



AN ANALYSIS OF VOTERS' PERCEPTION OF VISUAL ADVERTISEMENTS WITH RESPECT TO NEUROMARKETING APPROACH

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ABSTRACT

Purpose- The study aims to offer better understanding of individuals' perceptions in term of their eye gazes and fixations toward printed advertisements' design in political marketing context. It is targeted to investigate both 'focus selection' -what the voter chooses to gaze at- and 'focus engagement' -the time a voter spends gazing at the components of the advertisement-.

Methodology- The study uses eye-tracking techniques in gaze plots' measurement as novel methods that may radically change tendencies in the political advertising field mainly when designing the logo, claim, and photo of printed advertisements.

Findings- The findings highlight that voters have significant difference in their visual attention on areas of interests (AOI) as claim, logo, and photo of the printed political advertisements based on their gender.

Conclusion- The participants have a clear tendency to quickly gaze at the claim of the visual stimuli, then at the photo of the leader and lastly to the logo of the party. Also, it is found that the participants have a tendency to focus their gazes at the claim of the visual stimuli more than the photo and logo.

Keywords: Political advertising, eye tracking, logo, claim, photo.

JEL Classification: M30, M31, M37

1. INTRODUCTION

Once John Wanamaker, a merchant and founder of one of the first American department stores, known for his successful use of advertising; he was one of the first major merchandisers to employ advertising agencies in 1889. He said "Half the money I spend on advertising is wasted; the trouble is I do not know which half." Wanamaker's saying constituted an urging motivation to both academics and practitioners to devote more effort to analyze and understand how to select the most appropriate design and channel of advertising that matches their target groups and help them manipulate their strategies so that they can achieve their objectives and meet their goals without missing the budget limitations of their businesses. It is evident that advertisements have a substantial and undeniable impact on various customers so that their medium, design and delivery should have been effectively and professionally conducted to attract customers' attention emotionally and behaviorally (Breuer and Brettel, 2012).

Choosing the incorrect design of the advertisement or selecting the inadequate channel or medium to deliver the message may cause a serious failure of a company to realize its objectives. Wrong choices with poor results may even lead to an entire failure to convince top management to save the appropriate marketing budgets (Breuer and Brettel, 2012). Therefore, it has been an unpretentious challenge for advertisers to practically try to measure the influence of different designs of advertisements' displays on several media channels such as TV, radio, magazines newspapers and even websites (Hyun and Sunkyu, 2006; Tellis and Thaivanich, 2011). All these trials and maneuvers intend to achieve the effectiveness of the medium to promote business products or services. The aim is to reach the right target groups through the most effective medium of communication and with the most appropriate message and image.

Advertisements are not only limited for business field. In modern representative democracies, political parties employ their optimum capabilities through a variety of tools i.e. public relations, social media activation and various advertising campaigns. All these tools are used to achieve political success by attempting to affect the voters' attention especially during an election campaign. They do tend to maintain their success by choosing and producing the best influential advertisements (Berger, Wagner, and Schwand, 2012). Advertising as a direct communication tool, is one of the most prominent interest for campaigners; it is undoubtedly tempting for researchers and marketing analysts to devote their effort to understand the mechanisms and determinants that could be utilized so that electoral campaign can effectively influence the mass of voters and their behavior. There is a great number of studies focusing on the search of the best methods and approaches to draw the attention of voters in a race of election (Russell and Barrett, 2013 and Taylor, 2013).

In the light of all these research, the primary objective of the study is to analyze the effect of advertisement schematic design on viewers' attention. In other words, it measures how the arrangements and positions of the advertisements' elements such as their claim, photo and logo may alter voter's gaze plots and fixations. The study aims at measuring these differences based on eye-tracking technology not self-reporting or traditional research tools such as questionnaires and focus groups. The eye-tracking technique is unique because it gives precise and abstract findings that are not affected by personal judgement of the subjects of the study. Eventually the results will help campaigners and political parties in Turkey get deeper insight of their voters' preferences and gaze attention so that they can design their advertisements accordingly. The study is organized as follows: the literature of political marketing and advertising is reviewed, previous studies utilizing eye tracking approach were thoroughly reviewed. Based on the literature review, conceptual model and hypotheses are formulated and the rationale is discussed. Then, a brief review of the literature of eye tracking approach and its relations to customers' mental attitude based on their age, gender is presented. Then the rationale for the experimental study of eye tracking is conducted then hypotheses and variables are tested. Finally, discussion, findings and conclusions are presented.

2. LITERATURE REVIEW AND HYPOTHESES

2.1. Advertisements and Eye Tracking Technique

It is well accepted that the first and most commonly used source of information in recognizing any identity of any visual materials is the eye of the viewer. According to Bayliss et al. (2013) there is a wide range of studies validating that eye gaze route and fixations may lead to a better adjustment to the investigated materials (Wilkinson and Mitchell, 2018) Attention is differently and inevitably concerned with the sensation and the pursuit of eye gaze path (Driver et al., 1999; Shepherd, 2010). Furthermore, gaze track appears to instantaneously control viewers' mental perception (Conty et al, 2007). For instance, a straight look influences face memorization equally at the encoding and at the retrieval levels (Hood et al., 2003; Vuilleumier et al., 2005) whereas a straight gaze may result in a deferred alignment of the attention toward marginal objects (Senju and Hasegawa, 2005). Moreover, it is proven that our eyes have dynamic role in social recognition and they are the main face feature of interaction between the brain and the external investigated factors. Recently, Pfeiffer et al's (2013) concluded that in cognitive neurosciences there are neural regions inside the human brain that is activated in response to the processing of a human eye gaze.

