
Determinants of Choosing an Online Cosmetics Store: An Eye-Tracking Study on the Impact of Website Aesthetics on Purchase Decisions

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Abstract:

Purpose: This study investigates key factors influencing consumer decisions when selecting online cosmetics stores, focusing on the impact of website aesthetics and user experience (UX). It examines how visual and functional website elements affect purchasing behavior through an eye-tracking study across three cosmetics websites, combining quantitative eye-tracking data with qualitative user feedback.

Design/Methodology/Approach: The research confirmed that visually appealing, intuitively designed websites significantly influence consumer purchasing decisions in the online cosmetics sector. Participants preferred sites with harmonious colors, clear layouts, and easy navigation. Light-colored designs with well-structured product displays were more engaging compared to darker, more elegant layouts that sometimes hindered navigation. Metrics such as time spent on pages and fixation points indicated a strong link between ease of finding information and purchase intent. Websites featuring high-quality images and clear product comparisons were rated higher, emphasizing the importance of visual clarity in fostering consumer trust.

Findings: Key recommendations for online cosmetics retailers include using light, aesthetically pleasing color schemes, clear navigation elements, and high-resolution product images. Intuitive features like personalized suggestions and simplified payment and delivery options should also be prioritized. Regular usability testing, including eye-tracking, can help businesses adapt their designs to evolving consumer preferences, improving conversion rates and customer satisfaction.

Practical implications: This study contributes to e-commerce research by examining the intersection of website aesthetics and consumer behavior in the cosmetics industry. By using eye-tracking technology, it provides valuable insights into how design elements influence purchasing decisions, offering actionable guidance for businesses seeking to align their digital strategies with consumer expectations and enhance the overall user experience.

Originality value:

Keywords: E-commerce, beauty industry, user experience, usability of the online store, online marketing, consumer purchasing decisions.

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1. Introduction

Digital transformation has become a key element of business strategies, enabling companies to increase efficiency and gain a competitive advantage (Krupcała and Januszewski, 2020; Zhu, Xie and Chen, 2023). The introduction of new digital technologies is transforming organizational operations and their relationships with customers. In 2023, the number of Internet users rose to 5.16 billion, representing 64.4% of the global population (Digital, 2023), highlighting the Internet's significance in the global economy. ICT and IT innovations now serve as the foundation of the modern economy, driving growth in efficiency and enterprise innovation.

Modern technologies play a crucial role in business development and website design, particularly in the context of e-commerce. In the e-commerce industry, the appearance and functionality of websites directly influence consumers' purchasing decisions (Mateja, 2023). The growing popularity of online shopping is especially evident in the cosmetics sector, which is dynamically adapting its offerings to meet consumers' changing needs (Lee and Kwon, 2022).

E-commerce provides convenience, time savings, and access to a wide range of products often unavailable in traditional brick-and-mortar stores (Koçaş, 2006; Sarkar and Ahmad, 2021). This is particularly significant in the cosmetics industry, as customers frequently seek products tailored to their individual needs (Liu *et al.*, 2013).

Running an online store has become a key component of business strategy. Stores, especially in the cosmetics industry, must offer a unique shopping experience by combining an aesthetically pleasing website design with functionality (Krupcała and Januszewski, 2020). For cosmetics, high-quality images, clear descriptions, and personalization features—such as foundation shade matching or skincare tailored to

specific skin types—are essential (Cooharojananone, Wongadoonwit and Thitivesa, 2014). A critical element of success for cosmetic e-stores is blending attractive aesthetics with intuitive navigation and credible content, which significantly influences consumers' purchasing decisions (Lee and Kwon, 2022; Zhu, Xie and Chen, 2023).

In the cosmetics industry, product aesthetics are as important as functionality. Customers often choose cosmetics not only for their properties but also for their design and packaging, which influence perceived quality (Srivastava *et al.*, 2022).

Therefore, online stores must focus on visual presentation to convey the luxurious nature of their products. High-quality images, detailed descriptions, and an aesthetically pleasing website help create a positive impression and build trust in the brand, which is crucial for driving purchasing decisions (Cai and Xu, 2011; Dai and Hove, 2017; Burman, 2019).

Understanding how interface aesthetics and usability influence customer choices is crucial for developing effective marketing strategies and optimizing sales efforts in the e-commerce market. The growing popularity of online shopping demands continuous adaptation to user expectations, which is an essential element in building lasting customer relationships and ensuring a high-quality user experience (UX) (Thanh Vi, Hornbæk and Subramanian, 2017; Çakar *et al.*, 2018; Nissen, 2020). Gaining insight into evolving market trends and the factors influencing consumers' choice of stores is vital for entrepreneurs aiming to attract new customers (Desai and Phadtare, 2017; Manandhar and Kafle, 2023).

Analyzing these factors not only helps track current consumer preferences but also enables stores to adjust to their needs, increasing the sense of security during online shopping. This allows store owners to create a more user-friendly and trustworthy shopping environment, resulting in greater customer satisfaction and loyalty.

