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USING EYE TRACKING TO MEASURE ONLINE INTERACTIVITY: A THEORETICAL FRAMEWORK

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Abstract

Notwithstanding that each and every company, even the sweetshop around the corner has found its way to the Internet, some customers still hesitate to shop online or to shop from one site and ignore the other. In order to build an online effective communication between the participants, one of the most important factors is interactivity. In the last decade it received extensive attention in the marketing literature, but few are the studies which have seen new methods to measure it. Eye tracking technology has been broadly used in the cognitive sciences.

The purpose of this study is to investigate the existing literature in order to give insights into the eye tracking methodology when measuring the online interactivity. It also describes the eye tracking technology in general, extracts various examples from the eye tracking research field, with different applications, highlights its importance when analyzing the online consumer behavior, giving examples from various studies and finds the key points of the methodological difficulties.

Finally, this work has an important merit for the future studies when taking into consideration the eye tracking technology in the online interactivity research and further, it is relevant for marketers, regarding the enhancement of online interactive interfaces and web or mobile applications.

1. INTRODUCTION

There is a saying: 'the eyes are the window to the soul''[1].Their investigation and their path can provide us valuable information concerning the users` personality, preferences and their behavioral intentions. When investigating the websites, our eyes can reveal various patterns by following the eyes` pathways, the preferences for certain characteristics, the time spent on these characteristics, the frustrating characteristics for the user. Eye-tracking technology offers the possibility to measure the users` eye movements when scanning the website and searching for information. Thus, we can identify the most commonly viewed pages and regions of the website, the time spent on these regions and the moment when the eyes moved from one object to the other. Achieving this information, one can understand the user's visual process and the factors which determine a loyalty behavior.

Using the eye tracking technology, when measuring online interactivity, one can validate the final results gathered, by using another method, previously applied. All in all, the eye tracking technology can be used and it is used mostly directly, without any other methods, when assessing the interactivity`s characteristics. This technology is now used in the Romanian marketing research, namely in the online consumer behavior. Initially applied in medicine and psychology, today the eye tracking technology is used in the marketing research.

In this section we propose an examination of the visual attention, the neural mechanisms of the eye movement measurement techniques, a short presentation of the online interactivity and the most important implications of it in the online marketing.

The user`s attention is focused on certain objects inside the website. This fact points out their potential of attraction. A fixation larger than 300 milliseconds (Djamasbi, 2010) on a certain object, inside a website, will infer an intense cognitive processing, which means that this object is interesting to the user and it has captured his attention. In order to justify the decision to use the eye tracking technology in studying the human behavior towards a website interface, we will bring some arguments from two points of view: psychological and physiological. From a psychological point of view, we will investigate the visual attention as it is analyzed in the literature. From a physiological point of view, we will investigate the neural mechanisms.

2. INVESTIGATING VISUAL ATTENTION

The visual attention represents an important factor in information processing and in pursuing the long term objectives. The visual attention can reveal more than it is expected, not being any more a simple incipient phase, but an essential element in understanding the human behavior. Duchowski (2007) delivers us a detailed analysis of the visual attention, evaluating different authors who along the time elaborated various definitions of the visual attention. From this perspective, the visual attention is defined through three characteristics: where, what and how. From the Von Helmholtz's "where'' perspective (Duchowski, 2007, p.5), the user has the tendency to identify all the new objects he meets. This type of attention can be controlled in a conscious way, thus it is led to the elements which are placed at the periphery. The eye movements show exactly the voluntary action of the user to inspect these elements in detail.

From the "what" perspective, Duchowski (2007) emphasizes the user`s need to inspect the object in detail, namely foveal. The two aspects, "where" and "what", can be explained by introducing a

[1]From Latin: „oculus animi index"

stimulus. Thus, introducing a stimulus like a certain banner, the user will be attracted by certain regions inside it. In the first phase, the user will perceive parafoveal, namely overall and subsequently he will feel the need to analyze in detail, namely foveal inspection. Certain marginal elements from the image will lead the user "where" to look further and "what" to examine in detail.

The third characteristic considers the user`s attitude and his perceptual waiting. Duchowski (2007, p.6) enhances the importance of the attitude when a stimulus is presented in an ambiguous way. In this case, a question arises: how will the user react when that stimulus is distorted? We can observe that these theories are grounded on the human vision which includes the foveal vision (the central area which is clearer and has a higher resolution) and the peripheral vision (which has a lower resolution).

