



## The Impact of User Awareness on Online Behavior Advertising Acceptance

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### Abstract

*Purpose: Online Behavior and Data-Driven Advertising (OBA) have emerged as an influential tool in product and service promotion. The purpose of this research is to investigate the role of consumer awareness in decision-making, regarding data-driven advertising in the Albanian context. The research aims to address the digital literacy gap in Albania and its impact on OBA acceptance. Research design, data, and methodology: Employing a web-based survey, the study objective was to capture consumers perspectives and knowledge regarding online behavior in general and OBA in particular (N=171). Results: Research findings underscore the importance of OBA awareness and its impact in shaping acceptance or avoidance of OBA that is manifested through the click intentions of the targeted advertising. Conclusion: The study emphasizes the importance of awareness and knowledge, highlighting the link between consumer empowerment and understanding personalization strategies. The study contributes to both theoretical understanding and practical applications, setting the way for informed strategies in Albania's digital landscape.*

**Keywords:** Data-Driven Advertising, Consumer Awareness, Digital Literacy, Online Behavior

### 1. Introduction

Online behaviour and data-driven digital advertising (OBA) have emerged as an innovative tool of product or service advertising that is widely used online but sometimes triggers negative reactions from the prospect consumers. Different studies have shown that the relevance (Yogesh et al., 2021), credibility of the company and the third-party publisher (Hwang et al., 2018), or the usefulness of the personalised ads (Strycharz et al., 2019) influence the acceptance of online behaviour and data-driven advertising. Communication technologies significantly shapes people's everyday lives, impacting work and personal activities, such as communication and online shopping. The EU recognizes the critical role of the information society in enhancing competitiveness. Policymakers also aim to regulate areas like e-commerce and privacy protection in the use of these technologies (Martin et al., 2019; Bouncken & Barwinski, 2020).

As noted by Eurostat's innovation and digitalization unit, among the Western Balkans the lowest proportion of individuals who had basic or above basic overall digital skills in 2019 (latest data available) was reported by Albania, with only 21.5 %. According to Eurostat Statistics the country with the lowest proportion of persons aged 16-74 years using the internet to purchase goods or services online was Albania with 9.6 % (2021 data – no 2022 data available). The low proportion of individuals with digital skills in Albania raises concerns about the potential barriers to access and utilize digital technologies. In order that the citizens can fully participate in the digital economy and society, it becomes crucial to raise awareness about online security measures and build trust and confidence in digital activities.

While we acknowledge the necessity for improvement in digital literacy and connectivity, there's a notable gap in

understanding how OBA fits into this equation. The impact of targeted advertising on online behavior and overall consumer awareness remains an unexplored topic in the larger narrative of Albania digitalization. Various authors have expressed different views on this matter, with some stating that there is a widespread lack of awareness among consumers regarding the mechanisms of OBA and their limited knowledge on how to control the tracking tools and dissemination of their personal data (Cranor 2012; Ur et. al 2012; Van Doorn and Hoekstra 2013; Nill and Aalberts, 2014). According to other studies (Chanchary & Chiasson, 2015), consumers express a higher willingness to share data when provided with control mechanisms to protect their privacy. At the same time consumers feel not very confident in using these protective tools and lack of confidence in keeping their privacy data secure (Boerman et. al., 2021). Given the different results and recommendations about OBA researches, it's clear that users should be empowered to understand and control their online information and gain appropriate knowledge how OBA works.

The aim of this research is to explore the influence of consumer awareness on decision-making in the context of data-driven advertising, specifically OBA. When users are aware that personalized advertisements are tailored based on their online behavior, they become more informed to the relevance of these ads (Ghanbarpour, et. al, 2022). As mentioned on Van Doorn and Hoekstra (2013) user awareness allows them to appreciate targeted ads, which match their interests and preferences, leading to higher acceptance.

Users who are well-informed about OBA and accepting of it may not only click on ads but also take the desired actions advertised, such as making a purchase or subscribing to a service (Aiolfi et al., 2021; Fourberg et al., 2021; Siraj & Priyanka, 2020). Given the important role of consumer awareness in OBA dynamics education become critical. Advertisers and platforms have an opportunity to enhance consumer awareness by providing clear and accessible information about data collection (Schweidel et al., 2022) and the value proposition (Trang et al., 2020) of personalized ads. Educating users about the benefits of OBA can lead to more informed choices and potentially higher acceptance rates. This study aims to answer to the research question if a higher level of user awareness regarding OBA correlate with a greater willingness to accept OBA practices providing managerial implications for the interested stakeholders.

This study is organized in four sections. The subsequent sections of this paper revise existing literature related to OBA. Within this framework, we elaborate on the dimensions of knowledge and awareness which are integrated into the model, leading to the formulation of specific hypotheses. The paper continues with an explanation of the methodological approach and statistical analyses used to analyze the data and test the hypothesis. Concludes by discussing the results, its contributions to theory and practical applications, the acknowledged limitations, and suggestions for future research.