In the field of marketing, gaze direction draws viewer's attention, which is of great importance to affect the frequency of recalling the perceived product and keeping it in memory. Both the studies of Hutton and Nolte (2011) and Sajjacholapunt and Ball (2014) concluded that customers spend more time gazing at a printed advertisement of a product more than any advertisement in another channel. Moreover, they proved that gaze privileged a direct influence over memorization of the content of the advertisement.

Tracking eye gazes and determining their fixations have become a progressively prevalent tool for observing customer's attention and measuring his concentration. It has also become an urgent effective method that political campaigners and marketing practitioners are highly interested in its implications and recommendations (Atalay, Bodur, and Rasolofoarison, 2012; Chandon, Hutchinson, Young, and radlow, 2009; Janiszewski, 1998; Lohse and Wu, 2001; Maughan, Gutnikov, and Stevens, 2007). Eye tracking technique has been efficiently applied for promoting planning and developing novel advertising designs and formats in numerous fields (Krugman, Fox, Fletcher, Fischer, and Rojas, 1994; Pieters and Wedel, 2007; Rayner, Miller, and Rotello, 2008; Wedel and Pieters, 2004).

Although eye tracking has been applied in previous studies to measure and reflect consumers' focus to different types of advertising stimuli to the knowledge of the researcher, few studies have applied this technique on scrutinizing the role of attention in the efficiency and appropriateness of political campaigns' printed advertising materials (Fox, 1998). Political advertisements' designs and productions are, indisputably, key dynamics leading to an election victory, so it is crucial that they have to be designed to reach their communication objectives professionally and effectively. Therefore, this study aims to analyze how printed electoral advertisements' designs may succeed to affect voters' gaze and attract their attention based on a number of variables such as their gender and age.

The ability to track eye activities has existed for over a long period of time though it was limited to academic field because the technology was not validly manageable or flexible. Lately, nevertheless, eye tracking technology has stretched to be feasible in marketable developments. Eye tracking is now flexibly and straightforwardly applied and used in marketing settings, that many unique applications are obtainable, principally those that can study phenomena in ordinary setting rather than a laboratory. In the domain of marketing, eye tracking technology is a novel but recognized field of study identified as visual marketing. Pieters (2004) and Wedel (2008) carried out quite a few number of research on magazine advertisements investigating the effect of each advertising component: brand name, the image and the text. Similarly, Lohse and Rosen (2013) commenced a substantial research study ascertaining which yellow page advertisements were most effective, and finally Holmqvist and others (2011) examined newspaper advertisements. The present research aims to add to the accumulative conclusions of these studies.

Contemporary research has revealed noteworthy evidences for the instinctive premises that 'Customers' gaze at what they like', and 'They like what they stare at'. The fundamental path of this association is still unidentified, if this connection is causative or not, nevertheless the very being of the bond between connection has vital consequences for marketing. In a study of Boerman, Reijmersdal, and Neijens (2013) eye tracking experiment sampled 149 participants to investigate the impact of dissimilar ways of releasing brand location on spectators' visual consideration, the use of inducement awareness, and brand responses. The outcomes displayed that the amalgamation of text, "product placement", and or the brand image was most effective in strengthening the appreciation of promoting that product and that logo alone was least effective. It also concluded that this result was interceded by observers' visual attention to the revelation and brand positioning. Also, it asserted that the perception of advertising subsequently amplified product memory and directed to more desirable brand attitudes.

On the other hand, the study of Purucker, Landwehr, Sprott and Herrmann (2013) tried to analyze eye-tracking data in marketing research and relied upon regions of interest (ROIs) methodology and the use of heat-maps. Unfortunately, both these two methods have some unblemished drawbacks. Tackling this gap, the aforementioned researchers tried to apply spatiotemporal scan statistics to the investigation and picturing of the eye tracking records and the outcomes of their experimentations that utilized anthropomorphic car faces validated numerous benefits provided by the new technique. On the contrary to the old-fashioned methods, scan statistics offered a measurement to scan eye tracking records mechanically both in space and time with divergent gaze collections, with outcomes able to be expansively envisaged and statistically evaluated.

The present study is mainly interested in the three AOI when monitoring eye movements; these regions are prominent factors to assess the advertisements impact on voters' gaze plots. According to Aribarg, Pieters, and Wedel (2010), these areas save the researcher the opportunity to examine the voter's focus and level of involvement. There are three elements to measure the viewers' eye gazes. The first that comprise the length of the time of the voter first fixation on the AOI (Time to First Fixation, TFF). The second is how many times viewers return to gaze on that AOI (Fixation Count, FC). The third measures the total time spent gazing at that AOI (Total Visit Duration, TVD).

2.2. Gender Variances in Human Cognitive Functioning

Gender differences in human cognitive functioning are a controversial issue. A number of studies have investigated differences between females and males in visual selective attention, working memory, anticipation time, and auditory reaction time. Some researchers have repeatedly reported gender differences in cognitive abilities and brain organization, men's higher scores on spatial task. It has been reported that males tend to have larger brain volume, while the gray-to-white ratio tends to be grater in

females (Shikhman, 2007). Others found males and females do not differ in spatial or identity negative priming (Koshino and others, 1991).

