CONSUMERS' PERCEPTION: DISCOVERING THE "LAW OF ATTRACTION" IN ART USING EYE-TRACKING

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ABSTRACT. Today, due to new technologies and seeing the tenacity with which the branch of scientific research, especially neuromarketing, advances, it is easy to understand how they have managed to bring together topics such as fine arts and eye-tracking technology. Not only did they end up with amazing results, but those results were in line with the expectations created from the very beginning by researchers from these industries and beyond.

Therefore, using eye-tracking as a market research tool, it is possible to directly track and measure the observable behavior of a visual arts consumer, analyzing both his visual attention and his eye movements. The data collected for this study resulted from the exploratory research, which involves the review of several articles and specialized studies regarding the eye-tracking subject and also from the qualitative research, represented by an in-depth interview with both Romanian art consumers and artists. It has implemented an eye-tracking test, also to gather the primary data for this present study, a tool that was available on an online platform named GazeRecorder.

The results illustrate the extent to which attention and the decision-making process (to purchase a painting) affect and influence how the information present in the work of fine art is related to the composition and elements that support the artwork itself. Thus, these results, not only can help analyze a painting in a much more efficient way but can also be incorporated in the future into consultancy services for artists or may represent the basis of a more appropriate and attractive form of education in art.

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Introduction

Whether it is voluntary or involuntary, attention represents a significant source of obtaining useful information, by studying and researching a consumer's behavior. Also, if we acknowledge the presence of psychological barriers for instance, it will be more than likely that these barriers will represents an obstacle in obtaining objective results related to the reality of the phenomenon studied in many traditional research processes.

Therefore, one of the main benefits of eye-tracking is that it is the only method that could be used to record and analyze objectively and accurately the visual behavior of a person. Information, such as fixing visual attention, the time a person spends looking at a particular object or the details that they are staring at for a longer period can be difficult to obtain using just the traditional research. Eye-tracking allows researchers to study a participant's eye movements while performing certain types of actions or activities. This matter provides an insight into the cognitive processes that underlie a wide variety of human behavior and can further lead to the development of different models or methods by which we can better learn and interact with a particular type of consumer.

Moreover, if we were to relate strictly to the contribution they bring, these visual stimuli, part of this influence present in our daily activities, is also created by the attraction of the human being to beauty, more precisely to the visual arts. But what if, somehow, you could visualize, measure, and quantify the degree of this specific influence of art on a person?

Searching for an answer to this very question represented the central source of motivation for this paper. More precisely, the purpose of this study focuses on the new branch of economics, namely, neuromarketing, which proposing through the analysis of numerous studies and specialized work, both internationally and nationally, the obtain of accessible explanations of the way people look at art and understand it.

Using eye-tracking devices on a specific artwork, it is desired to discover those elements, that manage to determine an individual to buy the artwork toward which they presented a certain degree of attraction. It is also sought, using this modern research tool and the results of the eye-tracking experiment, whether if they can be used by an artist to improve their work style in the future or even if they can be used to improve certain artworks, considering the presence of those areas of interest or compositional elements that manage to engage a person's attention more effectively.

Brief review of literature

To outline an adequate historical framework and to be able to better understand the genesis of this neuromarketing-specific tool, an in-depth study was needed to occur in this field.

Following the studies of many renowned researchers it was found that the first historical feature found on these subjects was dated 1879, when Louis Emile Javal, a French ophthalmologist by profession, define and develop a way to measure follow-up eyes by reading a text. She noticed that people could not read fluently and smoothly on a page, but in an interrupted way, focusing on certain words as they looked through the text. Later a device was built by Edmund Huey, and it was used to track eye movement using small one-orifice contact lenses for pupil study. The specific lenses were connected to an aluminum indicator to observe the direction of the gaze while reading a text and through which he could study in whose words the reader will turn his attention (Zamani *et al.*, 2016). In this experiment, researchers to be able to count the fixations made by a subject, while reading the text, and were forced to place a microphone on a closed eyelid of the subject, while he was

reading monocular. Thus, every time the cornea was moving and hitting the microphone, that sound was a saccade that could be recorded (Richardson and Spivey, 2004).

Eye-tracking, therefore, was used both for educational research and by medical researchers and even doctors for a long time, much more than in other fields, because the device was considered expensive. Only recently, this research technology has become more accessible compared to the years in which it began to be used, opening the orientation of interest for a new niche, namely that of marketing (Zamani *et al.*, 2016). Dodge and Cline were the ones who developed the first accurate and non-invasive eye-tracker, based on corneal reflection, a photochromography. That was the result of their study of the speed of eye movements. However, the photochromic plate can only be used to record horizontal eye movements (Zamani *et al.*, 2016).

Continuing the same hypothesis eye-tracking, today, is a research technology that allows companies that are using it or want to get in touch with this type of researching tool to record the direction in which people focuses their attention and what are the factors that people take into consideration when they want to determine which products to buy next. In this sense, these modern researchers who want to confirm or infirm certain hypotheses, in the field in which they work, usually use eye-tracking when (Bercea, 2012):

- They want to test websites and more than that, the efficiency of their user interface.
- Wants to test the advertisements, the live reactions in the store, the way that store shelves look, how they are designed and how the products to be sold are placed, as well as the reaction of the buyers to the product packaging, more precisely to their design, to its brand and name.
- They want to discover the way and the intensity with which the consumer chooses and filters his information and how to group hierarchically this information that interests him. This hierarchy also applies to the perceived and reference elements for the material stimulus proposed for testing.

