand alliances. *Psychology and Marketing*, 21(7), 509–531. <https://doi.org/10.1002/mar.20017>
- Lam, S. K., Ahearne, M., & Schillewaert, N. (2012). A multinational examination of the symbolic-instrumental framework of consumer-brand identification. *Journal of International Business Studies*, 43(3), 306–331. <https://doi.org/10.1057/jibs.2011.54>
- Li, H. (2019). Special Section Introduction: Artificial Intelligence and Advertising. *Journal of Advertising*, 48(4), 333–337. <https://doi.org/10.1080/00913367.2019.1654947>
- Li, Z., & Zhang, J. (2023). How to improve destination brand identification and loyalty using short-form videos? The role of emotional experience and self-congruity. *Journal of Destination Marketing and Management*, 30, 01–13. <https://doi.org/10.1016/j.jdmm.2023.100825>
- Liu-Thompkins, Y., Maslowska, E., Ren, Y., & Kim, H. (2020). Creating, Metavoicing, and Propagating: A Road Map for Understanding User Roles in Computational Advertising. *Journal of Advertising*, 49(4), 394–410. <https://doi.org/10.1080/00913367.2020.1795758>
- Maria João Lima. (2023, November 6). *Venda programática de Digital Out-Of-Home chega à JCDecaux Portugal*. MARKETEER. <https://marketeer.sapo.pt/venda-programatica-de-digital-out-of-home-chega-a-jcdecaux-portugal/>
- Marketeer. (2023, November 13). *1.ª campanha programática da JCDecaux já está no ar com publicidade Tranquilidade Generali*. MARKETEER. <https://marketeer.sapo.pt/1-a-campanha-programatica-da-jcdecaux-ja-esta-no-ar-com-publicidade-tranquilidade-general/>
- Mitchell, A. A., & Olson, J. C. (1981). Are Product Attribute Beliefs the Only Mediator of Advertising Effects on Brand Attitude? *Source: Journal of Marketing Research*, 18(3), 318–332.
- Qin, X., & Jiang, Z. (2019). The Impact of AI on the Advertising Process: The Chinese Experience. *Journal of Advertising*, 48(4), 338–346. <https://doi.org/10.1080/00913367.2019.1652122>
- Rodgers, S. (2021). Themed Issue Introduction: Promises and Perils of Artificial Intelligence and Advertising. In *Journal of Advertising* (Vol. 50, Issue 1, pp. 1–10). Routledge. <https://doi.org/10.1080/00913367.2020.1868233>

- Seb Joseph. (2018, January 8). *How Volkswagen is using artificial intelligence for ad buying decisions*. DIGIDAY. <https://digiday.com/media/volkswagen-using-artificial-intelligence-ad-buying-decisions/>
- Shumanov, M., Cooper, H., & Ewing, M. (2022). Using AI predicted personality to enhance advertising effectiveness. *European Journal of Marketing*, 56(6), 1590–1609. <https://doi.org/10.1108/EJM-12-2019-0941>
- Tahoora Palla. (2022, November 3). *Types of Programmatic Advertising & Best Examples to Gain Campaign Success*. Gumgum. <https://gumgum.com/blog/programmatic-advertising-examples>
- van Noort, G., Himelboim, I., Martin, J., & Collinger, T. (2020). Introducing a Model of Automated Brand-Generated Content in an Era of Computational Advertising. *Journal of Advertising*, 49(4), 411–427. <https://doi.org/10.1080/00913367.2020.1795954>
- Verified Market Research. (2024, June). *Global Programmatic Advertising Platform Market Size By Type (Desktop Display, Desktop Video), By Application (Governance, Commercial), By Geographic Scope And Forecast*. Verified Market Research. <https://www.verifiedmarketresearch.com/product/programmatic-advertising-platform-market/>
- Waytz, A., & Norton, M. I. (2014). Botsourcing and outsourcing: Robot, british, chinese, and german workers are for thinking-not feeling-jobs. *Emotion*, 14(2), 434–444. <https://doi.org/10.1037/a0036054>
- Wu, L., & Wen, T. J. (2021). Understanding ai advertising from the consumer perspective what factors determine consumer appreciation of ai-created advertisements? *Journal of Advertising Research*, 61(2), 133–146. <https://doi.org/10.2501/JAR-2021-004>
- Yang, Y., Liu, Y., Lv, X., Ai, J., & Li, Y. (2022). Anthropomorphism and customers' willingness to use artificial intelligence service agents. *Journal of Hospitality Marketing and Management*, 31(1), 1–23. <https://doi.org/10.1080/19368623.2021.1926037>
- Yun, J. T., Segijn, C. M., Pearson, S., Malthouse, E. C., Konstan, J. A., & Shankar, V. (2020). Challenges and Future Directions of Computational Advertising Measurement Systems. *Journal of Advertising*, 49(4), 446–458. <https://doi.org/10.1080/00913367.2020.1795757>

APPENDIX A - ETHICS COMMITTEE REPORT



This is to certify that

Project No.: **DDMKT2024-6-192713**

Project Title: **AI Applications in Advertising from a Consumer Perspective: Study on the effect of Brand Attitudes in Programmatic Advertising**

Principal Researcher: **Francisco Silva**

according to the regulations of the Ethics Committee of NOVA IMS and MagIC Research Center this project was considered to meet the requirements of the NOVA IMS Internal Review Board, being considered **APPROVED** on 6/19/2024.

It is the Principal Researcher's responsibility to ensure that all researchers and stakeholders associated with this project are aware of the conditions of approval and which documents have been approved.