The aim of the article is to identify the key factors influencing consumers' choice of online cosmetic stores. The study involved an eye-tracking analysis conducted on three cosmetic industry websites.

The findings aim to provide a better understanding of customers' purchasing decisions in cosmetic e-stores and to offer entrepreneurs valuable insights to help develop effective marketing strategies and better tailor their offerings to consumer needs.

The authors hypothesize that an attractive and intuitive website design, combined with a clear content layout and aesthetic graphic elements, increases the likelihood that participants in the study group will be more inclined to make purchases on that site. The study seeks to confirm or refute this hypothesis by analyzing participants' reactions and preferences.

2. Literature Review

The ability to effectively use a system or website is referred to as "usability," which encompasses the user's interaction with the given system (Quiñones, Rusu and Rusu, 2018). In recent years, this concept has expanded to include the notion of User Experience (UX) (Borawska and Mateja, 2024). Don Norman and Jakob Nielsen define User Experience (UX) as the entirety of all aspects of the user's interaction with a company, its products, and services, including websites (Nielsen, 1999; Norman, 2016).

According to this concept, a key element of effective UX is providing users with solutions that allow them to meet their needs intuitively and without difficulty. An important aspect of this definition also highlights the simplicity and aesthetics of the offered products, which should not only meet functional expectations but also deliver satisfaction and enjoyment in use (Hinderks *et al.*, 2022).

Functionality and usability are critical components of an information system's operation, making UX research an integral part of customer-centered design processes (Pengnate and Sarathy, 2017). UX primarily focuses on uncovering users' unarticulated needs and motivations, enabling the creation of systems that align with consumers' real expectations. Table 1 presents the key dimensions of UX for websites.

Table 1. Key dimensions of UX.

Dimension	Description
Usability	The website should be designed to ensure easy and intuitive interaction with its elements.
Usefulness	The site must meet user needs by providing the content or functionality they seek.
Findability	The website should be easy to find, achieved through effective marketing and SEO efforts.
Accessibility	The site should function smoothly across various devices, operating systems, and web browsers.
Desirability	The site should be aesthetically pleasing and visually engaging, enhancing user satisfaction.
Credibility	The site should inspire trust, ensuring users feel safe, for example, when making purchases or providing personal data.

Source: Own collaboration.

While UX features such as usability and functionality are important, they are insufficient if the website's aesthetics are off-putting—for instance, through overly bright colors. Attention to aesthetics, visual details, and the appropriate presentation of products can positively influence user attitudes and increase their willingness to make purchases (Sarkar and Ahmad, 2021). Modern research also highlights the impact of website complexity on user behavior, noting that an overload of information and a complicated layout can lead to cognitive strain, reducing the

website's effectiveness and visitor engagement (Agarwal and Venkatesh, 2002; Geissler, Zinkhan and Watson, 2006; Tuch *et al.*, 2009; Wlekły and Piwowarski, 2022; Borawska and Mateja, 2023b). Therefore, ensuring an appropriate balance between aesthetics, functionality, and simplicity is crucial to make the site both attractive and intuitive to use.

One tool for achieving such a balance is color psychology, a field that explores how colors influence human emotions, behaviors, and cognitive processes (Bonnardel, Piolat and Le Bigot, 2011). Colors not only serve an aesthetic function but also evoke specific emotional and cognitive responses, which may be universal or culturally dependent.

For example, red is often associated with energy, urgency, and passion, making it effective for drawing attention on promotional pages, while blue, linked to calmness and trust, is commonly used on websites related to finance and healthcare (Cyr, Head and Larios, 2010). Equally important is color contrast, which affects the readability of content and the intuitiveness of navigation. Research shows that higher contrast between text and background enhances information comprehension and visual comfort (Ling and van Schaik, 2002).

Colors also influence user decisions, such as staying on a website or making a purchase. High-chroma hues like blue tend to foster a positive perception of aesthetics, whereas excessively bright colors can deter users (Hall and Hanna, 2004). Carefully chosen color schemes support emotional user engagement and business objectives, increasing customer loyalty, satisfaction, and conversion rates. Optimizing color usage in line with industry specifics and audience expectations is therefore an essential element of user experience design.

The growing importance of user experience is reflected in the dynamic development of the industry and the continually increasing number of UX specialists (Borawska and Mateja, 2024), who play a crucial role in creating aesthetic, intuitive, and functional solutions. The literature identifies several techniques and tools that can be used to study user experience (Hussain *et al.*, 2018; Anderson and Borges-Rey, 2019; Son and Kim, 2023).

Among the most used traditional methods are usability tests, focus groups, interviews, and (Insfran and Fernandez, 2008; Fernandez, Insfran and Abrahão, 2011; Seyedghorban, Tahernejad and Matanda, 2015). However, these methods rely on subjective opinions from participants, which may not reflect their true feelings, leading to measurement errors (Mateja, 2023).