Gender differences in reaction time have been demonstrated in several studies (Dane and Erzurumluoglu, 2003; Der and Deary, 2006; Riccio et al., 2001). Males have faster reaction times than females and female disadvantage is not reduced by practice (Noble et al., 1964; Welford, 1980; Adam et al., 1999; Dane and Erzurumluoglu, 2003; Blough and Slavin, 1987). Women had slower simple reaction times than men (Der and Deary, 2006), whereas other research suggests that while male were faster than female at aiming at a target, the female were more accurate (Barral and Debu, 2004). Spierer et al. (2010) indicated that male athletes respond faster as compared with female athletes to both visual and auditory stimuli, which involved gross motor movement, whereas Silverman et al. (2007) indicated that such differences were relatively small. Lambourne (2006) indicated that no statistically significant differences were found in working memory capacity as a function of gender. Jausovec (2009) indicated that gender differences were observed on the behavioral level only for the visual tasks; females display shorter reaction times than males.

Previous studies concluded that women's ability to decode a nonverbal emotion outweighs men's capability (Hall, 1978; 1984). Yet, the studies have not introduced a sharp mechanism that clarify this advantage. Recent studies used eye tracking techniques to measure the male and female's attention to the eye (Hall, Hutton, and Morgan, 2010). In their study, they examined eye gazes of 19 males and 20 females during a facial expression recognition activity. The study concluded that female participants were faster and more precise in the recognition task than men. It also concluded that female subjects looked more at the eyes than male subjects. The researchers also realized that there is a positive relationship between total time and number of fixations to the eyes. Those conclusions and findings strengthen the hypothesis that the women advantage in facial expression recognition is related to greater women attention to eyes.

The results of other studies supported women advantage in decoding nonverbal messages. Female subjects show better judgement of facial expressions and quicker reaction times to appropriately distinguish different sentiments (Hall & Matsumoto, 2004; Kirouac & Dore, 1985; Rahman, Wilson, & Abrahams, 2004; Rotter & Rotter, 1988). Baron and Cohen (2002) argued that male and female participants differed in their 'empathizing' capability. They claimed that women are more likely to be high empathizers compared with males and that in the case of autism the male bias towards low empathizing is exaggerated. One aspect of empathizing is the ability to decode the internal states of others from facial expression.

Based on the introduced literature, and as illustrated in the research model Figure 1. the variables can be summarized and the hypotheses can be predetermined. It is expected that voters of both genders will presuppose that advertising design does not make any difference. This will lead them to avoid attending to display locations that have a high probability of containing ads. The right side of printed advertisement is the most common location for the party's logo. The center locations rarely contain the logo but rather contain the motto or message, while the left side generally contains the photo of the party's leader. In free-viewing tasks, some voters may still consider advertising irrelevant to their objective but less so. Other voters may be fully open to advertising when in a free-viewing task. Thus, the following hypotheses are proposed:

First Hypothesis: Voters will have significant difference in their visual attention on AOI (claim, logo, and photo) of the printed political advertisements based on their gender.

H1a: Voter's Time to First Fixation (TFF) to AOI (claim, logo, and photo) of the printed political advertisements will be different based on their gender.

H1b: Voter's Fixation Count (FC) to AOI (claim, logo, and photo) of the printed political advertisements will be different based on their gender.

H1c: Voter's Total Visit Duration (TVD) to AOI (claim, logo, and photo) of the printed political advertisements will be different based on their gender.

2.3. Age Differences in Human Cognitive Functioning

When voters, due to the progress in age, develop familiarity with the different parties' advertisements, they become more aware of how the advertisement is designed and where each component is located and become better able to avoid attending to advert locations where that advertising is positioned. This relationship will be strongest for goal-directed tasks where avoiding advertising is most important. As they age, teenagers become increasingly contingent on advertising as an information source (Haddix and others, 1997) and there is defensible worry about the advertising messages, predominantly those involving

cigarettes and alcohol goods. Adulthood is a period of physical and intellectual development, a time of changeover from being a teenager to playing the role of independence manhood (Rutter,1994).

The exclusive nature of teenage years makes teens more sensitive than other age groups to advertising imagery and advertising messages. Young people are predominantly vulnerable to image-based publicity, which is used expansively in the advertising of alcohol and tobacco products (Strasburger 1995). Pollay (1996) established that adolescents were much more exposed to advertising than grownups; Evans et al. (1995) and Hastings and Aitken (1995) concluded that marketing and advertising campaigns of tobacco companies were very effective in motivating teenagers and young people to embark on new experiences of smoking. The research of Hastings and Aitken (1995) involved the use of eye tracking to monitor adolescents' viewing behavior for five selected print advertisements, including two ads for cigarettes and one ad for beer. After discussing the importance of warnings and the difficulty of warning adolescents, we describe the use of eye tracking to investigate warning effectiveness. We then report results on adolescents' viewing of ads for tobacco, beer, sunscreen, and a soft drink, and on attention to mandated warnings and voluntary disclosures within the context of print advertising. Thus, the following hypotheses are proposed:

Second Hypothesis: Voters will have significant difference in their visual attention on AOI (claim, logo, and photo) of the printed political advertisements based on their age group.