Like the theories analyzed at Duchowski (2007), Velasquez (2013) emphasizes the existence of a link between the regions of interest and the eye movements. Nevertheless, the peripheral elements may receive the proper attention but without making such movements. This is named the "covert attention" (Velasquez, 2013, p.3).

At Velasques (2013) we also observe a model of the vision, the attention being from bottom to up or from top to bottom. According to the first model, the objects of interest attract the attention so much that it will not be distracted by the peripheral elements. Concerning the second model, the attention is influenced by the users' expectations, by the previous knowledge he holds or by other external factors.

Nevertheless, today there is no proof to show clearly what elements attract the user`s attention. We encounter, on both Duchowski (2007) and Velasquez (2013) a model through which one can observe the attention`s evolution from the moment the user becomes exposed to a certain stimulus. Thus, in the first stage, a stimulus like photography is perceived overall through the peripheral vision. In this moment, the resolution of the image is low and gradually, the objects of interest will appear so that in the second stage, the main region of interest is focused. In the last stage, the foveal vision is aligned with the region of interest and subsequently, the attention will be tightly bounded with the perception (Velasquez, 2013, p.4). In this moment, these elements will succeed to capture the user`s attention, the stimulus being perceived at a higher resolution.

A newer perspective comes from the Gestalt theory, according to which "one's perception of an object cannot be decomposed into its elementary parts" (Djamasbi, 2010, p.308). This view is a holistic one in which the vision is mainly based on this tendency of the user to group the elements (Duchowski, 2007, p.7). On the other side and contrary to the Gestalt theory, Yarbus (1967) argues that photography or an image in general, is shaped after the vision is focusing on different regions of interest. This image is not formed by its elements seen together, but contrary, this is formed by each part, by each region focused by the user.

The eye movement takes into consideration two of the three previously mentioned hypotheses: "what" and "where". Consequently, Duchowski (2007, p.11) defines the vision as a cyclical process, formed by the three stages mentioned above. This represents a model of bottom-up visual attention, representing an important side of the natural human attention.

3. INVESTIGATING NEURAL MECHANISMS

The neural mechanisms are analyzed from a physiological point of view, the arguments being grounded in the literature which targets the Human Visual System (HVS). Further, it is described the neural side which underlies the visual

process and the attention, the brain`s regions involved in the eyes movement process. Investigating these regions of the brain, one can understand the way it process the visual information. Certain areas of the brain answer to certain characteristics which attract the attention.

According to Duchowski (2007), the entire visual field is formed by "brief fixations over small regions of interest. This allows perception of detail through the fovea" (Duchowski, 2007, p.14). When the attention is turned to a new area from the visual field, the fast movements of the eyes will reposition the fovea. These rapid movements of the eyes from one region to another are called saccades (Duchowski, 2007, p.14). The human visual system is grounded in the connections which are formed between the retina and the brain`s regions. A connection represents the pathway between a region of the brain and the retina and the paths which link the various regions of the brain and the retina, are called flows. Recalling these notions, Duchowski (2007) builds a scheme of the brain`s regions involved in the eyes movement and which are relevant when taking into consideration the attention. These regions are visually represented in Figure 1. Table 1 represents a synthesis of the neural regions and their implications.

According to Duchowski (2007, p.16), the main regions involved in programming the eye movement are the following: Posterior Parietal Complex (disengages attention), SC (relocating the attention) and Pluvinar (engages and intensifies the attention).Through this simplified image of the brain`s regions and the links between these areas and the retina, one can understand the attention cycle, from disengaging the attention, changing it and the eyes, processing the regions of interest and reengaging the attention and the brain`s regions.

Before discussing the main eye tracking techniques, we have to present the main types of eye movements. The same author (Duchowski, 2007, p.17), distinguishes between five main categories of eye movement. Thus, we identify the saccadic movement, the smooth pursuit, vergence, the vestibular movement and the physiological nistagmus. On the other hand, Rauthmann and others (Rauthman et al., 2011, p.148) propose a different category in comparison with the one proposed by Duchowski. Additionally, he proposes the following: the saccadic acceleration, the saccadic amplitude, duration of fixations, and the duration of the eye fixation for regular distances. These movements proposed by Rauthmann, represents rather the parameters of the types of movements previously proposed by Duchowski.