## **2. Theoretical Framework and Hypotheses Development**

### *2.1 User Knowledge of online landscape*

Understanding how personalization works is crucial for empowering consumers, as insights into personalization knowledge can shape advertising literacy initiatives and positive feedback (Segijn & Oojien, 2022). This knowledge can serve as a guide in the designing of customized programs to enhance consumer awareness, ultimately fostering regulations and ethical discussions within advertising industry (Rehman et al., 2022; Tanveer et al., 2021). This study adopts an innovative approach by assessing both objective (awareness of data collection or understanding cookies) and subjective consumer knowledge of personalization approaches (perceived personalization benefits or perceived control), offering a more detailed and comprehensive perspective on consumers' understanding of personalization (Menozzi et al., 2023). By doing so it aims to uncover valuable insights that can contribute to the development of targeted educational programs and ethical considerations in the dynamic landscape of personalized advertising.

Several academic studies have consistently found that consumers possess limited knowledge about various personalization practices. (Smit, et al., 2014; Aguirre et. al., 2016). At the same time, knowledge is vital for online secure behavior. Other research has shown that consumers express a desire for control in the personalization process, implying that a lack of knowledge may act as an obstacle (Turow et al., 2015). Applying this to personalization context, we expect that someone who possesses technical knowledge about personalized advertising will be more motivated and thus are more likely to trust the process. The impact of knowledge about online behavioral advertising (OBA) on attitudes toward OBA has been studied in several research articles. Marketers today have access to an immense data of consumer information, encompassing personal traits, demographics, lifestyle interests, shopping preferences, purchase history, and real-time location data (Phelps, et al., 2000; Unni and Harmon, 2007; White et al., 2008). This information enables them to develop highly personalized behavioral advertising. Additionally, marketers access consumers' online activity history data stored in their web browsers, through cookies. Cookies are small pieces of data sent from a website and stored on a

user's device, enabling websites to remember user preferences, track their online behavior, and provide a more personalized browsing experience. (Jai, et. al., 2013; Lambrecht and Tucker, 2013).

Consumer awareness encompasses an understanding of how OBA functions and the data it relies upon. When users are aware that personalized advertisements are tailored based on their online behavior, they become more informed to the relevance of these ads. Their awareness allows them to appreciate that these ads match their interests and preferences, leading to higher acceptance. Consumers with higher levels of perceived knowledge on OBA, demonstrate increased attention, more positive evaluations, and a higher likelihood of clicking on the advertised content (Kim and Huh, 2017). This awareness-driven acceptance is a reflection of users recognizing the benefits of OBA in delivering content that aligns with their needs.

## 2.2 Awareness and OBA

The awareness-driven dynamics extend to the user's click intention. For those who are aware and accepting of OBA, the perceived relevance and value of personalized ads may lead to a higher likelihood of clicking on them (Mehta & Udit, 2020). In contrast, as discussed in the findings of Miltgen et al. (2019) users who are inclined to avoid personalized ads may exercise caution and abstain from clicking, as part of their effort to maintain control over their data. Users who are well-informed about OBA and accepting of it may not only click on ads but also take the desired actions advertised, such as making a purchase or subscribing to a service (Ghanbarpour et al., 2022). Given the important role of consumer awareness in OBA dynamics, education becomes critical. The collective insights from leading experts (Dwivedi et al, 2021) discuss that advertisers and platforms have an opportunity to enhance consumer awareness by providing clear and accessible information about data collection and the value proposition of personalized ads. Educating users about the benefits of OBA can lead to more informed choices and potentially higher acceptance rates (Smit et al., 2014). Internet users frequently encounter personalized digital advertising based on their data as one for the most controversial topics of online marketing.

To address the associated risks, educating users with more knowledge over their online data control has become essential. For instance, the European Union through the General Data Protection Regulation (GDPR) aims to empower consumers by requiring organizations to provide technical information about data collection and processing, as well as information about consumers' rights (Hoofnagle et al., 2019). The current direction toward empowering consumers is not only reflected in legal frameworks but also in the technical information and control options offered by advertising platforms themselves. Even platforms like Google offers a simpler solution by providing a website that comprehensively explains the data collected for personalizing ads. Also, Facebook users can manage their ad preferences, including the information used to show them ads and the types of ads they see.

Authors (Hudders et al., 2019; Campbell, C. & Grimm, P. E., 2019; Appel et al. 2020) argue that consumers, especially young ones, need to be empowered in order to respond effectively for both parties involved, to the advertising messages targeted at them online. Moreover, it is perceived that digital advertising usually disguises its true profit intents. Therefore, consumer empowerment is necessary to enhance their understanding of using their personal information to develop ads directed at them. Venkatesh et al., (2021) suggested that consumers who possess a greater comprehension of the Internet and employ self-protective measures are more likely to persist in their online shopping activities.