Eye-traking & ART

The art industry branch is among the first interested in what attracts the viewer's attention and in finding out what exactly are the elements that determine a person's gaze to be fixed. Thus, considering the context created between the artist and the viewer, we concluded that the human eye and gaze are the common and connecting elements of this relationship. Just as the artist identifies the color he wants to use, depending on the response of his formed eye, so the viewer when studying the artwork for the first time he relates to what he sees with his eye. This is because our perception of color comes from the composition of light, that energy spectrum of photons that enters the eye. The eyes have perhaps the greatest significance and use to create value for these artworks and the artists who created them. Therefore, in this whole equation eye-tracking, as a new method of scientific research, plays a particularly key role, especially if we refer to the way of analysis, exhibition, and sale of these works, to collectors and their buyers.

Over time, new researchers have proposed and brought to the attention of readers various models made to be able to explore the paintings more easily in terms of their visualization and analysis of art. As is the case of Locher (1996), another pioneer who ends up laying the foundations for inspiration for countless researchers in this merged field, he discusses the importance of pictorial balance, a balance that is described by the stages that underlie the visualization of work, and how in the pre-stage of the actual visualization of the work, the subjects are asked to perform and pursue certain tasks. It is also the one that describes the existence of quite prominent boundaries in terms of the process of analysis of the artwork coming from experts and non-art experts. It seems that experts are much more intrigued and receptive when it comes to original work in exchange for a replica or a lesser-known artwork. They are also the ones who pay special attention to the composition of that artwork and who have longer saccade when it comes to original artwork. Experts also have longer and much fewer fixations when they see the work for the first time. This indicates that they already know what elements to look at to determine if they are original or fake (Kapoula, *et al.*, 2008). Therefore, besides the main vertical and horizontal lines in a canvas and the return on points of interest discovered by each

participant, the composition of paint weighs in importance and has a lot of influence on eye movement as much as the other element mention above. Therefore, recent models focus on the repeated saccade between the main elements of a painting instead of studying the eye fixations (Sancarlo, *et al.*, 2020).

The visual attention and direction of a person's gaze depend on many variables and characteristics when it comes to analyzing an artwork. According to the results of the study, led by Dan Hill on famous artworks, it seems that participants, in general, are much more attracted and focused on contemporary art, both emotionally and visually. However, they do not perform as well in the case of the charm they emanate, as is the case with the old works of renowned artists. Along with the findings shared above, the researcher emphasizes in his book entitled "First Blush" that faces are the main elements that matter in visual art. He also states that if a face is present in a picture, for the most part, about 70% or even more of the visual attention is directed to the face present in the work. Therefore, in most cases, artists can play with this hypothesis in their works, trying to hide the faces of the characters in diverse ways and poses, not very visible, to make the viewer look deeper into the work and at the composition, knowing that viewers inevitably turn their attention and emotions with certainty on the characters faces (Hill, 2019).

He is also the one who stated that in the case of the areas of interest present in a work, the order in which they are formed, most often in eye-tracking studies, these numberings start with the area of interest corresponding to the face, the head area. The time corresponding to the first fixation of this area of interest is about 1-2 seconds. The next area of interest is silhouettes, which involve people or animals. These areas require a time for the first fixation of about 2-3 seconds. The two primary areas of interest are followed by the area of interest specific to objects, bodies, and clothing, and involves a duration for the first fixation of the gaze of about 3-4 seconds. At the end of this hierarchy, nature is classified as an area of interest, and it is fixed for the first time around 4-5 seconds (Hill, 2019).

Following the same idea, Dan Hill claims in his study that the eyes are one of the elements that attract a person's attention the most and most effectively both in terms of gaze fixation and emotionally. A particularly good example in this sense is the famous painting, Mona Lisa, which creates the illusion that his eyes can follow you while you look at her. He also claims

that the faces in the works are detected according to certain variables obtained, which were recorded as results following the combination of eye-tracking and face coding systems. These options show that people pay the fastest and most attention to medium-sized faces, one in number and which is quite expressive (Hill, 2019).

The author also states that the positioning of the center of interest, in the case of a painting or an image, matters a lot when you want to create a successful composition. He tries to say that the middle part of a work is the most likely and safe place where a person focuses his gaze for the first time. They look from the bottom half of the painting to the top of the painting (Hill, 2019). Regarding the overall analysis, while viewing a paper, Dan Hill stated that in most cases in terms of the study or the trajectory of the participants' gaze, it tended to start from the upper middle of the painting in the corner upper right, to the upper left corner of the painting, and then this trajectory continues with the lower right corner and ending with the lower-left corner of the work. This trajectory of the areas of interest can be observed in more detail in Figure 1.
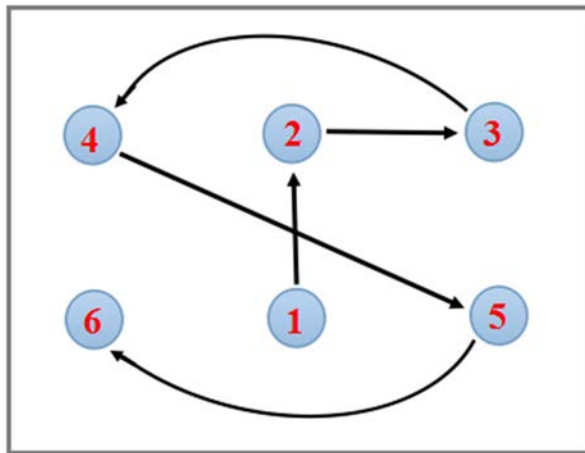