The Principal Researcher is required to notify the Ethics Committee, via amendment or progress report, of

- Any significant change to the project and the reason for that change;
- Any unforeseen events or unexpected developments that merit notification;
- The inability of the Principal Researcher to continue in that role or any other change in research personnel involved in the project.

Lisbon, 6/19/2024

NOVA IMS Ethics Committee
ethicscommittee@novaims.unl.pt

APPENDIX B - SURVEY

Start of Block: Study on the effect of brand attitudes in AI-created Ads

Introduction:

Dear Participant,

Welcome to my investigation into the impact of brand variables on programmatic advertising. This short questionnaire will take 5 minutes. During this study, you will be exposed to **an emotional advertisement created entirely by artificial intelligence**. There are no right or wrong answers and there is no risk involved in the questions that follow. However, your responses will contribute with valuable information that will advance our understanding for future applications.

Before you accept, we would like to remind you that:

- Your participation is voluntary;
- The responses are anonymous;
- You can leave at any time.

☐ Yes, I agree to participate (1)

☐ No, I do not agree to participate (2)

Skip To: End of Survey If Introduction: Dear Participant, Welcome to my investigation into the impact of brand variables on... = No, I do not agree to participate

Page Break

Key Topics to take in mind:

In the following scenario, you will encounter an **emotional advertisement, created entirely through the application of Artificial Intelligence** using programmatic creativity. For your concern, programmatic creativity enables the automation of various advertising design

processes, saving time for designers and automatically optimizing various ad combinations for diverse target audiences.

Page Break

Scenario:

Imagine that the following advertisement **was designed by Artificial Intelligence**. Throughout the process, the concept of the video was based on showcasing real-life emergency calls made from a watch. From its creation to its implementation, the video was based on 100% real-life data that an **Artificial Intelligence agent** had access for the advertisement construction.

Based on this data, the artificial intelligence agent then developed the entire structure and design of the video you'll see below:

Page Break

Did you manage to watch the video?

☐ yes (1)

☐ no (2)

Skip To: End of Survey If Did you manage to watch the video? = no

Page Break

Brand Importance Please indicate the extent to which you agree with the following statements:

	1. Strongly Disagree (1)	2. (2)	3. (3)	4. (4)	5. (5)	6. (6)	7. Strongly Agree (7)
I tend to give more importance to Apple brand products. (1)	☐	☐	☐	☐	☐	☐	☐
The Apple brand products mean a lot to me. (2)	☐	☐	☐	☐	☐	☐	☐
The Apple brand products are very relevant and significant . (3)	☐	☐	☐	☐	☐	☐	☐

Brand Associations Please indicate the extent to which you agree with the following statements:

	1. Strongly Disagree (1)	2. (2)	3. (3)	4. (4)	5. (5)	6. (6)	7. Strongly Agree (7)
I am aware of Apple brand products. (1)	☐	☐	☐	☐	☐	☐	☐
I can recognize Apple brand products. (2)	☐	☐	☐	☐	☐	☐	☐
I can identify some characteristics of Apple brand products. (3)	☐	☐	☐	☐	☐	☐	☐

Cause Brand Fit Please indicate how you evaluate the relation between the brand and the cause supported in the advertisement:

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Not Consistent	☐	☐	☐	☐	☐	☐	☐	Consistent
Not Complementary	☐	☐	☐	☐	☐	☐	☐	Complementary
Does Not Make Sense	☐	☐	☐	☐	☐	☐	☐	Makes Sense

Page Break

Attitude toward AD Please indicate how do you evaluate the previous Advertisement:

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Bad	☐	☐	☐	☐	☐	☐	☐	Good
Dislike	☐	☐	☐	☐	☐	☐	☐	Like
Irritating	☐	☐	☐	☐	☐	☐	☐	<u>Not</u> - Irritating
Uninteresting	☐	☐	☐	☐	☐	☐	☐	Interesting

Purchase Intentions Please indicate how likely are you to buy this product:

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
Not at All likely to buy	☐	☐	☐	☐	☐	☐	☐	Very Likely to Buy

Manipulation Check 1 **Based on the written introduction that was made before the advertisement**, it was clear that the advertisement was made by **Artificial Intelligence**?

☐ Yes (1)

☐ No (2)

Manipulation Check 2 Did you consider the advertising you observed earlier to be **emotional** or **rational**?

☐ Emotional (1)

☐ Rational (2)

Apple Satisfaction What is your connection to Apple products?

	1	2	3	4	5	6	7	
	1 (1)	2 (2)	3 (3)	4 (4)	5 (5)	6 (6)	7 (7)	
I don't like it at all	☐	☐	☐	☐	☐	☐	☐	I really like it

Page Break

Gender Please indicate your Gender:

- ☐ Male (1)
 - ☐ Female (2)
 - ☐ Non-binary / third gender (3)
 - ☐ Prefer not to say (4)
-

Age Please indicate your **Age (numeric values only)**:

Income Please indicate you **Income**:

- ☐ Less than 1 000€ (1)
 - ☐ 1 000€ to 2 500€ (2)
 - ☐ 2 500€ to 5 000€ (3)
 - ☐ 5 000€ to 7 000€ (4)
 - ☐ 7 000€ to 9 000€ (5)
 - ☐ More than 9 000€ (6)
-

Education Level Please indicate your **Educational level:**

- ☐ Less than High School (1)
- ☐ High School (8)
- ☐ Professional Degree (9)
- ☐ Bachelor's Degree (10)
- ☐ Postgraduate Degree (11)
- ☐ Master's (12)
- ☐ Doctorate (13)

Q18 If you have any comments feel free to leave it bellow.

End of Block: Study on the effect of brand attitudes in AI-created Ads