Thesaccadic movement represents the fast eye movement in the process of fovea`s passing from one object to other, in the visual field. These movements can be voluntary or reflexed. Duchowski (2007) argues that these movements can last from 10 to 100 milliseconds. Instead, Wendel and others (2008), argues that these saccadic movements represent ballistic bounces of the vision and the time is very short, lasting from 10 to 40 milliseconds (Wendel et al., 2008, p.124). Smooth pursuit takes place when the moving objects are focused. Fixations represent the eye movements which fixate the retina upon a stationary object of interest. These fixations last from 200 to 700 milliseconds (Wendel et al., 2008, p.124). If the smooth pursuit was characterized by the velocity of the followed object, then the fixation is characterized by a level of velocity closer to 0. This means that fixation does not have the velocity 0 but it is characterized by movements like tremor, deviation or micro saccades. The physiological nistagmus represents the involuntary eye movement, characterized by the model repetition. Satu (2012) defines the vergence as being the movements useful for the profound perception and the vestibular movement as being useful when

fixating a certain object when there takes place a head movement.

Only three of the eye movement types mentioned above are significant when analyzing the attention: fixation, saccadic movement and the smooth pursuit. At Duchowski (2007, p.47) we identify a linear model, invariant (Time Invariant-LTI) for the approximation of the eye movements. The same eye movements are voluntary and thus, they provide evidence in what concerns the analysis of human attention. The eye tracking instruments records the various models of fixation and the saccadic movements a user makes through the process of visualizing a visual stimulus. Thus, in order to understand how the process of measuring the eye movements is taking place, it is required a presentation of the main eye tracking techniques.

4. EYE TRACKING TECHNIQUES

Over time, the techniques for measuring eye movements have evolved from the simple analysis of the photos (late 1940) and till today when we have the eye tracking technology. The development of the measuring systems for eye movements took place initially in the physiological research of the oculomotor system. Hammond and Mulligan (2008) distinguish between these systems. They can be invasive and inactive, on the one hand, noninvasive and passive, on the other hand. Noninvasive systems differ toward the invasive ones. They are not attached to any part of the human body, the participant expressing in his natural environment.

In contrast with Duchowski (2007), which offers a restricted number of techniques for measuring eye movements, Hammond and Mulligan (2008) go further in the history of this long debated technique. They describe one of the first eye trackers of great precision – Dual Purkinje Image (DPI). "The first Purkinje image represents a virtual image formed by the first layer of the cornea, meanwhile the fourth image is a real one, formed by the concave surface of the crystalline" (Hammond and Mulligan, 2008, p.2). This instrument has the disadvantage of not being noninvasive, being necessary the head stabilization. All in all, the DPI eye tracker is efficient in what concerns the sensibility and the temporal bandwidth.

Both Duchowski (2007), Hammond and Mulligan (2008) and Wendel and Pieters (2008) find the Electro-oculography technique (EOG) as being the most used technique over time and even today. This method is based on measuring the potential electrical differences by means of electrodes placed on the skin around the human eyes. In the retina is gathering an electrical load which offers the eye a dipole moment and its movement makes the electrical potential to vary in the area. Velasques (2013, p.4), argues that today, this technique cannot be used anymore because measuring the relative position of the eyes to the head, calculating the point of attention is not efficient. Measuring the point of attention can be possible only if we will calculate the position of the head by means of a head tracker (Duchowski, 2007, p.52). Electro-oculography is easy to implement but being intrusive due to the electrodes, today it is not used anymore, only occasionally in laboratory.

The Scleral Contact Lens or the Search Coil represents a precise method in measuring eye movements. It consists of attaching a mechanical or optical object or reference to a lens which subsequently will be carried directly on eyes. The attached objects can be: reflecting phosphor, diagrams in line or wire coils, and the most used in optical magnetic configurations. The principles suggested by Duchowski (2007, p.53) shows the measuring of the wire coil by moving in the magnetic field. The precision of this method, according to the previously mentioned author Duchowski (2007, p.53) is of 5-10 arc-sec.

with a limit of 5°. Like the elector-oculography, the contact lenses represent an intrusive method, being uncomfortable for the participant. Because this method assumes to measure the eyes position towards the head, it is not recommended to measure the point of attention.