Figure 1. The trajectory of the participants' gaze in the analysis of artworks
Source: Authors adaptation based on Dan Hill's study - "First Blush" (2019)

Moreover, some specialists and artists claim that the place where the main subject of the work is positioned is particularly important. That is why it is good to think of the composition of the artwork as its composition of three major parts, both vertically and horizontally (see Figure 1), and in this case, the main subject should be positioned, either in the third on the right side of the composition or on the left side of it. However, very rarely, the main subject of the painting is suggested to be positioned in the middle of the composition (Hill, 2019). This assumption is explained by the fact that, if the paint's main subject is positioned in the middle of the canvas, it will turn the composition into a much static one and may thus arouse boredom for the person looking at it. On the other hand, many researchers who are interested in the behavior of a person's attention to artwork, tend to see if indeed the composition made harmoniously, with balance and driven by symmetry is much more appreciated by the public than the one that does not consider these compositional rules and is done in a much more abstract and chaotic manner (Hill, 2019).

Another hypothesis that provides the way of orienting the subjects towards the artwork, is described by the presence, and following of the vertical, horizontal, and diagonal lines of composition. These guidelines and what to know about the composition of an artwork can be seen in Figure 2, below. Thus, it has been demonstrated by specialists that the vertical lines imply the existence of a sense of gravity and division of the composition of the artwork and that these lines arouse emotions in a much deeper way. Compared to these, the horizontal lines have problems in attracting the attention of the spectators to the composition. It has also been shown in studies by researcher Dan Hill, based on eye-tracking and face-coding, that geometric shapes and the size of the elements of interest in the composition of the work also play a significant role in attracting the eyes of subjects and arousing their interest and the emotions of that work. Some of the most common geometric shapes are shown in Figure 2, below. In other words, he said that most of the time people focus on triangular shapes in works of art and that they focus on elements that in their placement on canvas or paper, give the impression of a triangular shape. At the same time, in addition to these shapes and guidelines, the size of the compositional elements in a

work also matters just as much, for when you want to capture the viewer's attention increasingly effectively in a work. It has been shown that small elements tend to be appreciated more and better than large ones in a work. These imaginary forms visualized by the subject, in an artwork, are usually described by the fact that they give the impression of dynamism and stability at the same time in the compositional framework. Therefore, many artists tend to create their artworks with geometric-inspired shapes and lines in mind, which leads to better harmony and dynamics in the artwork that makes the interest and attraction for that work increase more (Hill, 2019).
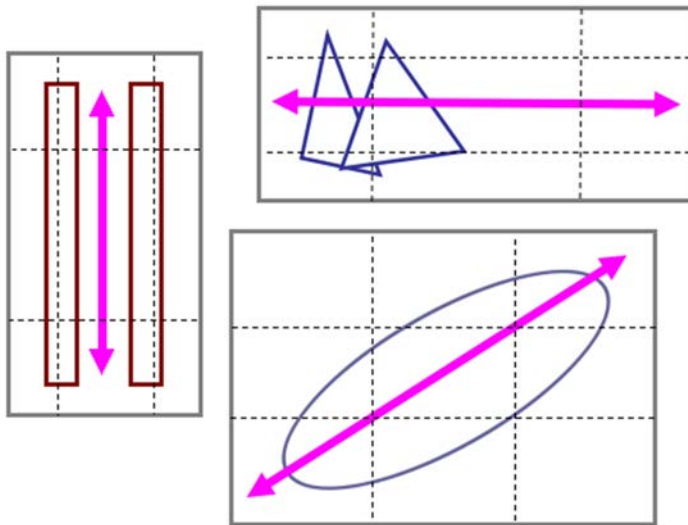

Figure 2. Lines and shapes that guide the orientation
of the gaze within a composition
Source: Authors' findings

According to the specialized articles studied, eye-tracking measures the place where a person looks, whether it is his gaze, his fixation point, the time in which the person looked at this point, or whether it is the movement of the eyes in relation to the head, the dilation of the pupil or the number of

blinks made by that person. In addition to fixation, the sequence in which the eyes end up moving from one location to another can be evaluated, and this action is called saccade. To measure eye movement, various eye-tracking devices are used, and in this case the most common are those that measure the observation of controlled stimuli at fixed points in certain visual materials such as videos, photos, and user interaction with the computer screen (ROJ dos Santos, *et al.*, 2015).