Therefore, contemporary research suggests complementing classic techniques with neurocognitive tools, such as eye tracking (Dos Santos *et al.*, 2020; Maslov and Nikou, 2020; Zaki and Islam, 2021). Until recently, such studies were rarely used in UX analysis due to the high cost of equipment. However, with the decrease in prices

and improved availability of devices, they have gained popularity, bringing significant changes to user experience design and enabling a deeper understanding of user behaviors and preferences (Gill and Singh, 2022; Borawska and Mateja, 2023a)

3. Research Methodology

This paper employs an experimental case study aimed at examining user behavior during interaction with three websites offering cosmetics. The study focused on evaluating the functionality and aesthetics of the sites, as well as identifying key factors influencing purchasing decisions. Participants assessed the appearance of the sites, their navigation, and usability, and indicated elements that required improvement. Based on declarative comparison, the participants determined which website was the best.

3.1 Participants

The study involved 34 participants (11 men and 23 women) aged 18-55, which is a standard sample size for experiments using eye-tracking in UX research (Vasseur, Léger and Senecal, 2019). The average age was 36.47 years (SD = 11.48). Participants represented various income levels, with the majority belonging to the middle-income group (2000-4000 PLN), which can influence purchasing preferences.

Participants reported active and regular internet usage, visiting cosmetic websites and making purchases once a month, and utilizing social media platforms (e.g., Facebook, Instagram, YouTube) to gather information about cosmetics. All participants were healthy and had normal (or corrected-to-normal) vision.

3.2 Research Materials

As part of the study, participants browsed three websites offering cosmetics, featuring products such as mascara, foundations, powders, and other makeup items. The sites also included detailed information about brands, product descriptions, prices, as well as a frequently asked questions (FAQ) section and a contact form. All elements of the websites were designed to resemble real online stores as closely as possible to best reflect consumers' shopping experiences. The websites used in the study are listed in Table 2, along with the corresponding links.

Table 2. Websites used in the study along with the links to the sites.

Page number	Link
Page 1	Link number 1
Page 2	Link number 2
Page 3	Link number 3

Source: Own collaboration.

The first website examined was designed with a light color scheme featuring pink accents, which are typically associated with cosmetics and feminine websites. The second website presented during the study had a red color scheme, while the third website featured a dark color palette, with colors close to black. At the beginning of the study, participants were shown the homepage of each website.

3.3 Research Procedure

The study was conducted with the approval of the Bioethics Committee of the District Medical Chamber and in accordance with the standardized research procedure proposed by Borawska and Mateja (2024). This procedure included the preparation, execution of the experiment, and collection of participant feedback.

The procedure took approximately 10 minutes for each participant and provided a comprehensive approach to analyzing user behavior in the context of websites, allowing for a detailed assessment of their functionality and aesthetics. After the preparatory phase and setting up the research environment, each participant was assigned a set of tasks, which included:

- Visiting the website.
- Finding the "mascara" category and reviewing the content of the page.
- Finding the product – Eveline Cosmetics Variete mascara and adding it to the shopping cart.
- Adding a comment to the order.
- Finding information about the brand Polar.
- Closing the browser.

Each of the websites was tested with the same scenario. After completing the tasks on the site, participants filled out a survey in which they evaluated several aspects of the website. They were asked about the number and price of mascaras, the color of the product, and any promotions. They also assessed the information about the Polar brand and its presentation.

Participants provided feedback on the website's appearance, color scheme, and the influence of colors on usability, as well as navigation and ease of use. The questions also included topics related to the purchasing decision and a comparison of the website with other online stores.

3.4 Data Collection and Processing

To measure eye movements, the study utilized the commercial eye tracker Tobii Pro X3-120 (120 Hz), which was mounted under a 15-inch Full HD (1920 x 1080 pixels) monitor, on which stimuli and forms were presented (Dalrymple *et al.*, 2018). The study provided data from questionnaires as well as eye movement recordings during

the browsing of the websites. Based on these results, heat maps were created and Areas of Interest (AOI) were defined, covering key elements of the websites. The analysis was performed using iMotions software.

3.5 Measures

The standard eye-tracking measurement involves the analysis of two key elements (Dalrymple *et al.*, 2018; Mateja, 2023): fixations (the points at which the user focuses their gaze) and saccades (rapid eye movements between fixation points). This allows for determining what the user is looking at, how long they focus on a particular element of the page, and how quickly they move their gaze across the surface of the page. Several selected metrics, commonly used in eye-tracking research (Wang *et al.*, 2019; Maslov and Nikou, 2020; Wlekły and Piwowarski, 2022; Mateja, 2023), were considered in the analysis.

The first metric is mean dwell time in the Area of Interest (AOI), which indicates how much time participants spend looking at specific elements of the page. The next indicator is TTFF (Time to First Fixation), which measures the time it takes from the page load to when the user first focuses their gaze on a specific area. The analysis also considered revisit count, which tracks how many times a user returns their gaze to a specific element after the initial fixation.

Additionally, the total number of fixations was analyzed, showing how often the user focuses on selected areas of the page within a given time. The final metric analyzed was the fixation duration, which helps evaluate how long a user maintains their gaze on a single element before moving it.

4. Research Results

The results include an analysis of the responses provided by participants in the survey conducted after the experiment, as well as the processing of data recorded during the experiment using an eye-tracking device.