## 2.3 OBA Attitude and Actual Click Intention

A fundamental aspect of OBA involves the monitoring of individuals' online activities, specifically their responses toward ads through, click intentions. (Zuiderveen, 2015; Boerman et al., 2017). Recent literature on OBA supports the findings, that among the outcomes of OBA, click intention is one of the main effects of advertising acceptance or avoidance. Authors have argued that the level of click intention seems to be positively influenced by the understanding and acceptance of the OBA, thanks to its level of personalization, relevance and perceived utility with the targeted users (Lambrecht and Tucker, 2013; Aguirre et al., 2015; Bleier and Eisenbeiss, 2015; Boerman et al., 2017).

In addition, the acceptance of the OBA is positively affected by other factors that are controlled by the advertiser like transparency, relevance or the level of personalization or factors controlled by the consumers like awareness or knowledge of OBA, consumers individual characteristics (Boerman et al., 2017). These factors may impact positively consumers' responses to online behavioral ads, resulting in more click intention rates (Aguirre et al., 2015). On the other hand, when consumers are unaware that their personal data are collected, they feel more vulnerable about privacy and have the tendency to avoid OBA, which decreases their intention to click on OBA ads (Aguirre et al., 2015; Boerman et

al., 2017). Yet, a high degree of personalization, and lack of transparency in OBA, can rise perceived intrusiveness among consumers, negatively impacting their behavioral intentions toward a brand and resulting in lower click-through-rates and purchase intent (Van Doorn and Hoekstra, 2013). This research explores the concept of users' initial response to an online advertisement, as the click intention (CTR), which is believed to be the action of their behavioral intention. After this initial interaction with the ad, users can make a decision on whether to proceed with purchasing the product or service advertised.

Click intention is considered an important predictor of a consumer's purchasing behavior (Chen & Stallaert, 2014; Urban et al., 2014; Dubé et al., 2017; Yoong & Lian, 2019). Aiolfi et al. (2021), argues that click intention can serve as a method to acquire additional information about a product or service, leading users in navigating the landing page to obtain more comprehensive information. This could help users during their decision-making process (Dehling et al. 2019). Consequently, as the level of click intention increase, there is a proportion increase in the probability of a consumer to purchase the product (Deng et al. 2021). This positive correlation underscores the crucial role of click intention as a predictor of the consumer's purchasing journey. These considerations lead to the following hypotheses:

**H1:** The degree of OBA acceptance is positively correlated with consumer knowledge levels.

**H2:** The level of click intention of the OBA is positively correlated with the level of avoidance of the OBA.

**H3:** The level of click intention on the OBA is positively correlated with the level of acceptance of the OBA. Based on the literature review and proposed hypotheses, the conceptual framework for the present study is illustrated in Figure 1.

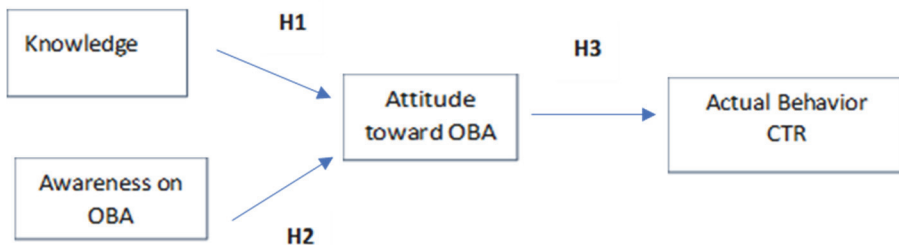


Figure 1: Conceptual Framework

### 3. Research Design, Data and Methodology

The research employed a qualitative methodology, relying on primary data collected from an online survey. The reason for using online survey data collection method is based on the premise that it enables a researcher to collect numerical data, is fast and economically viable, and is easy to analyse the collected data. The use of a survey and a questionnaire enables a researcher to measure participants' behaviour, preferences, intentions, opinions, and attitudes. Surveys are often used as a research tool to examine users' OBA knowledge and perceptions (McDonald and Cranor 2010; Smit, et al., 2010). The questionnaire survey method was used to test the research hypotheses. Four constructs— general knowledge of online landscape, OBA awareness, OBA attitude, actual behavior—were measured in this study. Statistical analysis used to test the research hypothesis and data analyses to compare the means of different groups, determining whether there are statistically significant differences among them was used ANOVA. Correlation analysis were employed to assess the strength and direction of a linear relationship between the variables, providing a numerical measure (correlation coefficient) that helps quantify the degree of association between them. Also, regression analysis using the Ordinary Least Squares (OLS) method was used to quantify and understand the relationships between variables, allowing for the prediction of one variable based on the values of the others to provide a valuable insight into the strength, direction, and significance of these relationships. SPSS software was utilized for these statistical analyses.

The multiple linear regression model for this scenario is expressed as:

$$CTR = a + b_1 \text{Knowledge} + b_2 \text{Awareness} + b_3 \text{Attitude} + \epsilon$$

CTR is the dependent variable, representing the click-through rate

a is the y-intercept, the constant term

b1, b2, b3 are the regression coefficients for Knowledge, Awareness, and Attitude (independent variables)

respectively that are used to predict CTR

$\epsilon$  is the error term, representing unobserved factors influencing CTR

### 3.1 Sample and Measures

In conducting this study, a comprehensive web-based survey methodology was used, targeting individuals over 18 years old in Albania. The survey link was sent to participants through diverse online channels, including social media platforms, e-mail, and university network. By doing so, a broad spectrum of individuals from different backgrounds and regions of Albania was reached. A total number of 171 participants, were involved. This sample is considered "acceptable," even if limited, as suggested by prior researchers (Boomsma, 1985). To achieve a statistically significant effect with an appropriate number of participants we used G Power analyses which confirmed the appropriate number of 171.