In terms of how to record and monitor eye movements, eye-tracking devices usually follow either the direction of the eye-to-head look, which requires a separate report for the orientation of the head or follow the combined direction of the eye-head. In general, any system attached to a user's head follows the eye-to-head direction and any system positioned at a distance from a person's head follows the direction of the eye-head. Whichever of these tracking methods are to be used, they estimate where the eye's point of view is located in the space of a screen. Another feature, specific to these devices and eye tracking systems, is described by the fact that they can be intrusive, that requiring some form of physical contact between the sensor and the user, or they can also be non-intrusive, systems that usually use the camera-based technique. Although intrusive techniques require contact with the user, they are generally more robust for when the user wants to move, because the sensor remains fixed to the user's eyes and may be more accurate than non-intrusive techniques. Non-intrusive techniques, at the same time, can restrict the user's movements to a certain extent, because to keep the user's eyes fixed on the system's sensors, he must keep his head still. Most often for tests performed by professionals, they also provide chin support for systems that track eye movements using the webcam, so that the user does not move his head during the test (Weigle and Banks, 2008). Also, eye-tracking systems, which are based on the camera, usually come in different models, and can capture distinctive features in an image recorded in relation to the eyes. Many commercial trackers require some form of calibration procedure for each individual user. Camera-based commercial trackers can be considered intrusive because they can be attached to a headrest so that the cameras are at a remarkably close, fixed distance from the eyes. (Weigle and Banks, 2008).

Material and method

In this paper, both secondary and primary research were used. The secondary data were collected, and exploratory research was carried out, where the content of several papers and specialized articles were reviewed. The secondary data were also collected over two months, during which time several platforms for academic and scientific study and research, such as Research Gate or Google Scholar, were used to download the literature. Also, an attempt was made to combine the two research modalities, namely primary, exploratory research, represented by the in-depth and semi-structured interview and a modern one, described by the neuromarketing research.

The method of collecting qualitative data, namely the interview, provides a sample of 10 people. The composition of this sample consists of a number of 4 art buyers, and the motivation that was the basis of the research on this type of consumer was to find out what his perspective is and what determines him to purchase certain works. Also, among the 10 interviewees 6 were artists, and by interviewing them a deeper understanding of what it means to work as an artist was wanted, the process of creating, promoting, and selling art and the relationship with the client and the art viewer.

Moreover, the participants at the interview were various ages, between 21-22 years and 50-60 years, they are being mostly represented by students, but also by more distinct professions such as electro-mechanic or associate professor. Also, the number of women was higher than that of men, women being in several 7, and the predominant geographical area of origin of the participants in the interview was represented by city as Constanţa, followed later by Cluj-Napoca and Tulcea. The environment of origin was also represented by both rural and urban areas. Also, the recruitment and interview period of the interview participants was approximately one month, the interview sessions being conducted online, using the Microsoft Teams and Google Meets platforms, and the duration of these interviews was between 25 minutes and maximum one and a half hours. At the beginning of the conference, the participants mentioned that the confidentiality and the use of the participants' answers will be respected, as well as the mention that during that meeting the conversation will be recorded.

The second way of collecting primary data was achieved using eye-tracking technology, which is provided free of charge by the Gaze Recorder platform, through which it was possible to create and implement a test with which to weld and find out the interaction between the movements of a person's gaze, the fixation of their gaze and the stimulus chosen to be viewed, within 30 seconds, on this online platform. The motivation behind the choice to use this innovative way of collecting primary data was described by the desire to confirm and demonstrate the information and results obtained in the first part presented in this paper regarding the study of a person's visual attention using eye-tracking, as well as the comparison of the results found in the specialized literature, regarding the most common areas of interest within the famous works of art presented in the beginning.

For this eye-tracking experiment, an amateur artist was specially chosen, who was willing to offer one of his paintings made in oil, as a visual stimulus, to be studied and viewed during the test by the participants.

The size of the image is 500 x 500 pixels, which includes the description at the bottom of the painting, and the exact one in which the title, price, year of the work and the name of the artist is visible. The reason for choosing this work was determined by the presence of several elements that have an extremely high potential, from a theoretical point of view, in attracting the attention and capturing the interest of art viewers. But that may also present some mistakes in terms of how to make the composition. Mistakes such as placing the main elements of interest in less favorable areas from a compositional point of view. Therefore, it was wanted to confirm the influence of these elements in terms of capturing a person's gaze and moreover it was wanted to find out the areas of interest most viewed by the participants in this eye-tracking test and if any improvements can be made to to modify the other areas that attracted less or for a shorter time the subject's attention.

Also, this test was attended by 10 people, of which were present and more experienced people in terms of art, but also less experienced people. Those experienced people are represented by some of the participants in the in-depth interviews, around 5 people, and the remaining 5 being represented by people less experienced in terms of fine arts, especially oil-paints. More women than men were present at

this test, being only 2 men, and the age of the subjects varying between 21 and 52 years, most of them being students as an occupation. The implementation of the test lasted one month.

Regarding the choice of subjects, who participated separately in this test organized exclusively in the online environment, on the platform mentioned above in the text, it consisted of contacting separately, through social networks and the phone call of each participant, in which it was necessary to give them a short presentation and introduction in terms of the topic and purpose of the study, which involves eye-tracking technology, how it is intended to be used in this research paper, discussion completed, then through a little training of these people regarding the performance of the eye-gas-tracking test. Many of the people contacted stated that they had not heard of the existence of a technology such as eye-tracking or what it represents and how it can be used. There were also people who showed signs of reluctance towards this technology because they perceived it as something invasive of personal privacy and as a way of studying without scruples and a little more frightening. However, for most people, after being explained and exemplified, what this test consists of, they agreed to see the performance of this research method, personally.

The steps that had to be followed by a participant in the eye-tracking test were:

For a start, they had to access the link, sent by the test implementer, a link that directly redirected the subjects to the Gaze Recorder platform, where the study was to be presented. This study consists of two stages:

- The first stage consists in allowing the start-up and use of the webcam of the computer or telephone used by each participant and then followed by the correct calibration of the subjects in a small frame, so that the software can efficiently record the movements of each person's eye.