4.1 Survey Results Analysis

During the survey, respondents provided their answers to statistical questions. The results show that the appearance of a website influences their purchasing decisions. The predominant color associated with cosmetics is pink, but respondents prefer websites in light or dark colors (most often white or black with small accents of other colors), while stating that red, yellow, and orange colors would negatively affect their perception of the website.

Respondents also mentioned that the layout and arrangement of elements on the product page influence their purchasing decision. When a website lacks attractiveness, respondents reported a lack of willingness to purchase the product (23

people). Additionally, most respondents shop on websites they are familiar with or have seen advertised on social media (26 people). When choosing a website, they primarily consider product prices, reviews, and available promotions.

Most respondents prefer payment through the Blik system and delivery via parcel lockers. Respondents also believe that intuitive navigation and the ability to filter products on the website are important. Interestingly, two points are worth noting: respondents declared that the influence of influencers on their purchasing decisions is minimal, and that making purchasing decisions is easier in physical stores than in online stores.

Respondents also indicated which elements influence their purchasing decisions — product composition, product reviews, trustworthiness of the company, and information about delivery and returns. They also mentioned factors that encourage them to return to a given store — fast shipping and delivery, deals, promotions, and additional discounts, but the main factor was price.

These preliminary results indicate the importance of the aesthetics and usability of a website, as well as its presence on social media, for success in the cosmetics industry. Further research could help in a more detailed understanding of which specific elements influence customer purchasing behavior in this field.

4.2 Eye-Tracking Results Analysis

The analysis of the heatmaps revealed that participants primarily focused on searching for the elements specified in the scenario. Based on this, it can be concluded that their attention was directed toward the key elements of the website. In addition to the heatmaps themselves, areas of interest (AOIs) were also considered, which were positioned to highlight the most important elements of both the main pages and subpages.

Page number 1 featured a website designed with a light color scheme, avoiding the use of bright or overly contrasting colors. As shown in Figure 1, the analysis of the heatmaps allows for the observation of the distribution of the areas that attracted the most attention from users within the main page of the site.

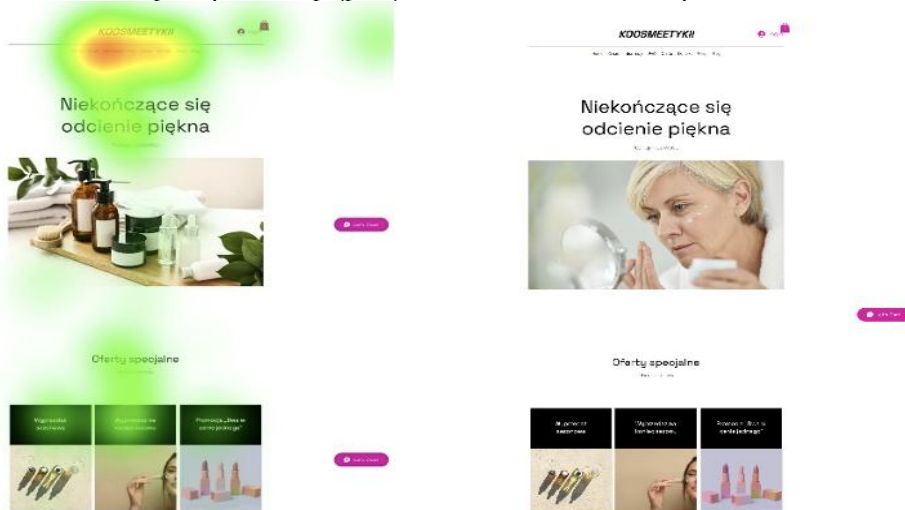
Page number 1, with its light background, appears more neutral but effectively draws users' attention to key elements. The most frequently noticed elements are the logo and the top navigation, which confirms that an intuitive layout still plays a significant role. The main image, along with the slogan "Endless Shades of Beauty," captures attention, creating a positive impression and hinting at the brand's aesthetics. The "Special Offers" section attracts less attention compared to pages with darker backgrounds, but it remains an important focal point for users.

The participants on the homepage saw the store button within 7.5 seconds of the

page loading. The average gaze duration on the button was approximately 541 ms. The low number of fixations (5) coupled with a long average fixation time (245.3 ms) suggests that participants took a longer time to process the text on the button. This could indicate difficulty in understanding the text or it may have been due to the size of the button itself.

On the store page, participants focused on finding the mascara. Respondents first saw the product on the page after 4744 ms, viewing it for 3388 ms. The number of revisits was 2.5, which indicates that they looked back at the product several times. The number of fixations (83.5) and their average duration (51.07 ms) may suggest that participants were searching for the product on the page without paying detailed attention to the content. However, it also indicates that the product was visible enough against the background to allow for quick identification as the sought-after item.

Figure 1. Example of heatmap (part) and the main website of 1st website.



Source: Own collaboration.