Photo-Oculography (POG) or Video-Oculography (VOG) represents another technique which involves the measuring of the eye characteristics when moving, like the corneal reflexion or the pupil shape. Using this technique, one cannot measure the point of attention.

By comparison with the previous techniques which cannot measure the point of attention, in Duchowski(2007) we identified the techniques based on corneal reflexion or video-based combined pupil. Nowadays, these techniques are the most used and consist of an infrared camera, mounted to the bottom of the monitor or in the hinge area of the laptop (Figure 2). Equiped with a software for image processing, this camera identifies and locate the cornea reflexion and the pupil centre. Velasquez (2013), argues that this technique can measure the user`s point of attention because it can dissociate between the eye movement and the position of the head (Velasquez,2013, p.4).

"An infrared light from a LED is directed toward the user to create noticeable reflections on the features of the eyes, thus making tracking easier (infrared light is used to avoid dazzling the user)" (Velasquez, 2013, p.4).In this way, the light can enter the retina and thus, it can be reflected, the pupil becoming very bright. The light thus reflected will be subsequently collected and recorded by a digital camera. The collected data will be used in measuring the eye rotation through the variations of the corneal reflexions. Finally, using a trigonometric calculation, the instrument will find the point of attention.

5. ONLINE INTERACTIVITY

Becase the purpose is to investigate the eye tracking technology and the manner of using it in measuring websites interactivity, we must make a short summary of what interactivity means. Therefore, from a structural point of view, interactivity supposes the existence of 'hard' instruments and from an experiential point of view, interactivity represents the communication process, as it is perceived by users (Liu et al., 2002, pp.55-56). For example, synchronicity, from a structural point of view, assumes the existence of an appropriate server structure, of a bandwidth which has to guarantee the proper link between various documents. From an experiential point of view, synchronicity assumes the way in which the users feel the communication process, if this communication between them is synchronized and totally felt.

One of the first stages of the interactivity is called "reactive interactivity" (Chaffey, 2006). This is formed when the medium is developed, when the virtual selling space is created. In this moment, the first questions appear. They refer to the way in which the system will function and answer, as well as to the way in which the user will react.

The concept of interactivity is used in various fields but in this paper it will be defined for the marketing literature. Liu and Shrum (2002) present one of the first definitions of this concept. Interactivity is defined from the marketing perspective and it comprises three aspects: user-user interactivity, user-computer interactivity and user-message interactivity. Thus, in this respect, interactivity represents the way in which two or more communication channels operates between them, on the communication medium and on the messages, as well as the way in which these influences are synchronizing (Liu, 2002, p.54). This definition reflects the multidimensional character of interactivity.

The Internet does not represent a linear medium, interactivity offering the possibility to the user to have a total control active. Interactivity can also be described as a two way communication of the companies with the users and of the user with other user. The marketing field has now a new way of achieving information concerning the consumers need. It receives an instant feedback due to the interactive element by surveying the performed clicks by users, of its presence online or offering a direct feedback from users by sending an e-mail or filling the fields inside the website.

Therefore, two-way communication enables the online transactions and deliveries. At this time, synchronicity has an important role which allows a faster response to those who launched interrogations. The system responsiveness represents the essential element of interactivity to which the online experience could not be possible.

The concept of interactivity is used in various fields and its origin is the interpersonal communication, as we can observe in the Liu and others studies (2011), in the Sun and Hsu`s study (2012) which analyze the interactivity concept in the online educational context. They argue that interactivity can improve the cognitive and operational skills (Sun et al., 2012, p.172). Interactivity represents here a communication process which fastens the relationship between the students and media, on the one hand, between teachers and media, on the other hand. Thus, their involvement level in the learning process is enhanced. Interactivity has the same effects on the users `actions. It enhances the attention, raise the involvement and curiosity level, thus leading to higher level of conversion.

Joshua Noble speaks about the didactic model of interactivity. For him, didactic interactivity implies the running of the system in a continuous way and the data it delivers are used for the purpose of learning. In this situation, the system and the user get advantages. The first one acquires data about the user in what concerns his preferences and the searched information. The second one has the chance to search for information without being forced.