  ➢ To perform a correct calibration each subject, before starting the test, had to ensure that:

    ✓ The light is good and not extraordinarily strong coming from behind in the room.
    ✓ That his face fits well in the frame indicated by the platform.

✓ They do not wear glasses at the time of the test.
✓ Have an upright position in front of the camera and be careful not to move during the test.

After making sure that it meets these requirements, a green button called "start gas calibration" will appear on the screen, which will need to be accessed and it will lead to a white screen, which will contain a red dot on which the subject will you have to follow it with your eyes and then follow the point, both with your eyes and with your head in the left-right direction and then up and down.

- The second stage consists of looking at the image, with the picture, which will appear immediately on the screen for 30 seconds.

As equipment necessary for the implementation and start of this type of experiment was needed only the existence of a particularly good internet connection for both author and the subjects participating in the test and a functional webcam, owned by each subject in part.

Results and Discussions

Following the implementation and conduct of these interviews with art consumers, it was concluded that the experience of art buyers in Romania is not very vast and complex, especially if we refer to several works purchased by them. These people also stated that they usually choose to buy more from amateur artists, but also from abroad, both traditional or contemporary paintings, abstracts or drawings, as well as artistic photography or handcrafted prints. And, in the case of the majority, the reason and factors behind the purchase of art are described by the desire to decorate the interior of their own home and to be able to make a gift to a known person, as well as the simple pleasure and satisfaction of seeing the purchased work present in one's own home.

Moreover, they stated that such works of art cause the appearance of that "inner smile" when viewed, and this matters a lot in determining a person's purchase.

At the same time, regarding the acquisition of fine art, the participants in the interview said that they oriented their purchase choice according to the aspect of the work, more precisely according to its composition, its subject and what the whole work represents, together with the color range used. Also, another familiar behavior found among the art consumers interviewed is described by passing the whole work before they decide whether it is worth buying the work or not. Later, their gaze gradually shifted to certain details in the compositional framework of the work and especially to the smaller, or more meticulous details. Simultaneously, with these answers were also opinions of the artists who were interviewed. Individually there are people who say that they even look at the artist's signature in a work, because he finds it interesting how his signature is made. Also, some people said that they are much more attracted to abstract works and the inspiration of geometric shapes found in such works. Emphasizing at one point that, "the more color you have in your work, the more assumed you are as an artist," because it is exceedingly difficult to work with so many colors and place them in such a way that, from an exhibition point of view, to succeed in attracting the human eye and not to spoil the whole harmony and symmetry of the composition.

Equally important for the interviewed artists is the presence of a message found next to the artwork, or rather a good advertisement made for when an artist wants to exhibit his works, because the artist's message, his name, and other descriptive details of the painting matter for a viewer or potential consumer of art. It is therefore advisable for them to have these descriptive elements present, even if the viewer chooses or not to read it, because in this way, some idea can be formed about the meaning of the work, especially if it is a work that it is more abstract and slightly more inclined to philosophy.

That is why the curator is the most essential element in an art exhibition. Thus, a good promotion from the curator who takes care of your exhibition is the most important when you want this increased visibility in the eyes of art viewers. Also, an equally key factor for this visibility of the artist, today, is represented by his visibility in the online environment, so many people end up setting up their own social platforms and web pages through which they are made. seen faster by Internet users, both in the country and abroad. An advantage of this self-promotion movement is that

they have a much wider descent towards the younger generation, who populate these social networks the most today and who do not get to attend physical galleries or art exhibitions as much. Another behavior, coming from the artists is the appeal and creation of partnerships with different public figures, different influencers from Romania, to whom they give as gifts some works of art, which they publish and advertise to their own group of followers and people who he appreciates them. But this phenomenon is more common among younger artists, who know how important the presence on social media has become for an artist who wants to grow in pace as quickly as possible and advantageous for him.

Moreover, some of the art consumers said that for them the interaction with the artist before purchasing the work matters just as much. This happens most often in art fairs and exhibitions where you can get this direct contact and interaction with the artist of those works or even online. Also, in addition to the interaction with the artist, they are also oriented, in the process of searching and buying art, and according to the style of the working artist. One of the interviewees specifying that he finalized his choice, in one of the cases, when he listened to what the artist had to say about his work. Compared to this statement, another person stated that the presence of a description on the exhibited work is not an advantage for the buyer, because each person may perceive the meaning of the painting or work differently, and it is much better when that meaning is interpreted and adopted. of buyers in their unique way. At the other extreme, a little more analytical and more experienced, among the interviewees was found a slightly distinct perspective, in terms of visual appreciation of a paper, specifying that that person looks, for the first time, if he likes the work itself and then the "gold line or cut" i.e., the division of the work into two vertical lines and two horizontal lines of the work. Thus, if the compositional elements are found positioned on the trajectory of these gold cuts, then the composition has a much wider dynamics and a much more complex harmony.