After selecting the product, participants were directed to its detailed page. The heatmap revealed that the light background on the product detail page makes key elements, such as the product image, the "Add to Cart" button, and the price, very easy to see. Users also pay attention to the navigation bar, which indicates effective content organization. However, since the navigation bar remains unchanged, it could still lead to further difficulties in locating key elements.

The confirmation of the heatmap is shown in Table 3 with the results of the analysis of areas of interest. It is clearly visible that the first element observed by the participants was the image, within less than 2 seconds. The remaining elements were observed later, with the minimum time being 3384 ms. Many fixations and the long

time spent on the text area indicate that the participants focused on reading and processing the content. The high number of revisits in all areas suggests that participants repeatedly moved between them, reading the entire content of the page. Although these high values could be problematic, the low time to the first fixation indicates that participants did not have difficulty finding the elements that interested them. After clicking the "Add to Cart" button, they were redirected further.

Table 3. Results obtained from AOI analysis for the 1st website – product site.

	Product name	Add to cart	Product photo	Product description
Respondent count	34	34	34	34
Revisit count	2	2.5	3	4
Fixation count	14.5	27	27.5	229
TTFE AOI (ms)	4873.57	3384.3	1997.25	4365.2
Dwell time (ms)	659.22	986.49	1327.22	5977.43
Fixation duration (ms)	76.51	89.62	99.96	62.26

Source: Own collaboration.

The cart page with a light background draws users' attention to the most important elements – the order summary and the "Order" button. The section for entering a comment generates moderate interest, indicating a lower degree of attention.

Participants looked at the comment field just 3 seconds after arriving on the page, which is a very short time, as the field is located below the product in the cart. This suggests that participants quickly scanned the entire page in search of the comment field.

Participants then moved on to obtaining information about the cosmetics brand. They navigated back to the homepage. Since they were already familiar with the layout of the page, they were able to quickly find the company's logo, description, and name, avoiding the need to search for other content.

Table 4. Data from AOI analysis during the search for information about the Polar brand on Page 1.

	Polar logo	Polar name	Polar description
Respondent count	34	34	34
Revisit count	1.67	2	2.33
Fixation count	9	4.5	23.67
TTFE AOI (ms)	23273.89	20961.72	19598.93
Dwell time (ms)	1616.73	1470.7	7615.34
Fixation duration (ms)	186.35	424.52	375.49

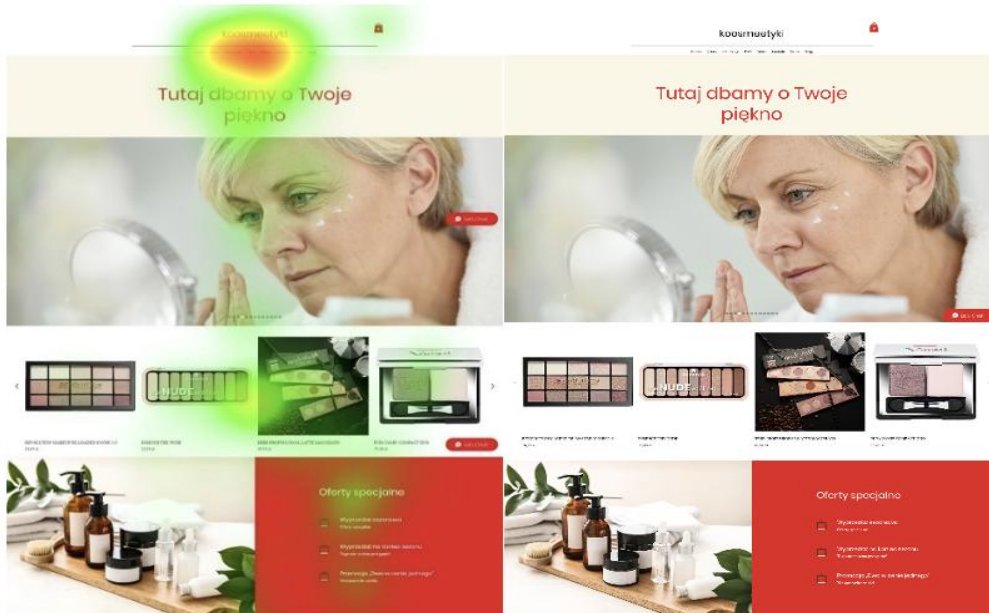
Source: Own collaboration.

Analyzing AOI during the search for information about the Polar brand on Page 1 (Table 4), it is evident that despite familiarity with the page or parts of it, the participants first looked at the company description, then at the name and logo. Naturally, they spent the most time reading the description (7615 ms), but interestingly, the company name, as a single word, was analyzed for only slightly less time than the logo – 1470 ms versus 1616 ms.

The number of fixations on the text read by participants was higher than for the name or the image. However, it is worth noting that their time spent on the text was relatively large compared to the logo. This could indicate problems with the font size or color, leading to difficulties in reading the text.

Page number 2, shown in Figure 2, with a light background and red color scheme, effectively attracts users' attention through contrasting visual elements. Users focus most of their attention on the logo at the top of the page and the header "Here, we care about your beauty," which shows that first impressions play a key role. The "Special Offers" section with a red background stands out from other elements, effectively drawing attention to the promotional content.