H2a: Voter's Time to First Fixation (TFF) to AOI (claim, logo, and photo) of the printed political advertisements will be different based on their age.

H2b: Voter's Fixation Count (FC) to AOI (claim, logo, and photo) of the printed political advertisements will be different based on their age.

H2c: Voter's Total Visit Duration (TVD) to AOI (claim, logo, and photo) of the printed political advertisements will be different based on their age.

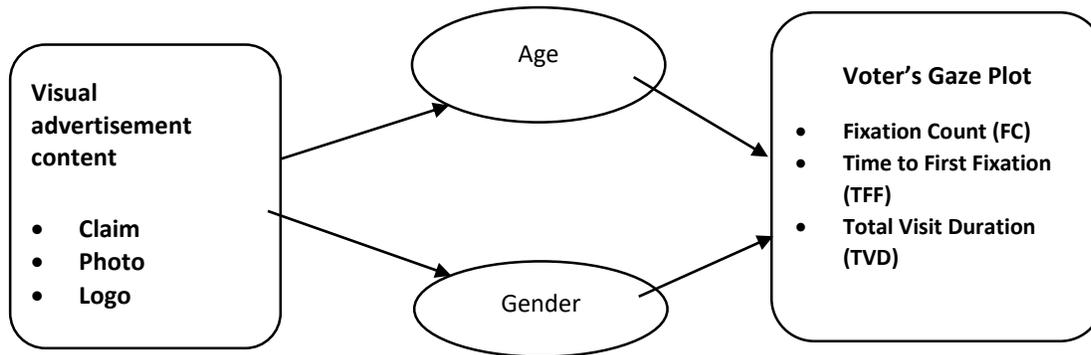
- Time to First Fixation (TFF): The duration, in seconds, from the outset of the advertisement "stimulus" recognition until the voter fixated on the AOI for the first time.
- Fixation Count (FC): The number of times the voter fixated on an AOI.
- Total Visit Duration (TVD): The overall duration of all fixations within an AOI.

3. DATA AND METHODOLOGY

The research model developed using the hypotheses based on theoretical foundations is visualized in Figure 1. The overall objective of this research is to determine if the design, layout and positioning of the advertisements in terms of three main components or Areas of Interest (AOIs), i.e. photo, claim, and logo particularly in electoral campaign context have an effect on a voter's gaze plot and gaze fixation times. The three elements comprise the length of time of the voter first fixation on the AOI (time to first fixation: TFF), how many times they return to gaze on that AOI (fixation count: FC), and the total time spent gazing at that AOI (total visit duration: TVD). The study will examine whether these visual metrics help in identifying which rudiments of the advertisements' segments were most probably to influence the choice of the voters to change their gaze plots. Although the prior advertising studies that utilized eye tracking techniques have investigated these three AOI related metrics in commercial advertisements, this study uniquely applies this technology to a political electoral campaign setting.

To test the model and uncover the relationships between the variables, a thorough research was conducted to choose the political advertisements of the four main Turkish political parties, namely CHP: Republican People's Party, AKP: Justice and Development Party, MHP: Nationalist Movement Party and HDP People's Democratic Party. Then, a questionnaire was developed to filter the selected advertisements. Later a convenient sample of 80 participants was invited to conduct the eye tracking study in a well-equipped laboratory. Then results were taken and analyzed.

Figure 1: Proposed Model



3.1. Data Collection and Sample Selection

The sample composition has been 50% female and 50% male, distributed among age groups of (25-35) almost 16% of the total population, (36–45) almost 15% and (46 above) nearly 15% as shown in Table 1. All subjects are supposed to have clear vision because one of the main limitations of an eye-tracking study is that not all eyes can be tracked. Contact lenses, glasses, and pupil color can all impact the eye-tracking camera’s ability to record eye movements (Ooms et al, 2015). The subjects were not aware of the study’s hypotheses.

Table 1: Demographic Profile of the Sample Age Group (N=80)

AGE * GENDER				
		GENDER		Total
		MALE	FEMALE	
AGE	25-35	16	16	32
	36-45	12	12	24
	46-ABOVE	12	12	24
Total		40	40	80

To select the main printed political advertisements, four main political parties’ websites were examined and 8 advertisements for each were selected – totally 32 printed advertisements (See Appendix) The number of the advertisements was mainly 8 simply because it was rather difficult to find more appropriate printed advertisements in equal numbers among the four selected parties. All the above mentioned 32 chosen advertisement were supposedly chosen to contain the advertisements’ three main components or Areas of Interest (i.e. image, text, and logo).

An initial questionnaire was developed and distributed among university students as an accessible population. The questionnaire aims at solidifying the authenticity of the examined advertisements by letting parts the potential voters themselves select the advertisements to be examined and the researcher tended to relatively balance a number of variables such as the ratios of the respondents’ gender and age. Initially it has been contacted with 370 students whom the researcher visited on campus and personally attended their classes displaying the questionnaire that was translated into Turkish language to facilitate understanding and communication. All the measures were explained in details and respondents were repeatedly informed to scientifically and objectively deal with the research task. Almost 120 questionnaires were excluded due to respondents’ failure to meet the standards of the selection procedure. For instance, the questionnaire of any respondent who ranked all advertisements in one scale or chose to rank a particular party’s advertisement in a clear biased way was rejected.