When we think of purchasing a work, the budget established for it, in Romania, is not very extensive and generous, compared to other countries from abroad. Thus, among the interviewed art buyers, most of them said that they did not give more than 300 lei for an artwork, many stating that they cannot afford to buy expensive works. But there were also people who said that they would be willing to pay more, even somewhere

up to 11,000 lei, for a more original work. And, when it comes to the location where a particular artwork can be bought, it can also be a barrier when it comes to purchasing art. The vast majority say they choose to buy by looking for a location closer to them because many of them do not have the opportunity and time to move after those works. At the same time, there is the opinion that the location is not an obstacle in any way, but more important for a consumer is the price of the work. From another perspective, the most vociferous topic, in interviews with artists, was described by the lack of promotion of exhibitions and cultural events of this kind in smaller cities in the country, and the lack of education on the population, in terms of art and its actual process of making a work of art. This being a first obstacle in terms of increasing the visibility of an artist who wants to become known on the art market in Romania.

Eye-tracking test

Regarding the results and values obtained from the test, they are represented by a Heatmap, and Area of Interest (A.O.I.). Separately, the Heatmap shows how the studied stimulus is transposed into an image in the form of colored overlays. These colors are both dark and lighter. They are also represented, on the one hand, by the colors yellow and red, which indicate the areas where a person looks the most, and on the other hand, by the cold colors, namely blue and green. Red represents the area with which a person interacts the most, followed by yellow. The colors green and blue look further, following the order of intensity of the gaze, where the person looks less, at that image. Blue represents that area of the image in which the person looks the least.

The second type of result obtained, from the eye-tracking analysis, is represented by the area of interest, or A.O.I., abbreviation from English. This type of result indicates the region's where certain displayed stimuli are located and from where certain specific values in those regions must be calculated and extracted. The values, which appear in these A.O.I. areas, show how many people saw the selected area, in the picture shown, how many seconds lasted, when they saw the selected stimulus in that area, how many times the view of that selected part was repeated and how many views were made back and forth in that area.

As can be seen in Figure 3, the first type of result procured by the platform is called the Heatmap of the studied stimulus. In the composition of this image, you can easily see how the 10 participants in the test were attracted and looked the most in the middle of the picture. The color red, being more accentuated on the donkey's head and on the woman. Also, following this hierarchy of colors, present in the heatmap, the following elements that managed to attract more efficiently and more the attention of all participants, were described by the road and the cobbled shadow in the composition of the painting, followed by the artist's name, part of the title of the work and its price. On the other hand, most viewers devoted much of their visual attention to the upper middle of the painting and then
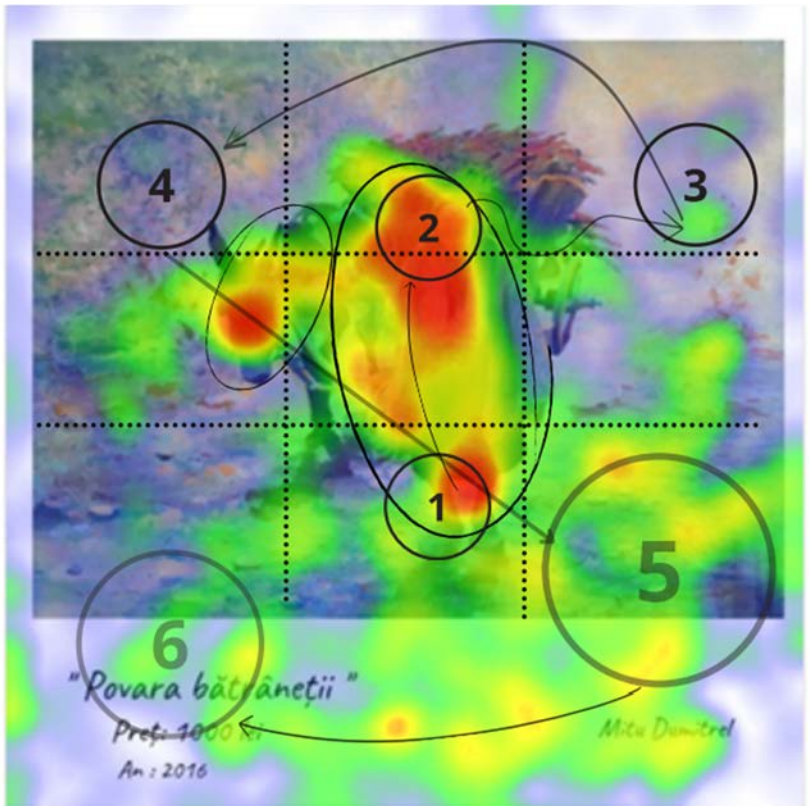

Figure 3. The Heatmap corresponding to the oil painting used as a stimulus
Source: Gaze Recorder Platform: https://app.gazerecorder.com/Study/

they turned their gaze to the lower middle of the painting, thus confirming a part of the statements and discoveries made by Dan Hill (2019), in his study, that when people look at a work of art, they always tend to look for the first time in the middle of the work and the faces of the main characters. Also, the fact that the subjects looked as much at the road painted in different blue tones, also confirms another hypothesis and results of the same author, that people are more attracted to the color blue than the other colors used in the realization of this painting, such as the brown and the brick present in the hay carried in the cart, an element on which the vast majority did not focus their eyes and attention particularly.