Quantitative data analysis was conducted using statistical tools to identify patterns, correlations, and significant findings. Descriptive statistics was employed for Likert scale from 1 to 4, (where 1 = Strongly Disagree and 4 = Strongly Agree) items, and inferential statistical methods, such as regression analysis, was used to examine relationships between constructs. The study was conducted in compliance with university ethical standards, ensuring informed consent, participant anonymity, and confidentiality. The collected data was used solely for research purposes.

## 4. Data Analysis and Results

The results of the demographic data in percentage and frequency for the respondents participating in the research and then the results of various statistical tests are presented in order to test the hypotheses. Empirical statistical results include various tests and coefficients such as: ANOVA analysis for showing significant statistical differences, correlation analysis for showing relationships between variables and regression analysis for measuring the impact of independent variables on the dependent variable.

### 4.1 Socio-demographic data

The results of the social and demographic data of the respondents participating in the research are presented on Table 1. Gender, age group, main source of income and average monthly expenses are 4 items presented below. Through this data, we can get a general idea about the demographics of the respondents, their sources age group, sources of income and monthly expenses. This information can be useful for the institution of studies to better understand the needs and preferences of consumers and to develop their strategies and services in accordance with this data.

**Table 1.** Socio-demographic data.

Question	Frequency	Percent
<b>Gender</b>	<b>N</b>	<b>%</b>
Female	116	67.8
Male	55	32.2
<b>Education level</b>	<b>N</b>	<b>%</b>
High School	45	26.3
Bachelor	70	40.9
Master	51	29.8
Doctoral	5	2.9
<b>Your monthly incomes</b>	<b>N</b>	<b>%</b>
I prefer not to answer	26	15.2
Less than 400 Euro	22	12.9
401–600 Euro	52	30.4
601–800 Euro	43	25.1
More than 800 Euro	28	16.4
<b>What is your age group?</b>	<b>N</b>	<b>%</b>
18-25	79	41
26-35	32	18.7
36-45	29	17

Question	Frequency	Percent
46-55	14	8.3
56-65	16	9.3
+65	10	5.8

#### 4.2 Level of knowledge of online environment

The influence of an individual's level of education on their online behavior constitutes a topic of significant scientific interest in the contemporary digital environment (Platonova et al., 2022). Whitty et al. (2015) in their conclusions stated that well-educated individuals are more likely to possess a deep understanding of the intricacies of the online environment, including privacy and cybersecurity issues, also the ability to critically evaluate content on internet and information sources. This educational advantage equips individuals with the cognitive tools needed to distinguish between reliable, trustworthy sources and misleading or false information, thereby reducing susceptibility to online scams and the spread of misinformation.

Individuals with high levels of educational attainment tend to demonstrate a heightened awareness of the potential consequences of their online actions (Ecker et al., 2022), including the consequences of their digital footprint in their personal and professional spheres (Aimeur et al., 2023). Dessart et al. (2015) explains that consumers also display a preference for online engagement that aligns with personal growth and knowledge advancement. Recognizing the link between education and online behavior is essential for academics, policy makers and digital platforms, as it underlines the need for tailored digital education programs and the promotion of reasonable, responsible and ethically informed online behaviour. Six items to measure the participants knowledge on online behaviour were adapted from Frik & Mittone (2018).

**Table 2.** Level of knowledge of online environment.

How do you prove that a website is trustworthy and legitimate?	Yes		No		Significant Differences	
	N	%	N	%	Gender	Age Group
Study the address and URL	100	58.5	71	41.5	P=0.202	P=0.023
Check for SSL certificate	55	32.2	116	67.8	P=0.131	P=0.102
Check the reviews on the website	119	69.6	52	30.4	P=0.418	P=0.009
Verify the domain	87	50.9	84	49.1	P=0.022	P=0.108
Check out the company's reviews on social media	128	74.9	43	25.1	P=0.949	P=0.024
Read the website's privacy policy	117	68.4	54	31.6	P=0.630	P=0.128

The results show that most people are careful and have general knowledge on how to identify a website that is trustworthy and legitimate. This is an important practice in today's Internet age, where security and privacy are important issues for online users. The findings also show the significant statistical differences based on two categorizations, namely based on gender and based on the age group. According to the results presented in the table by gender, we have statistically significant differences (P=0.022) in the question of domain verification, while in terms of the age group we have significant statistical differences in the study of the URL address (P=0.023), Control for a website review (P=0.009) and seeing company reviews on social media (P=0.024).