The main objective of the questionnaire is to filter the advertisements previously collected from the websites of political parties and reduce the number to 16, so that each party will have only 4 advertisements. This process will provide feasibility when

conducting the eye tracking experimental study. The questionnaire includes two sections: the first part focuses on gathering demographic information of the participants and the second part presents the 32 advertisements that needed to be filtered and reduced into 16 based on the likeability scores of the participants.

There is a wide spread perception among the researchers of the eye tracking field that a valid and solid study should have at least thirty participants to be conducted reliably. However, the literature of eye tracking simply states that this would be designated as an oversimplification. In different studies, the sample size considerably differs (Ooms et al, 2015) and few number of participants would be appropriate for some eye tracking studies. As in any other type of study, the sample size depends on multiple factors including research objectives and study design. Thirty participants are more than sufficient for a qualitative study in which the eye movement data are used to demonstrate certain usability findings.

Therefore, sample size is determined based on the following elements:

- The subgroups that will be analyzed autonomously like gender and age
- The degree of risk involved in the decisions being made based on the results
- The amount of available resources (time and money)
- The statistical tests that will be used to analyze the data
- Margin of standard error of the mean and significance levels accepted in the results

3.2. Procedure

When starting the process of recruitment of the participants, a host of expected challenges surfaced. Subjects were initially interviewed through a telephone call and when introducing the nature of the research, they tend to refrain from participation and politely decline the invitation. With further clarification and asserting the academic and scientific nature of the study, a number of participants have decided to take part.

The participants have been received in the place where the facilities for eye tracking experimentation are installed and the entrance survey is offered. The main objective of first part of the questionnaire is to record the personal information of the participants like their gender, age, occupation, political affiliation and educational levels. It has been distributed in Turkish language. A facilitator gave an introductory clarification of the whole process and made sure that every step is clear.

The respondents have initially signed an informed consent form clarifying the objectives of the study and the steps and procedures used to collect the printed advertisements. The entrance survey was given to each participant and later they were invited to the experimentation room. The study has been conducted in a dedicated room accommodating the Tobii eye tracker. The respondents have been allowed to sit approximately 60 cm away from the screen. The so-called eye tracker was calibrated using five points on the screen and takes approximately one minute. The 16 selected printed advertisements have sequentially displayed. Each advertisement was displayed for 5 seconds. Then a short break of 5 seconds between each advertisement. The aim of this short break is to diminish the likelihood of confusion and give the eye a short pause before handling another visual material. The 16 advertisements were originally selected out of 32 advertisements of the political parties in a filtering questionnaire that was conducted earlier of the study.

4. FINDINGS AND DISCUSSION

It is well-established that gender differences in human cognitive functioning is questionable due to conflicting findings of various research studies. This study shows that female subjects tend to look faster than male subjects to one of the AOI (i.e. the claim) of only one advertisement AKP: D as in Figure 2, out of the total 16 visual materials. The findings also indicate that female subjects tend to look faster than male subjects to the claim of only one advertisement, namely HDP: D Figure 2. Thus, the results indicated difference in only one advertisement and that could be attributed to the fact that it was the only visual material that contains mainly the images of two leaders of the political parties.

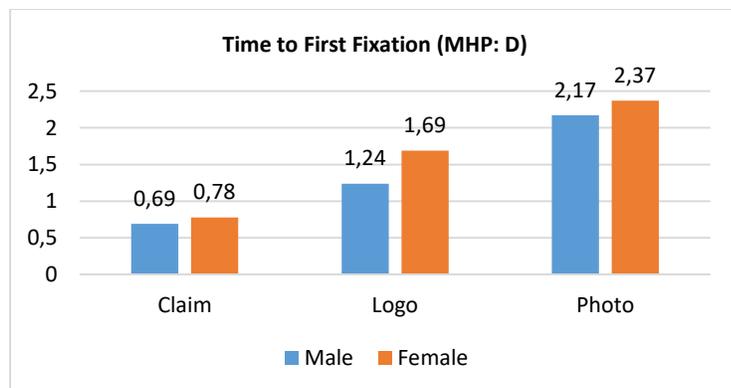
Figure 2: Respondents' TFF to the Claim of the Visual Materials



On the other hand, the findings of the study show that female subjects tend to look faster than male subjects to the logo of only two advertisements (AKP: A and MHP: D) out of the total 16 advertisements. This suggests that gender does not have a significant effect on Time to First Fixations of the participants. The result only showed difference in one advertisement and that could be attributed to the location of the position and simplicity of the claim.

Based on the analysis of the independent t-test, male subjects tend to focus more than female subjects in their fixation counts to the claim for only two advertisements (HDP: C&E) out of the total 16 advertisements. The only difference where men looked faster than women was in the MHP: D advertisement. As it is shown at Figure 3, male participants looked at the logo of the party faster than female participants. Men gazed at the logo after 1,2 seconds while women waited for almost 1,7 seconds to fix their gaze on the logo of the party displayed.

Figure 3: Respondents' TFF to the AOI of the Advertisements According to Their Gender



An independent-samples t-test was conducted to measure the differences between male and female voters' Fixation Count on the claim of the advertisements. The result concludes that there was a significant difference between male and female participants' Fixation Count to the claim of the advertisement in only these two advertisements (HDP: C&E) Figure 4 and that could be attributed to the location of the position and simplicity of the claim; the claim is written in the middle of the posts.