In the second type of results, namely the analysis of areas of interest, it was decided to select, in turn, the areas that were supposed to have the potential to attract the attention of a person for the first time and on which it was desired to find out the intensity with which they catch a person's eye. Then, areas were selected in the paper, based on those "cuts and golden dots", represented by horizontal and vertical lines, which dictate the harmony and symmetry of a plastic composition. Therefore, as can be seen in Figure 4, below, the middle area of the paper is the area where the subjects looked the most, being viewed by 9 out of 10 people and in a proportion of 26%. The total viewing time of the area is 8.25 seconds, requiring only 0.51 seconds on average for these 9 subjects to view this area for the first time. At the same time in Figure 4. we can see the difference between the interest given by the subjects to the upper and lower middle part of the artwork delimited by these vertical and horizontal lines of harmonic orientation. Thus, it was observed that all 10 subjects looked mostly in the lower middle of the painting, with a total viewing time of 2.78 seconds, in a proportion of 10%. It is 16 percent smaller than the central area of interest, where the first gaze lasted 1.33 seconds. This shows that the subjects' eyes were first drawn to that area for a little longer. On the other hand, although the upper middle area was seen by fewer people, it managed to draw attention, for the first time, longer on the area lasting 6.18 seconds, compared to other areas selected, but for a total time 0.96 seconds shorter.

Dwell time 0.96s (3%)
First view 6.18s
Viewed by 8 of 10 (80%)

Dwell time 8.25s (26%)
First view 0.51s
Viewed by 9 of 10 (90%)

Dwell time 2.78s (10%)
First view 1.33s
Viewed by 10 of 10 (100%)

Figure 4. The medium areas of interest delimited in the study
Source: Gaze Recorder Platform: https://app.gazerecorder.com/Study/

Viewing Figure 5, in terms of areas of interest, the most watched of these areas are those described by the faces of the main characters and their clothing. It seems that 8 of the 10 people looked at the face of the donkey and the old woman in the painting.

These being seen, for the first time, in turn, by the 8 participants, in a time of 4.94 seconds for the donkey and the old woman's face being seen for the first time in a time of 3.8 seconds. They spent more time looking at the donkey's face for the first time than the woman's but compared to the total time of 30 seconds they looked more at the woman's face. Moreover, the total time in which these participants looked at the woman's face was 2.21 seconds, compared to the total time of viewing the donkey's face, which was less than 1.7 seconds, about a percentage lower than a woman. This total viewing time of a particular area, from an image, includes both staring for the first time and returning the gaze to that area during viewing.

Figure 5. The most popular areas of interest
Source: Gaze Recorder Platform: https://app.gazerecorder.com/Study/

Another observation, very prominent, is described in Figure 6, by the fact that the subjects spent truly little time in total, looking in the upper left and right corners of the picture. They watch in proportion of 2% of the total viewing time of the areas. Compared to the upper right corner of the painting, where only 5 out of 10 people looked, it seems that in the upper left corner they looked at two more people, but they looked in that place for the first time, for a time of only 11.59 seconds. The highest value of this first view was recorded in the upper right corner for 13.63 seconds. But analyzed, together with the total time required for these two upper corners to be viewed, which was noticeably short, it turns out that people who looked at these areas did not return to them.

On the other hand, in addition to the lower middle area of the picture, in a percentage of 100% and in a total time of 2.4 seconds, the participants in the test looked at the corner of lower right, corner that is

part of the stylized road in blue and that also contains the artist's signature camouflaged in this predominant color. Also, it seems that only 4 out of 10 people looked at the artist's signature, in a total time of 1.16 seconds.
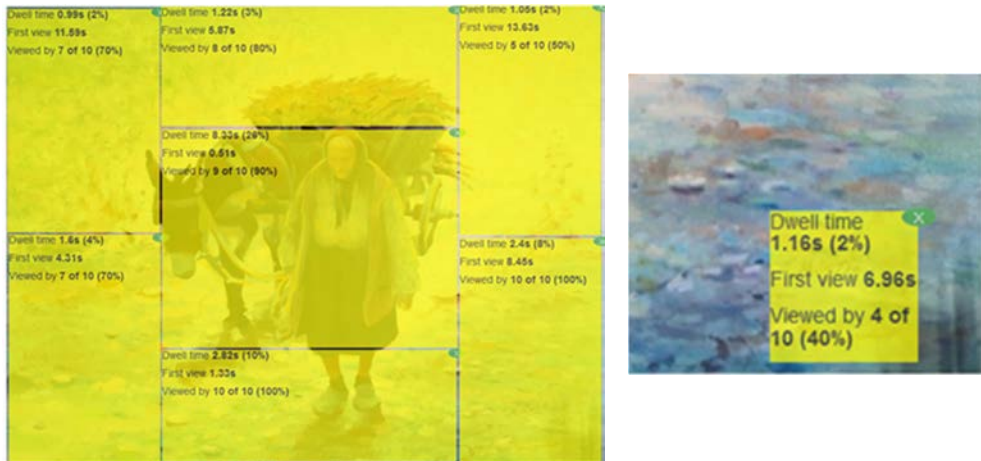

Figure 6. Participants' interest in the corners of a painting
Source: Gaze Recorder Platform: https://app.gazerecorder.com/Study/

Conclusions and recommendation

The main results, derived from the research carried out in this paper, both the traditional one, represented by the in-depth interview, and the modern one, described by the study based on eye-tracking technology, show that, in our country, they are very many people who appreciate art, but very few of them choose to invest in art. Not only in terms of its purchase, but also in terms of promoting Romanian art at the level of the entire country, not only in the capital. Therefore, to qualitatively promote Romanian art, it is necessary to increase the level of education in art.