#### 4.3 Awareness on OBA

User awareness is a fundamental determinant of ethical and responsible OBA practices (Smit et al. (2014). When individuals are aware of how their data is collected, stored and used for targeted advertising, they are better equipped to make informed decisions and exercise control over their online experiences (Quach et al. 2022; Beldal et al. 2011). This awareness empowers users to give or refuse consent, thereby ensuring respect for privacy and personal information rights. (Zhu & Song, 2022) Additionally, it fosters transparency and trust between users and advertisers, creating a foundation for a more ethical and sustainable OBA ecosystem in Albania. To measure awareness on how consumers can benefit from targeted advertising six items were adapted from Mathwick et al., (2001).

**Table 3.** Awareness on OBA.

On a scale of 1 to 4, please indicate the extent to which you agree with the following statement	Strongly Disagree		Somewhat Disagree		Somewhat Agree		Totally Agree		Significant difference
	N	%	N	%	N	%	N	%	
I have the ability to control which aspects of my online behavior are used for Online Behavioral Advertising	24	14.0	30	17.5	79	46.2	38	22.2	P= 0.000
The content provided by personalized ads is reliable	24	14.0	69	40.4	57	33.3	21	12.3	P= 0.060
I think personalized ads are suitable for my needs	20	11.7	50	29.2	80	46.8	21	12.3	P= 0.210
I think personalized ads are made just for me	62	36.3	45	26.3	54	31.6	10	5.8	P= 0.406
Personalized ads increase the effectiveness of online shopping	16	9.4	22	12.9	88	51.5	45	26.3	P= 0.067
I am concerned that my personal information may be used in ways that I cannot control	12	7.0	29	17.0	76	44.4	54	31.6	P=0.105

The results show that most of the respondents have a positive perception of personalized ads, evaluating them as reliable and effective. However, they are sensitive to their privacy and have concerns about controlling the use of personal information in these advertisements. Table 3 shows the significant differences regarding the level of knowledge, where based on the results of the P value we have statistically significant differences only in the question "I have the ability to control which aspects of my behavior on the Internet is used for Online Behavioral Advertising" with a P value 0.000 ( $p$  less than 0.05).

#### 4.4 Attitude toward OBA

User attitude towards online behavioral advertising is a major factor that significantly affects the success and ethical framework of the digital advertising approach. According to Ham (2016) a positive attitude towards OBA is synonymous with greater receptivity to targeted advertising, which, in turn, can lead to more effective advertising campaigns. Users who see OBA as a valuable tool to receive personalized and relevant content tend to be more engaged with ads, contributing to higher click-through and conversion rates for advertisers (Giombi et al. 2022; Mehta & Uditia, 2020). Conversely, a negative or skeptical attitude toward OBA can result in resistance, ad blocker use, or even mistrust of online advertising, which can hinder the growth and effectiveness of digital marketing strategies (Redondo & Fernandez, 2018). Five items of attitude toward OBA were adopted from (McDonald & Lorrie, 2010), and are summarized in Table 4.

**Table 4.** Attitude toward OBA.

Statement	Yes		No		I Don't Know		Significant Differences	
	N	%	N	%	N	%	Knowledge	Gender
I prefer advertising that reflects my interests	118	69.0	22	12.9	31	18.1	P=0.756	P=0.101
If I see personalized advertising, I choose to ignore it	45	26.3	68	39.8	58	33.9	P=0.231	P=0.173
If I see personalized advertising, I choose to leave the website	36	21.1	81	47.4	54	31.6	P=0.072	P=0.065
If I see personalized ads, I take steps to block them	49	28.7	77	45.0	45	26.3	P=0.720	P=0.098
Do you use any online ad blocking software to prevent them from appearing again?	38	22.2	109	63.7	24	14.0	P=0.205	P=0.204

The results of this survey show that the impact of personalized ads is different for each person, and consumers intend to take different measures to control targeted ads (22 % use ad blocking software) and protect their online privacy. Table 4 also shows the statistically significant differences according to knowledge and gender, based on the P values presented, there are no statistically significant differences according to the division of these two categories where the P values in all questions are higher than 0.05.

#### 4.5 User Actual Behavior

The importance of actual user behavior, especially click intention, cannot be overstated in the field of digital advertising. Click-Through-Rate (CTR) serves as a concrete and measurable metric that directly measures the effectiveness of an advertising campaign (Aiolfi et al. 2021). It provides valuable insights into target audience engagement and response to advertised content (Lee et al. 2017). A high CTR indicates that the ad resonates with users, capturing their interest and prompting them to take action, such as clicking on the ad to learn more or make a purchase (Li et al. 2014). Farahat & Bailey (2012) through an experimental methodology approach explains that digital advertisers rely on CTR not only as a performance indicator, but also as a tool for optimizing their campaigns. The actual behavioral presented through the



intention to click the ad or intention to purchase the product promoted by OBA was measured by seven items adapted from Yoong & Lian (2019).