In Chang and others (2008, p.2930), we identify in the interactivity definition the same two-way communication element. At Chang (Chang et al., 2008, p.2930) and Cyr (Cyr et al., 2009, p.853), the novelty in defining interactivity suggests “the instruments availability and efficiency which supports the user”. We can observe in this situation the common element with the other definitions of interactivity: interactivity as a dialogue between the website and the user. In fact, interactivity represents an interpersonal communication. Moreover, Cry outlines a definition for interactivity which is centered on the user. She defines this concept in the following way: “allowing the user control and access to information on the site in a variety of ways, which is both personal and responsive” (Cyr et al., 2009, p.853). From this point of view, interactivity assumes a larger control of the user in modifying the structure, the content and the speed of the accessed medium. In the same time, the system must be able to respond the requests users made. Without this communication between the user and the system, interactivity cannot be possible.

But then, Yoo and others (Yoo et al., 2010 p.90) defines interactivity through three dimensions: controllability, synchronicity and bi-directionability. All dimensions described interactivity as a way of controlling the content, the sequence of communication, the speed and the possibility to change the sender role with the receiver. Online interactivity assumes the possibility to personalize the medium. Its functions can include the feedback forums, e-mail addresses links and chat-rooms. Some of the dimensions are found and are common in some studies and other parts are new and recently

defined. In a study realized by Carnegie (2009), interactivity is defined by three main attributes: multi-directionality, manipulability and presence.

6. THE IMPLICATIONS OF EYE TRACKING TECHNOLOGY IN MARKETING

One of the reasons we choose to use the eye tracking technology in marketing research is because we are keen to understand the users' actions in the online medium. In the decision making process, a user is influenced by internal factors, on the one hand, and external factors, on the other hand. The external factors are related to the marketing actions and the competitive and environmental factors. These factors are the only one which can be measured and subsequently measured with the results of the users' actions. The internal factors are related to the cognitive and perceptual processes. These factors represent the crucial factors in establishing efficient marketing actions. Thus, the main purpose lays in understanding the type of information the user needs to make a decision.

The eye tracking technology may be used in advertising, copy-testing, television, product design and online research. Interactivity and website design have become the main studying areas in differentiating one site of another. In this section will be described and analyzed some studies realized on this segment which implemented the eye tracking technology. The way in which these studies will be synthesized will be chronologically. Thus, we will emphasize the evolution in what concerns the way in which the instrument is used and the way in which the characteristics of the interactivity have been approached.

One of the analyzed studies succeeded, using the hidden Markov model, to model the relationship between the eye movements and the cognitive states of the participants (Simola et al., 2008). In this study, we have to notice the analysis of an entire fixation sequence and the saccadic movements. In this way, the authors succeeded in understanding the way in which the information processing varies along the reading process. The analysis has focused on three tasks: searching various words, question-answer and searching the most interesting subject. When identifying the way in which it is realized the link between language processing and the eye movement, the authors have implemented a modeling of the fixation time series and eye movements. This was achieved by assuming the hidden states, supposed to be signs of the cognitive system which varies between different processing states (Simola et al., 2008, p.239). Like the majority of the studies (Liu et al., 2011 N=16; Khushabaet al., 2012 N=18; Roth et al., 2012 N=40; Gidlofet al., 2013 N=40; Velasques ,2013 N=33, etc.) realized with the eye tracking technology, the sample was very small, including 6 participants.

Studying the works of the authors who analyzed the interactivity`s elements with the eye tracking technology, Ozcelik and others (2009) and Djamasbi and others (2010) have focused on the introduction of visual elements. Thus, the study realized by Ozcelik (2009) has the main purpose the identification of the color effect on the process of multimedia learning. The optimal combination of the interactivity`s elements enhances the online learning process. The users will learn faster and the information is better stored by visual means. On the other hand, Djamasbi and others (2010) analyses the visual information, taking into consideration four characteristics: large images, images with celebrities, small text and the search characteristic. From a methodological point of view, the eye tracker device completes and confirms the results of the first study. The first study uses the online questionnaire to identify if the participants' evaluations about the

websites visual attraction correspond to the experts given scores. In fact, it was identified the information concerning the visual attraction of 50 websites. The second study included the eye tracking device. Collecting the information of the vision pathway and fixation duration, the authors have identified if the participants has taken into account the four characteristics as well as the time spent in front of each one. The output offered by the eye tracker (heat-maps) revealed the importance of each element.