Another finding, resulting from the research, reveals that an artwork is successful in the eyes of a consumer, if its composition is done correctly and if it shows a certain dynamism and harmony, which ends up satisfying and delighting instantly a person's eye. Another factor which places a work in a place of glory, in the eyes of the viewer, is the range of

colors used in the creation of the artwork by the artist. The courage and admiration of an artist can be seen in the variety and intensity of the colors he uses in his works. It has also been shown that the viewer focuses on the small and very well camouflaged elements in the artwork, as well as on the centered elements. This is also observed in the case of the analysis of the oil painting, subjected to the eye-tracking test.

This test showed that the maximum percentage of audience (100%) was attracted to the bottom of the painting, on the paved road and stylized in blue, by the turbulent movements of the brush. Considering the total viewing time on this area of interest it can be said that this time was much shorter compared to the 8.25 seconds spent on the main characters, who were positioned centrally in the composition of the work. Thus, regarding this analyzed paper, the common element found in the behavior of the subjects participating in the study is represented by the paved road at the bottom of the picture.

Centralizing these results very well, it can be deduced that the artist, who agreed to offer his work as a visual support for this study, to further increase the attraction, on his work and the whole composition, must put more emphasis on the distribution of the technique used in the construction of the paved road and in the upper part of the work, in the two upper corners. Also, to create a much stronger dynamic and harmony in this work, it could bring the central elements a little closer to the right side of the picture to create even more perspective on the difficult gait of the old woman and the donkey, but without changing the way they are made, as this was one of the factors that gathered the greatest interest from viewers, both in terms of viewing time and the number of people, namely in proportion of 90%. Adopting these improvements, by the artist in question, the quality-price ratio would be much more appreciated by the viewer when considering his purchase. The more the art viewer is attracted to a work, the less he thinks about its acquisition. Moreover, considering the recent behavior of people on the Romanian art market, namely their growing attraction to contemporary art, this has led to the attention of artists more on these art lovers. But, because there are very few people who really choose to invest their time and money in art, this determines the appearance of this slightly gloomy and incredibly competitive feature in the Romanian community of artists today. At the same time, this lack of education, which many artists consider, in terms

of art in the country, is not to blame, neither the ordinary citizen, nor the artist, but simply this is a common feature of today's society. However, this behavior can be rectified, little by little, in terms of increasing the level of general knowledge in art, by introducing these devices and software that use eye-tracking technology, in the study and presentations made in the field of art. Many galleries or auction houses could, in this way, use this type of research tool, in terms of the analysis and presentation of a particular work to its public, both in the case of art exhibitions and in the case of organized cultural events. of these. Also, another way to improve the visibility and promotion of artists' artwork is by introducing an art consultancy using eye-tracking, to find out what are those strengths and elements that manage to attract the interest and gaze of a person who is passionate about art.

This consultancy should not be seen as a result of the study created, but rather, it should be seen as a way to improve and self-educate the artist in his art. The artist, following the use of this consulting service, can choose to consider or not the results obtained from the test. However, the fact that he can convince himself with his own eyes of the way in which his own works are seen, can represent for him another kind of source of determination and motivation when working on his next masterpieces. Thus, seeing what the art viewer is more attracted to, the artist can create much more art for the public or, he can get much closer to it and can promote himself much more easily, by highlighting those works that had the greatest attraction during the eye-tracking test. This consultancy can also lead to more constant exhibition and sales activities for an artist, because through the feedback he receives, he can even save certain works that are unfinished or that have a lower performance in the eyes of the viewer. What must be mentioned, regarding the appeal by an artist, especially the amateur, to this art consultancy on his works, is that this will not lead to the disappearance of the artist's creativity or to a change of the way of making his paintings. The results that he obtains, following the eye-tracking study, the artist in question will choose to transpose and highlight them in the work, in his own way, or maybe he will even choose to omit them permanently. What is certain is that that creativity and its own touch will not disappear but will only be able to be highlighted better and more effectively knowing what the visual contribution of people to his works is.

Therefore, this technology is beneficial because it allows the researcher to really see and verify the degree of influence that the work of art has on the behavior of a consumer of fine art. But as beneficial as this is, it is as unknown to the average person in Romania. And because there are still people who fear technology and how fast it is advancing, it makes these people not incredibly open to using or testing this type of research tool that is based on eye-tracking technology. As we have encountered in qualitative research, namely during interviews, people see eye-tracking as a way of manipulating and invading privacy, because it can reveal its interest in a particular object or image. In this regard, an equal emphasis must be placed on the significance of eye-tracking and how it works, because it is one of the technologies of the future, in almost any field of activity, and Romania must finally rise at the level of other countries, in terms of innovation.

Also, these results and this type of research can be used in educating the population, in a much more effective way, because it is based on concrete cases and studies, in which the emphasis is more on objectivity and less on subjectivity. Aspect, which is a little strange, to meet in the field of art, given the fact that in art, almost everything is subjective. So far, in terms of art research, we have focused a lot on what experts and artists tell us and we have focused less on what an ordinary person really sees. And for a person to become interested in investing in art, in Romania today, he must first be able to taste this art, which is offered by our artists. And for this phenomenon to grow, it also takes an effort from the artists to try to get closer to this unmodeled audience with a good hand.

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