**Table 5.** Actual User Behaviour (CTR).

What are your actions when you see a targeted ad for a product you are interested?	Never		Sometimes		Frequently		Significant Differences	
	N	%	N	%	N	%	Expenses	Gender
Increase my interest to purchase	1	0.6	53	31.0	117	68.4	P=0.521	P=0.179
I am very likely to purchase	1	0.6	57	33.3	113	66.1	P=0.760	P=0.779
I intend to purchase	10	5.8	107	62.6	54	31.6	P=0.139	P=0.063
I have a positive purchase intention	10	5.8	102	59.6	59	34.5	P=0.086	P=0.056
I often ask questions for more information	3	1.8	53	31.0	115	67.3	P=0.568	P=0.106
I often share the information	17	9.9	110	44	148	86.5	P=0.284	P=0.781
I often browse the landing page for other information	5	2.9	18	10.5	148	86.5	P=0.130	P=0.125

The provided data indicates that a considerable percentage of respondents frequently experience an increase in interest and express a likelihood to purchase when exposed to targeted ads. The majority also demonstrates an intention to make a purchase and expresses positive purchase intentions. Additionally, a significant portion frequently asks questions for more information and often shares the information obtained through targeted ads. These findings suggest that targeted ads have a notable impact on consumer behavior, influencing interest, purchase likelihood, and information-seeking tendencies. Table 5 also shows the statistically significant differences according to monthly expenses and gender, based on the P values presented, there are no statistically significant differences according to the division of these two categories where the P values in all questions are higher than 0.05.

#### 4.6 Correlation Analysis

In this section, the correlation analysis is presented. Correlation is a statistical tool to assess the relationship between two or more variables. A correlation can be positive, negative or entirely undesirable. A positive correlation means that the two variables vary in the same direction. When one variable increases, the other variable also increases. A negative correlation indicates that the two variables vary in the opposite direction. When one variable increases, the other variable decreases. To assess the degree of correlation between two variables, the correlation index is used. A well-known index for this purpose is the Pearson index. Pearson's index ranges from -1 to 1, where values near -1 indicate a strong negative correlation, values near 1 indicate a strong positive correlation, and a value of 0 indicates a lack of linear correlation between the two variables (Weaver & Wuensch, 2013).

**Table 6.** Correlation matrix results.

Variables	(1)	(2)	(3)	(4)
Knowledge (1)	Correlation	1	.299**	-.210**
	Sig.		.000	.006
	N	171	171	171
Awareness on OBA (2)	Correlation	.299**	1	-.258**
	Sig.	.000		.001
	N	171	171	171
Attitude toward OBA (3)	Correlation	-.210**	-.258**	1
	Sig.	.006	.001	
	N	171	171	171
Actual Behavior CTR (4)	Correlation	.251**	.375**	-.246**
	Sig.	.001	.000	.001
	N	171	171	171

\*Correlation is significant at the 0.05 level (2-tailed)

\*\*Correlation is significant at the 0.01 level (2-tailed)

The results of the correlation between the variables show the different relationships between them in the context of this study. *Knowledge and Attitude toward OBA (attitude towards personalized ads)*: The correlation between these two variables is negative and statistically significant ( $r = -0.210$ ,  $**p < 0.01$ ). This result shows that users with higher levels of knowledge tend to have a more negative attitude towards personalized advertising. These relationship between variables indicates that knowledge has different impacts on users' awareness, attitude, and behavior regarding personalized online advertising. This information can be important for companies and advertisers aiming to better understand the behavior and preferences of their audience.



#### 4.7 ANOVA analysis

ANOVA analysis is a statistical method used to compare the means of many sets of data and assess whether there are any statistically significant differences between them. This is an important method in statistical analysis to understand the influence of different factors on a defined variable (Kim, 2014).

**Table 7.** Significant differences according to demographic data.

Variables	Gender	Source of income	Monthly Expenses	Age group
	P value	P value	P value	P value
Knowledge	0.024	0.083	0.310	0.883
Awareness OBA	0.187	0.674	0.104	0.153
Attitude toward OBA	0.014	0.360	0.075	0.539
Actual Behavior CTR	0.332	0.592	0.001	0.133

The table above presents the summarized results of significant differences regarding gender, source of income, monthly expenses and age group. The results show significant differences by gender in some of the study variables, so that p-values (p-values) are less than 0.05. The significant differences according to gender are in the variables: *Knowledge*: In the case of online knowledge, there is a significant difference between genders ( $p = 0.024$ ). This suggests that there is a different impact of education on the level of confidence between men and women. *Attitude toward OBA (attitude towards personalized advertising)*: A significant difference exists between genders for the attitude towards personalized advertising ( $p = 0.014$ ). This shows that men and women have different attitudes towards personalized online advertising. The last part of the table shows significant statistical differences according to income level, where based on the presented results there is a statistically significant differences in the variable of: *Actual Behavior CTR (actual click-through behavior on ads)*: There is a significant difference in actual click-through behavior on personalized ads according to the amount of monthly spend ( $p = 0.001$ ). This shows that higher spenders have different behaviors regarding clicking on personalized ads. However, regarding the statistically significant differences according to the age groups, we do not have significant statistical differences since we have values higher than 0.05 for all variables.