Moreover, the investigation of the areas in which the participants have fixated initially, indicates what characteristics play an important role in shaping the users` thinking about the visual attraction of each website. The eye tracker has identified the regions fixated in the first 5 seconds. It also identified their succession according to the time spent by each participant to fixate those regions.

This study has used the Tobii 1750 Eye Tracker, developed by Tobii Technology, being a non-intrusive device, allowing a natural behavior. In contrast with Djamasbi (2010), Liu and others (2011) have implemented a face LAB™ 4 eye tracker, developed by Seeing Machines, non-intrusive. If the redundant multimedia information had an influence on the users cognitive processes, Liu and others (2011) tells us in a study realized with this type of eye tracker. The results of the study have indicated a cognitive load of the user when the visualized text information was doubled by the narration (verbal) of the same text. In the same situation, we observe a difference in the cognitive processing when narrating the text to the user (Liu et al., 2011, pp. 2410-2417). Thus, we observe a decrease in the cognitive loading and the capacity to avoid the redundant information. The eye tracker showed the way in which the users have processed various types of information. Nevertheless, they did not identify the type and the level of the cognitive loading. In this situation, it is necessary to determine the patterns of the eye movements and the cognitive processing, in terms of superficial or profound level.

Moreover, we identify a new way to implement the eye tracking technology at Rauthmann and others (2011): the linking between personality and the individual differences concerning the eye movements. The lineal model has proved that personality (Big Five, Behavioral Activation System) can involve the individual number of fixations and their duration. Nevertheless, this study could have included a larger number of stimuli, personality traits and moreover, a larger number of eye movement parameters.

The eye tracking technology can be used in combination with other methods. The methods from neurosciences are also used in the marketing research with the purpose of analyzing and understanding the consumer behavior. Thus, Khushaba and others (2012) have used both the electroencephalogram (EEG) and the eye tracker when observing the brain`s response when exposed to various marketing stimuli. One of the envisaged objectives consisted in the evaluation of the cortical activity from different regions of the brain. This study has identified a new method to quantify the importance of certain product characteristics. In this situation, it is about the biscuits characteristics which contribute to the product design. The implemented instruments were the electroencephalogram (Emotiv EPOC wireless EEG headset) and a Tobii Eye Tracker.

On the other side, the eye tracking device can be used when analyzing the relationship between the usual location and efficiency in what concerns the identification of the targeted elements from various websites. Roth and others (2012), as well as Velasquez (2013) establish a new approach in collecting and processing the users' data with the eye tracker. It is identified the way in which certain areas from a website and the

inserted elements in these regions are complying with the users' expectations.

7. CONCLUSION

This paper offered a starting point for the future studies interested in using eye tracking technology and for those who are interested in the new methods and instruments in the marketing research.

Even if the eye tracking technology is told to be hard to implement, because of the calibration process and hardly accessible because of the higher prices, today it is used more and more due to the technological advances, improvements and a much lower price.

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Biography

Adriana-Emilia Robu is a PhD Student at the Doctoral School of Economics and Business Administration, Alexandru Ioan Cuza University of Iasi, Marketing Department. Areas of interest: Eye Tracking Research, Human Computer Interaction, Websites Interactivity, Neuromarketing, Neuro Web Design, Visual Design.

Figures and tables

Table 1
Neural regions. Source: data are collected and synthesized from Duchowski, A. T. (2007), *Eye Tracking Methodology – Theory and Practice*, Second Edition, Springer, London

Regions	Implications
-SC (Superior Collicus)	Programming the eye movements Selects the region to be fixated for saccades and for the smooth pursuits from one object to another
-V1 (Main Visual Cortex)	Detects the stimuli
-V2, Ve, V3A, V4, MT	Process the shapes, colors and the movements
-V5, MT (Middle Temporal), MST (Middle Superior Temporal)	Provides the large projections to Pons, fine movements. MT provides movement signals to collicus
-LIP (Lateral Intra Parietal)	Includes receptive fields corrected before being executed the saccadic eye movements
-PPC (Posterior Parietal Complex)	Fixations
-Dorsal stream	Movement, localization, processing (where)
-Ventral stream	Cognitive processing (what)