Figure 4: Respondents' FC to the Claim of the Visual Materials

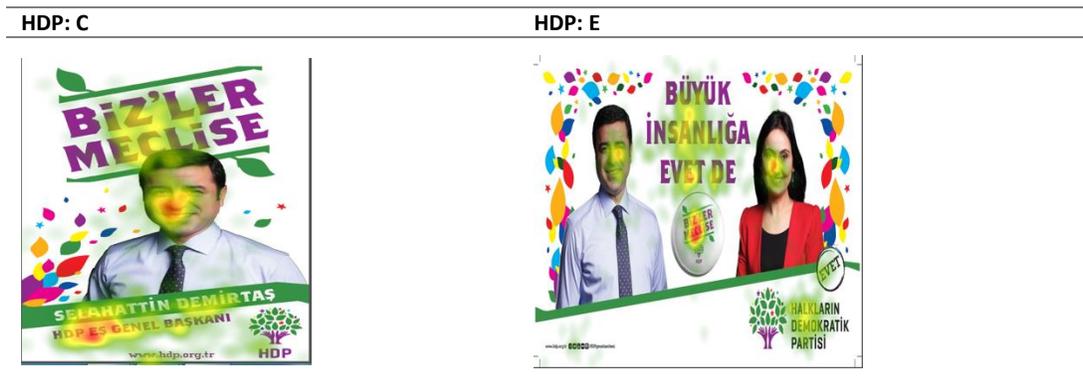
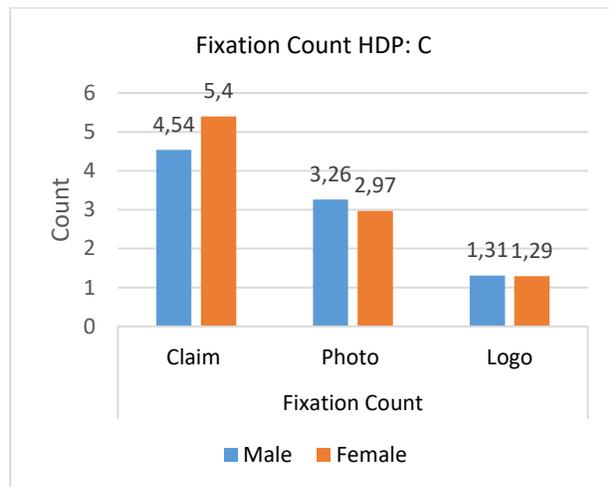


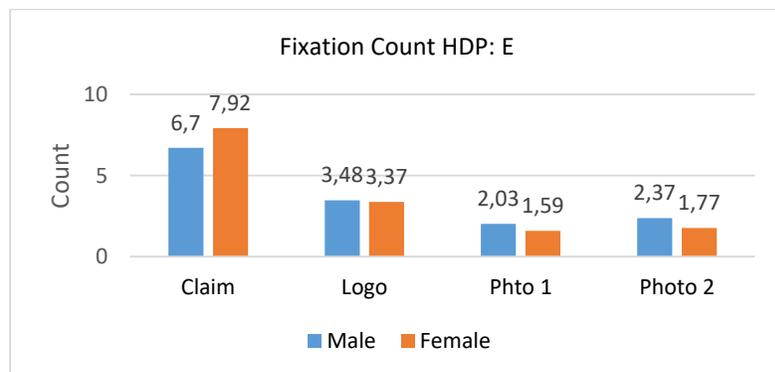
Figure 5 clearly shows that female participants focused more than male participants on the claim of HDP: C advertisement. Women gazed at the claim for almost 5.5 counts, whereas men fixated their gaze for almost 4.5 counts.

Figure 5: Respondents' FC to AOI of the Advertisement According to Their Gender



Likewise, Figure 6 illustrates that female individuals focused more than male participants on the claim of HDP: E advertisement. Women gazed at the claim for almost 7.92 counts, whereas men fixated their gaze for 6.7 counts.

Figure 6: Respondents' FC to the AOI of the Advertisement According to Their Gender



As shown in the results of t-test Table 2, there is a significant difference in the scores for of male (M=4.4, SD=2.341) and female (M=4.7, SD=3.02) variables; $t(78)=-0.496$, $p = 0.048$. Similarly, the results of (HDPFCCLAI ME) demonstrates that there was a significant difference in the scores for of male (M=7.4, SD=4.67) and female (M=4.7, SD=3.02) variables; $t(78)=-1.208$, $p = 0.014$

Table 2: Results of Independent Samples Test of Respondents' FC to the claim of the advertisements

	Equality of Variances		t-test for Equality of Means						
	F	Sig.	95% Confidence						
			t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Interval of the Lower	Upper
HDP-FC-CLAIM-C*	4,029	,048	-,496	78	,621	-,30000	,60434	1,50314	,90314
HDP-FC-CLAIM-E**	6,382	,014	-1,208	78	,231	-1,10000	,91076	2,91319	,71319

* HDP: the name of the political party- FC (Fixation Count) Claim – C: the letter of the advertisement

** HDP: the name of the political party- FC (Fixation Count) Claim – E: the letter of the advertisement

The result suggests that gender does not have a significant effect on fixation count (FC) of the participants on the claim of the advertisements. It is also concluded that there was a significant difference between male and female participants' fixation count to the claim of the advertisement in only these two advertisements, which could be attributed to the location of the position and simplicity of the claim; the claim is written in the middle of the posts.