Figure 2. Example of heatmap (part) and the main website of 2nd website.



Source: Own collaboration.

On the homepage, participants were tasked with finding the store tab. They searched for the tabs in the navigation bar for over 35 seconds. This time is exceptionally long due to the participants scanning the entire page, as indicated by both the heatmap (Figure 2) and the results from the area of interest (AOI) analysis (Table 4). After finding the link to the store, they observed it for 347ms.

The revisit value is low (0.33), indicating that they did not return to the area and considered it the target. Additionally, the number of fixations is also low (5.33). It can be inferred that the participants had significant difficulty finding the appropriate button to redirect them to the correct subpage, which was caused by the use of the red color, which strongly absorbed the participants' attention.

The respondents then moved to the store tab. The heatmap analysis revealed that the most attention was drawn to products placed in the central part of the page, with highlighted promotions. The participants' gaze was attracted to the target element on average after 2836 ms, and the average revisit count for this object was 1, meaning that participants returned to the product area once. They observed the product for approximately 1941 ms.

The number of fixations in this area was 107 on average, with an average fixation duration of 18 ms. This suggests that after finding the object, participants quickly determined that it was the desired product and, upon selecting it, proceeded to the product page.

The heatmap analysis revealed that the product detail page attracts users' attention to the image of the mascara and the "Add to Cart" button. The descriptive text for the mascara draws noticeable attention, especially in the initial paragraphs. The cart section on the right side is visible, particularly in the area of the price summary and the "View Cart" button, suggesting that users are inclined to quickly and decisively move to the cart with the selected product. The discussed results from the areas of interest are shown in Table 5.

Table 5. Results obtained from AOI analysis for the 2nd website – product site.

	Product name	Add to cart	Product photo	Product description
Respondent count	34	34	34	34
Revisit count	1	2.5	0.5	3
Fixation count	14.5	27	27.5	229
TTFF AOI (ms)	9919.63	7232.3	13494.41	4195.07
Dwell time (ms)	341.76	1166.89	966.86	6533.16
Fixation duration (ms)	22.31	40.13	38.61	28.19

Source: Own collaboration.

On the product page, participants noticed the product description the quickest, within about 4 seconds, and naturally, they spent the most time in the text area, reading it for 6.5 seconds. Additionally, they returned to this area multiple times, doing so 3 times. The highest number of fixations was also observed in this area, which is likely due to the reading process. In the area of the product image and name, participants spent relatively little time: 966 ms observing the image and 341 ms in the name area.

Moreover, it can be observed that the product name attracted their attention faster than the logo (9 seconds versus 13 seconds). The "Add to Cart" button, located on the page, was noticed second (TTFF parameter of 7232 ms). The time spent in this area was also longer (1166 ms) compared to the image and name, which may suggest that the participants focused on both the button and the text within it.

After clicking the "Add to Cart" button, participants were directed straight to the cart. The heatmap analysis showed that in the cart, they focused heavily on the "Add a Comment" field, the "Place Order" button, and the navigation. Other elements, such as the product and its image, description, or the scene itself, were less attractive to users. Participants first noticed the comment field approximately 3 seconds after entering the page. They spent around 7 seconds typing a comment for the order. The number of fixations in this area was 182.33, with an average fixation duration of 47 ms.

In the final step, participants returned to the homepage, which displayed information about the sought-after cosmetics brand. It was observed that the participants re-examined the page, but in this case, they focused primarily on the logo, the brand name, and the description of the cosmetics brand.

Analyzing Table 6, it can be observed that the time from the first fixation on the page to finding the logo is over 18 seconds. The second element noticed by the participants was the description, and the third was the brand name, despite being positioned between these two elements. The time spent in the areas of the name and text is naturally longer than the time spent viewing the logo. Interestingly, all three elements show a high number of revisits, ranging from 2.67 for the logo to 5.33 for the description.

Therefore, it can be concluded that the final step in the scenario was one of the more difficult for the participants, as they frequently returned to each element of the brand they were searching for. This is further confirmed by the high average fixation time, which may indicate difficulties in processing the information.

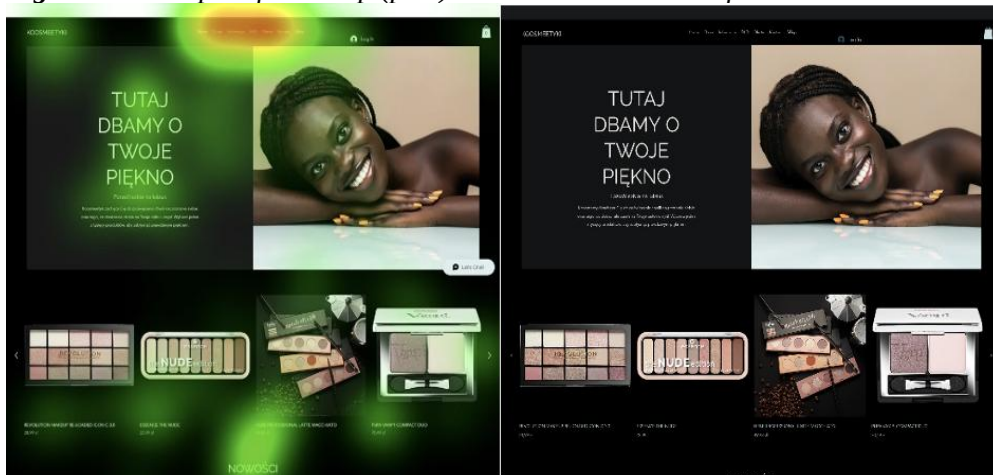
Table 6. Data from AOI analysis during the search for information about the Polar brand on Page 2.