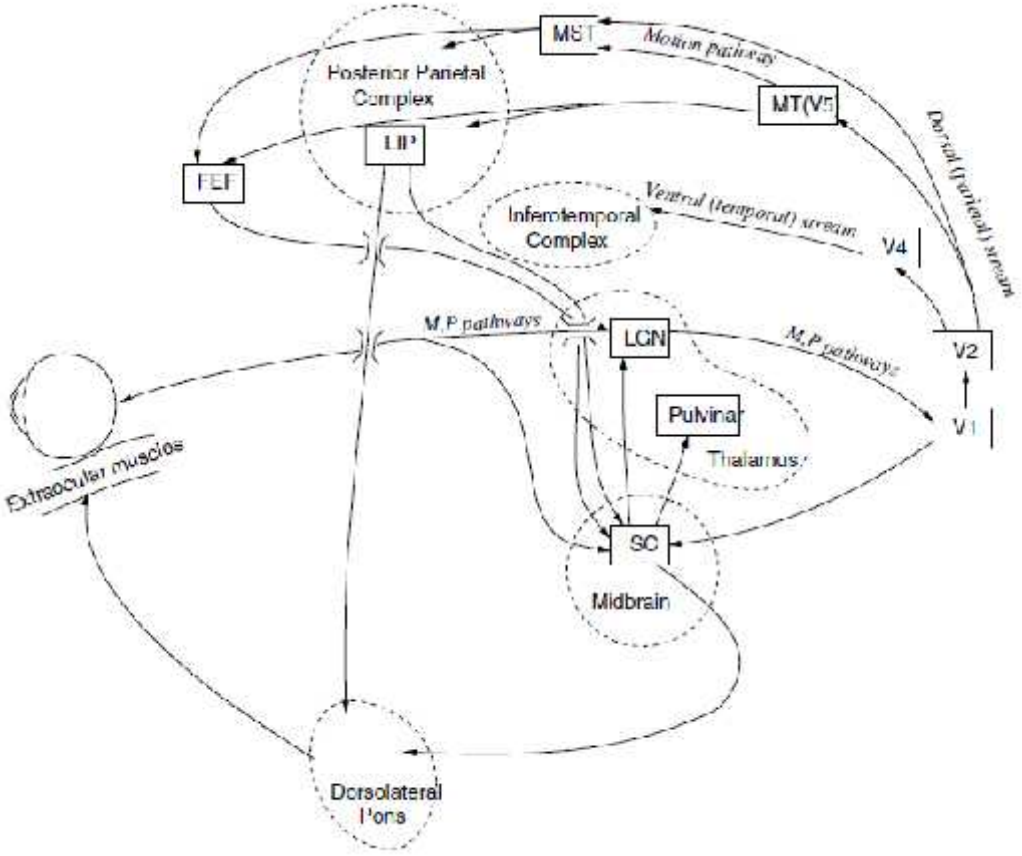

Figure 1 – *The representation of the visual pathways, relevant to the eye movements and attention*
Source: Duchowski, A. T. (2007), *Eye Tracking Methodology – Theory and Practice*, Second Edition, Springer, London, p.17

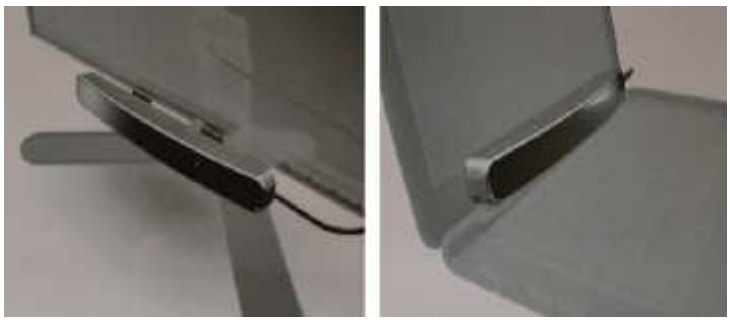

Figure 2 – *Attaching the Eye Tracking device to the monitor orin the hinge area of the laptop*