#### 4.8 Regression Analysis

After the presentation of the correlation analysis, this part presents the regression analysis in order to measure the impact of the independent variables on the dependent variable as well as the presentation of the statistical importance (significance) of the variables. The following analysis presents regression using the Ordinary Least Squares (OLS) method, which is a statistical method used to estimate the linear relationship between an independent and dependent variable. This type of regression is widely used in data analysis to identify and focus on the potential influences of different variables on a response variable and to make predictions about the possible values of this variable based on the values of other variables (Birkes & Dodge, 2011).

**Table 8.** Summary results of regression analysis.

Variables	OBA	Click intention rates on OBA	Behavioral intention promoted by OBA
Knowledge	-0.251** (-3.18)		
Avoidance of OBA		-0.387*** (-3.47)	
Acceptance of OBA		0.421** 3.21	
Click intention rates on OBA			2.14*** 4.32
_cons	16.36*** 8.62	19.37*** 18.35	62.63*** 21.23
N	171	171	171
R-squared	0.859	0.664	0.713
Prob>F	0.000	0.000	0.000
VIF	1.13		
Hettest	0.1416	0.9995	0.9315

t statistics in parentheses  
 \*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$

This table presents the summarized results of the regressions executed, and based on the results, several key insights can be derived.

Knowledge and Avoidance of OBA have a statistically significant negative impact on Click intention rates on OBA. This implies that higher levels of knowledge about online behavioral advertising (OBA) and avoidance of OBA are associated with lower rates of intention to click on OBA. Acceptance of OBA has a statistically significant positive impact on Click intention rates on OBA. This suggests that individuals who are more accepting of online behavioral advertising tend to have higher rates of intention to click on OBA. Click intention rates on OBA have a statistically significant positive impact on Behavioral intention promoted by OBA. This indicates that higher rates of intention to click on OBA are associated with a greater likelihood of behavioral intention promoted by OBA.

The R-squared values for the three regression models indicate the proportion of variance explained by the independent variables. These values (0.859, 0.664, and 0.713) suggest that the models provide a good fit to the data, explaining a substantial portion of the variability in the dependent variables. The Prob>F values (0.000) indicate that all regressions are statistically significant at the 0.001 level, suggesting that the models are a good fit for the data and that the independent variables collectively have a significant impact on the dependent variables. The Variance Inflation Factor (VIF) test results (1.13) indicate that multicollinearity is not a concern in the regression models, as the VIF values are well below the threshold of 5. The Hetttest results suggest that heteroskedasticity is not present in the data, as the values are higher than 5% in all three regressions, indicating that the data are homoscedastic.

The negative impact of Knowledge and Avoidance of OBA on Click intention rates on OBA underscores the importance of consumer awareness and attitudes towards online behavioral advertising in influencing click intentions. The positive impact of Acceptance of OBA on Click intention rates on OBA highlights the role of consumer acceptance and receptivity towards targeted advertising in driving click intentions. The positive impact of Click intention rates on OBA on Behavioral intention promoted by OBA suggests that individuals who are more inclined to click on OBA are more likely to engage in the intended behavior promoted by the advertisements.

## 5. Conclusion and Discussion

The impact of knowledge is negative on the avoidance of the OBA with coefficient  $B=-0.25$ , which is statistically significant at the 1% significance level. So, for every 1 increasing unit in the level of education, the avoidance variable of the OBA decreases by 0.25 units on average. In the second regression executed, we see that the impact of avoidance of the OBA is negative on click intention on the OBA with coefficient  $B=-0.38$  which is statistically significant at the most reliable level of significance ( $P<0.001$ ). So, for every 1 increasing unit in the avoidance of the OBA, the variable of click intention on the OBA decreases by 0.38 units on average.

The influence of acceptance of the OBA is positive on click intention on the OBA with coefficient  $B=0.42$  and statistically significant at the 1% significance level. So, for every 1 increasing unit in the acceptance of the OBA, the variable of click intention on the OBA increases by 0.42 units on average. The third regression executed shows that the impact of click intention on the OBA is positive on the behavioral intention promoted by the OBA with coefficient  $B= 2.14$  which is statistically significant at the highest levels of significance ( $P<0.001$ ). So, for every 1 increasing unit in the variable of click intention on the OBA, the variable of behavioral intention promoted by the OBA increases by 2.14 units on average.

All proposed hypotheses that emerged from the literature review are supported based on the results from the regression analysis.

The study's findings reveal a direct influence of acceptance and avoidance of OBA on the intention to click on targeted advertisements. This underscores the role OBA awareness and knowledge as important constructs to accept it. In line with existing literature examining OBA's impact on purchase intentions and actual consumer behavior, our results align with previous studies, such as Aiolfi et al. (2021) and Urban et al. (2014), which identified the intention to click as a robust predictor of consumer behavior during the purchasing process.