Based on the findings of the study, women tend to focus more than men in their fixation counts to the photo of only 3 advertisements (CHP: B), (MHP: E), (HDP: E) out of the total 16 advertisements. Overall, these findings suggest that gender does not have an effect on fixation count (FC) of the participants on the photo of the political parties' leaders on printed advertisements. Therefore, the only interpretation that might explain the results is that men tend to focus more on the photos of smiling faces and unusual postures like the shape of the heart presented by the leader of MHP in ads E&G and HDP (E). On the other hand, male participants tend to focus more than female subjects in their fixation counts to the logo of only 6 advertisements (AKP: D&E; MHP: D&H; HDP: D&E) out of the total 16 advertisements. The overall result suggests that gender does have an effect on fixation count (FC) of the participants on the logo of the political parties in printed advertisements. It can be interpreted that women tend to focus more on the logo when placed in the margins of the printed advertisements, whereas men tend to focus their fixations more on the logo when it tends to be centralized in the middle of the printed advertisements.

Also, the study found that male and female individuals tend to spend dissimilar time durations or total visit duration on the claim of two advertisements (HDP: E&C) and that represents 12.5% of the total 16 advertisements. Therefore, gender does not have an effect on the total visit duration (TVD) of the participants to the claim of the political parties in printed advertisements. It can be explained that men tend to visit the short claims less than women do; one of the claims included only 2 words while the other only 3 words.

Based on the analysis of the independent t-test, male and female individuals tend to spend different times or total visit on the photo of three advertisements of MHP (E&G) and HDP (E) as can be seen at Figure 7.

Figure 7: Respondents' TVD to the Photo of the Visual Materials According to Their Gender



Table 3 gives the results of t-tests for independent-samples conducted to measure the differences between male and female voters' total visit duration (TVD) of the photo on the advertisements. It shows a significant difference in the scores for male and female participants' TVD in three different advertisements.

Table 3: Results of Independent Samples Test of Respondents' TVD to the Photo of the Advertisements According to Their Gender

Independent Samples Test		Levene's Test for Equality of Variances									
		t-test for Equality of Means									
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval Lower	95% Confidence Interval Upper	
*HDP-TVD- PHOTO-E	Equal variances assumed	4,283	,042	1,602	78	,113	,09750	,06088	-,02369	,21869	
	Equal variances not assumed			1,602	74,927	,113	,09750	,06088	-,02377	,21877	
**MHPTVDPHOT O-G	Equal variances assumed	7,856	,006	1,664	78	,100	-,25900	,15564	-,56885	,05085	
	Equal variances not assumed			1,664	66,526	,101	-,25900	,15564	-,56970	,05170	
***MHP-TVD-PHOTO-E	Equal variances assumed	5,162	,031	2,302	29	,029	-,111	,048	-,209	-,012	
	Equal variances not assumed			2,430	25,593	,022	-,111	,046	-,204	-,017	

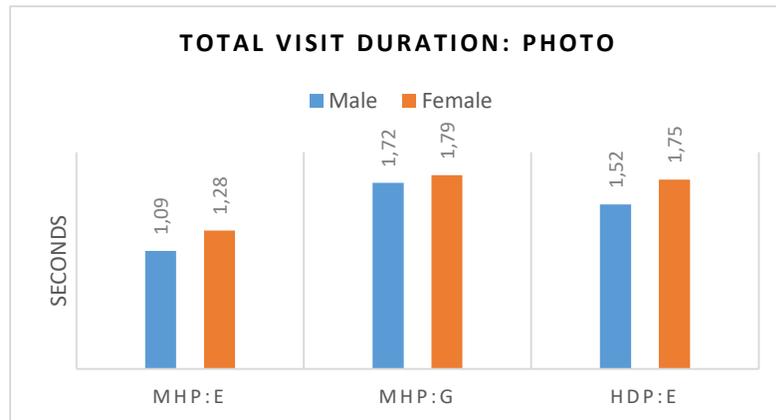
* HDP: the name of the political party- TVD (Total Visit Duration) Photo – E: The Number of the advertisement

** MHP: the name of the political party- TVD (Total Visit Duration) Photo – G: The Number of the advertisement

*** MHP: the name of the political party- TVD (Total Visit Duration) Photo – E: The Number of the advertisement

The overall result suggests that gender does not relatively have an effect on the total visit duration of the participants on the photo of the political parties in printed advertisements.

As Figure 8 shows, both male and female participants tend to have different times of eye fixations on the photo of the advertisements of two political parties (HDP: E and MHP: E&G). Male individuals spend less time gazing on the photos of the leaders for the examined advertisements. However, it cannot be generalized as the participants' TVD was differently only for these 3 advertisements out of 16 advertisements.

Figure 8. Respondents' TVD to the Photo of the Advertisements According to Their Gender

It can be explained that men tend to visit the short claims less than women do. One of the claim includes only 2 words while the other include only 3 words.