	Polar logo	Polar name	Polar description
Respondent count	34	34	34
Revisit count	2.67	3.67	5.33
Fixation count	7.67	17	90
TTFF AOI (ms)	18089.2	25534.12	19053.1
Dwell time (ms)	866.37	2605.29	10352.91
Fixation duration (ms)	101.4	251.57	151.87

Source: Own collaboration.

The black background of the page (Figure 3) adds elegance and allows elements such as images and text to stand out even more. Users first focus their gaze on the top logo and navigation, indicating that an intuitive layout is key for the first contact. The main image, depicting a smiling woman, attracts significant attention, creating a positive visual impression of the page. The section with promoted products, such as makeup palettes, generates moderate focus, suggesting that users are interested in the offer, but not necessarily stopping on it immediately.

Figure 3. Example of heatmap (part) and the main website of 3rd website.



Source: Own collaboration.

On the third page, participants noticed the button directing to the store the fastest, after just 474.12 ms, which is the shortest time across all three pages. Although the time spent in the area was relatively long, about 1850 ms, the average fixation time of 308.41 ms and the number of fixations (6) suggest that participants were processing the information in the scanned area for a considerable time. This might indicate a potential issue with the area, such as insufficient contrast between elements. The revisit count of 3 suggests that participants repeatedly returned to this spot.

When selecting a product on this page, participants, just like on the other pages, chose the appropriate product. The heatmap revealed that participants focused heavily on the central part of the page as well as the navigation. On average, it took participants 6 seconds to find the product, with the actual viewing of the product taking 515 ms. It is worth mentioning that this button consisted of a single word. The average number of fixations on the button was 3, with a duration of about 30 ms.

On the product page, the first element that drew attention was the product name, followed by the image and description (Table 7). In this case, the "Add to Cart" button was last in the order, but about 7 seconds later than the other elements, which

may indicate difficulties in noticing the object. Similarly, the revisit value was as high as 4, meaning that participants returned to the button multiple times. The main conclusion for this page is that participants may have had difficulty finding the "Add to Cart" button.

Table 7. Results obtained from AOI analysis for the 3rd website – product site.

	Product name	Add to cart	Product photo	Product description
Respondent count	34	34	34	34
Revisit count	1,67	4	1,67	3
Fixation count	7,33	26,67	17	17
TTFF AOI (ms)	3409,61	10266,19	3494,41	3761,24
Dwell time (ms)	591,72	1295,57	966,86	705,8
Fixation duration (ms)	104,19	87,26	81,7	138,34

Source: Own collaboration.

The shopping cart page leads the user to finalize the purchase, which includes entering a comment for the order. The order summary section and the "Order" button are clearly visible and attract the most attention from all elements. From the moment they entered the page, participants noticed the comment field after an average of 3313 ms. They focused on it for an average of 3987 ms.

The average number of fixations in this area was 84.33, with an average fixation duration of 86.15 ms, indicating a high number of brief fixations around the comment field. Confirmation that participants entered a comment is provided by the high number of revisits, which was 7.67, meaning they repeatedly shifted their gaze from the keyboard to the comment field.

The final step was accessing information about the Polar brand. Participants returned to the homepage to search for information. They navigated the page looking for details, like their behavior on previous pages, skipping familiar elements.

Table 8. Data from AOI analysis during the search for information about the Polar brand on Page 3.

	Polar logo	Polar name	Polar description
Respondent count	34	34	34
Revisit count	3,33	3,33	4,33
Fixation count	16,67	5,67	26,33
TTFF AOI (ms)	11597,65	18042,5	13189,03
Dwell time (ms)	4367,25	2919,21	6877,97
Fixation duration (ms)	383,62	620,74	300,34

Source: Own collaboration.

Participants searched the page for quite a long time, as indicated by the time from the first fixation to the moment their attention was focused on a particular area (Table 8). The longest time was spent searching for the brand name, while the shortest time was spent on the logo. Naturally, they focused the longest on the written text in the description. It's also worth noting the number of fixations in the text area, which was 26.33, with an average fixation duration of around 300 ms, indicating a long period of information absorption from this area.

Additionally, the longest average fixation times occurred for the brand name, at over 620 ms, and for the logo, at 383 ms. This may suggest that more time was needed to process the information in these areas, possibly due to low contrast between the elements or insufficient element size relative to the page.