Consistent with prior research, this study underscores the controversial nature of OBA. Consumers exhibit conflicting reactions; with positive responses to relevance and usefulness (Boerman et al., 2017) which results in higher click intentions and therefore purchases and negative reactions mostly related to concerns of intrusiveness and ad complexity as suggested on the findings of Ghanbarpour et al. (2022) and Ur et al. (2012). The study establishes that acceptance of OBA is linked to the perceived and actual knowledge on this topic. Both acceptance and avoidance significantly impact the intention to click on ads and subsequent behavioral intentions, highlighting the pivotal role of consumer perceptions in the success of data-driven digital advertising. Our finding that more informed online consumers,

are more willing to accept behavioral advertising reinforces previous research results (Aguirre et al., 2015) about targeted advertising campaign indicate decrease in click-through rates when consumers doesn't have knowledge on how their personal information has been collected to re-target them on their online activity.

These findings also confirm what Lambrecht and Tucker (2014) have shown that behavioral advertising is successful and increases ads probability of click if consumers are aware on how this process occur and why they are being targeted. These findings underscore the significance of consumer empowerment in managing data and being informed about activities related to the managing of their personal information.

In an experimental study lead by Strycharz et al. (2019) their findings suggested that individuals with higher levels of digital knowledge tend to exhibit positive attitudes towards targeted digital advertising and not opt-out. They suggest that this positive attitude could be a result of a better understanding of the digital landscape, which may lead to a more favorable reception of targeted advertisements. More research is needed to understand the impacts of the OBA knowledge and their acceptance or avoidance of OBA. This study responds to the call for research in OBA knowledge from Boerman, et. al., (2017), whom framework reveals a lack of research on the roles of consumer knowledge and abilities in OBA perceptions and appropriate responses. The current study's findings help understand the impact that education and knowledge on OBA affects and contributes to consumers behavior. Previous studies about OBA suggested that consumers seemed to perceive OBA as beneficial as long as they understand on how it works and how to benefit from its use (Zeng et. al, 2009, Kim and Huh, 2017; Wilk, et. al. 2020; Smit, et. al. 2014).

A literature review and research agenda by Boerman, et. al., (2017) identified that OBA outcomes partly depend on consumer-controlled factors, which include knowledge and digital literacy, perceptions, or individual characteristics in explaining consumer responses. Our study aligns in their literature review, where these findings underscore the role of OBA knowledge on further accepting the benefits of data-driven advertising. Looking at our own descriptive statistics for perceived OBA knowledge and relevance, it seems that a similar pattern is observed even in this study.

The results of our study offer valuable insights for marketers and advertisers, helping them in optimizing the effectiveness of OBA in Albanian markets and facilitating informed decision-making in its implementation, contributing to the creation of policies that promote digital technologies use with a focus on citizens capacity-building, as various reports like Digital Agenda Observatory (2021) and Citizens Voices for Digital Rights (2022) has recommended.

## 6. Limitations and Further Studies

Limitations of the study findings include the lack of generalization to the entire population, and self-reporting bias that may have influenced responses. The rapidly evolving nature of technology may impact the relevance of findings over time. The current study compered only the variable of OBA knowledge, other variables suggested by literature as important like, privacy concern, trust, transparency, or data control were not tested. Also, the evaluation of the costs and benefits associated with OBA, could be related on individuals' understanding of OBA. Consumers that have more knowledge might perceive the costs and benefits in a distinct manner, potentially considering the positive aspects outcome the negative ones. Moreover, while the present study provides valuable insights into impact of OBA knowledge on its acceptance it is crucial to acknowledge the generalization challenges associated with our sample. The participants were young users and as such, the findings may not be generally applicable to a more diverse demographic population. Future research should with a larger-scale surveys with a more diverse and representative sample is needed to compare OBA knowledge more reliably across consumers of different ages, backgrounds and level of education.

At last but not at least this study focused on exploring the impact and the desired outcomes of OBA knowledge, it did not include advertiser and users-controlled variables, such as ad relevance, ads reliability, perceived usefulness of the ads, individual factors, or perceived intrusiveness as important factors to further unravel the mechanisms of OBA effects. Also, it is important to mention that this research was not focused to find which levels of personalization are acceptable by consumers and what they perceive as non-effective. To further test the hypotheses posed by this study and other factors influencing consumer responses to OBA, future studies should consider using experimental methods.

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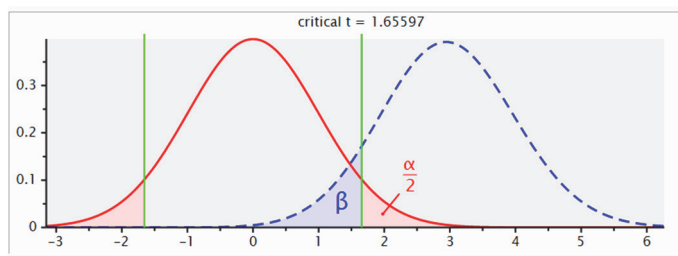
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## Appendix A. Analysis by G-power for sample size



From an analysis carried out with the G-Power program, it gives us the result that the minimum sample for carrying out the study is 140 respondents/people.