5. Discussion

The analysis of the results revealed significant differences in functionality and aesthetics of the examined pages and identified areas requiring optimization. Page 1, with a light background and pink accents, achieved the best results in terms of navigation intuitiveness.

Key elements, such as the upper navigation and the main image, were easily noticeable, as confirmed by the heatmap and area of interest data. For example, the TTFF (Time to First Fixation) for the product image was 1997 ms, with an observation time of 1327 ms, indicating good visibility. However, the "Add to Cart" button needs improvement: the TTFF was 3384 ms, and the high number of fixations (27) and revisits (2.5) suggest difficulties in locating it.

Page 2, with red accents, effectively drew attention in the promotional section due to the contrasting elements. However, the search time for the "Store" tab (over 35 seconds) and the low number of revisits (0.33) suggest difficulties in locating it. These issues could stem from overly intense colors that distract from the navigation or from a suboptimal design of the element. Additionally, the TTFF for the "Add to Cart" button on the product page was as high as 7232 ms, indicating significant difficulties with its visibility.

Page 3, with its dark background, stood out with its elegant design and the fastest time to notice the "Store" button (474 ms). However, the "Add to Cart" button remained problematic, with a TTFF of 10266 ms and requiring 4 revisits. Users spent the most time reading descriptive texts (6877 ms on page 3), which could be due to readability issues caused by low contrast or small font size.

In the cart section across all pages, the "Add Comment" field dominated, generating a high number of fixations (182 on page 1, 84 on page 3) and revisits (e.g., 7.67 on page 3). This suggests that this field could be more intuitively placed closer to the order summary.

In summary, Page 1 stands out for its greatest usability potential, thanks to its intuitive layout and clear accents. However, improving the contrast of action buttons (such as the "Add to Cart" button) and text readability would further enhance its optimization. Page 2 needs a reduction in the intensity of colors in key elements to improve their visibility, especially in the navigation area. Page 3, while aesthetically appealing, requires better distinction of buttons and clearer content organization.

Across all pages, improving text readability is crucial, as evidenced by the long fixation times. According to the literature {Citation} (Iitsuka and Matsuo, 2015; Borawska and Mateja, 2024), it is recommended to regularly conduct A/B testing and iteratively use heatmaps to verify the effects of the changes introduced.

6. Conclusions

The study focused on identifying the key factors influencing consumers' choice of an online cosmetic store. The aim of the experiment was to determine the extent to which visual appeal, intuitive page layout, and aesthetics affect users' purchasing decisions. The hypothesis that an attractive and functional website design increases the likelihood of making a purchase was fully confirmed by the results of the study.

The analysis of the results using eye-tracking technology and surveys allowed for the identification of several key factors that had a significant impact on user behavior. Participants spent the most time on elements that were aesthetically pleasing and easy to locate, as well as on pages with a cohesive color scheme and intuitive layout. Pages with a light color scheme and clearly distinguished product categories were rated higher, confirming that simplicity and layout clarity have a significant impact on user engagement and purchasing intent.

Specifically, it was noted that pages with a dark color scheme, despite their elegance, were less effective at engaging users, who often returned their gaze to previously visited elements, suggesting navigation issues. Furthermore, the analysis of metrics such as average time spent on the page and the number of fixations indicates a direct correlation between the ease of finding information and purchasing decisions.

Pages that allowed users to quickly and intuitively find the products they were interested in attracted their attention for longer and received higher ratings. Users were more willing to spend time on pages that not only offered attractive product images but also presented them in a clear way, making it easier to compare offers and make purchasing decisions.

Despite the valuable findings, several limitations of this study should be noted. First and foremost, the research sample, consisting of 34 participants, is relatively small and may not fully reflect the diversity of preferences among users of online cosmetic stores. The participants represented only one, average income group, which could

have influenced their purchasing choices. Additionally, the number of websites tested (three) is limited, which restricts the ability to generalize the results to all online stores within the cosmetic industry.

Based on the results of this study, future research should consider a more diverse research sample to better capture the preferences of users from various demographic groups. Additionally, it would be valuable to conduct more detailed analyses regarding the impact of specific product types (e.g., mascaras, foundations, etc.) on purchasing decisions, to better tailor website designs to specific product categories. Including a greater number of tested websites and expanding the analysis to include studies on different types of devices (e.g., mobile vs. desktop) could also contribute to obtaining a more comprehensive understanding of user behavior.

The conclusions drawn from the conducted study make a significant contribution to the development of knowledge on e-commerce in the cosmetics industry, particularly regarding the impact of aesthetics and functionality of websites on consumers' purchasing decisions.

This study highlights the importance of optimizing website design and layout as key factors in attracting user attention and enhancing the effectiveness of marketing efforts in online stores. It is recommended to implement harmonious color schemes, clear layouts, and distinct navigational elements such as buttons and promotions to improve website usability and user experience.

Websites should consider customer preferences regarding payment, delivery, and provide clear product information and store policies. Regular eye-tracking tests and survey studies will allow websites to adapt to the changing needs of users, increasing their loyalty and purchase conversions, which will translate into financial results and a positive brand image.

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