Based on the results of the independent t-test, male and female individuals tend to gaze more on the logo of 6 different advertisements of (AKP: E & H) and (MHP: D & H) and (HDP: C & E). The overall result suggests that gender has relatively an effect on the Total Visit Duration of the participants to the logo of the political parties in printed advertisements. It can be explained that men interestingly tend to visit the logos in the center of the printed advertisements more than women do. While women tend to look more on the logo if it was located on the corners or the margins of the printed advertisements.

In a nutshell, it can be concluded that the first hypothesis, voters will have significant difference in their visual attention on AOI (claim, logo, and photo) of the printed political advertisements based on their gender is supported. There were differences in 12 out of 16 images based on gender.

4.1. Age Differences in Human Cognitive Functioning

Based on the results of one-way between subjects- ANOVA test, young generations tend to look faster than older generations to the claim of only two advertisements (MHP: G) and (HDP: C). Specifically, the results suggest that young participants tend to look at the claim of the advertisements faster than the middle aged, adults and elderly people. According to the results, the more the individuals grow up the slower they consider looking at the claim of the political advertisements. Nonetheless, the results cannot be generalized as this conclusion was just observed in 2 displayed advertisements. A possible interpretation could be that the claims of the two advertisements is composed of only two words and that make young people look faster than older.

The study found that old generations tend to look faster than young participants to the photos of political leaders of 5 political advertisements (AKP: A & D) (CHP: B), (HDP: C) and (MHP: H) (Figure 9). The overall results suggest that old participants tend to look at the photo of the advertisements faster than the middle aged, young individuals. It was found that the more the individuals grow up the faster they consider looking at the photo of the political advertisements. Nonetheless, the results cannot be totally generalized as this conclusion was observed in 5 displayed advertisements. In almost all the observations, the participants who are aged more than 45 tend to gaze at the photo in less than a second. While some of the individuals aged 25 to 35 may wait for 3.18 seconds to consider looking at the photo of the (MHP: H) and 2.37 seconds to look at (AKP: A) and the explanation could be than young generation consider looking faster at the image of the leader if it was relatively in the middle of the printed advertisement and relatively big.

	Between Groups	12,020	2	6,010	5,508
****HDPTFFPHOTOC	Within Groups	84,011	77	1,091	
	Total	96,031	79		

*AKP: the name of the political party- TFF (Time to First Fixation) Photo – A: The Number of the advertisement

**AKP: the name of the political party- TFF (Time to First Fixation) Photo – D: The Number of the advertisement

***CHP: the name of the political party- TFF (Time to First Fixation) Photo – B: The Number of the advertisement

****MHP: the name of the political party- TFF (Time to First Fixation) Photo – H: The Number of the advertisement

*****HDP: the name of the political party- TFF (Time to First Fixation) Photo – C: The Number of the advertisement

The study also concluded that middle aged participants tend to look faster than young participants and much faster than the old generations to the logo of only one political advertisement (MHP: D) and that represents 6.5% of the total advertisements. The overall result suggests that participants aged 36 to 45 spend almost 0.8 seconds till they consider looking at the logo of the (MHP: D) advertisement. Undoubtedly, the result cannot be generalized as this conclusion was observed only in one displayed advertisements. The outstanding feature of the logo of this particular advertisement is that it comes typically in the center of the post and that may indicate that middle aged individuals often consider the middle of the displayed advertisements rather than the corner and the margins.

All the results showed that there is not any difference between the various participants Fixation Counts to the claim or the photo of the displayed advertisements based on their age differences. The only significant difference was observed in one advertisement (AKP: A) and that was related to the photo of the advertisement. Also, it was found that old participants tend to fixate their gaze on the photo of one advertisement (AKP: A). they for 2 counts where middle aged gazed for only 1.2 counts. Still, it is hard to overgeneralize the findings. In a nutshell, it can be concluded that the second hypotheses, voters will have significant difference in their visual attention on AOI (claim, logo, and photo) of the printed political advertisements based on their age group was not strongly supported because only age factor has shown that it affects participants gazing only on 7 out of 16 images and that is not a substantial difference.

In a nutshell, hypotheses were tested as briefed in table 5, the first hypothesis (Voters will have significant difference in their visual attention on AOI (claim, logo, and photo) of the printed political advertisements based on their gender) was supported while the second hypothesis (Voters will have significant difference in their visual attention on AOI (claim, logo, and photo) of the printed political advertisements based on their age group.) was not strongly supported.

Hypotheses		Results
First Hypothesis:	Voters will have significant difference in their visual attention on AOI (claim, logo, and photo) of the printed political advertisements based on their gender.	Supported There were differences in 12 out of 16 images based on gender
H1a:	Voter’s Time to First Fixation (TFF) to AOI (claim, logo, and photo) of the printed political advertisements will be different based on their gender.	4 out of 16 advertisements
H1b:	Voter’s Fixation Count (FC) to AOI (claim, logo, and photo) of the printed political advertisements will be different based on their gender.	11 out of 16 advertisements
H1c:	H1c: Voter’s Total Visit Duration (TVD) to AOI (claim, logo, and photo) of the printed political advertisements will be different based on their gender.	11 out of 16 advertisements
Second Hypothesis:	Voters will have significant difference in their visual attention on AOI (claim, logo, and photo) of the printed political advertisements based on their age group.	Not strongly supported 7 out of 16 images have differences based on their age.
H2a:	Voter’s Time to First Fixation (TFF) to AOI (claim, logo, and photo) of the printed political advertisements will be different	8 out of 16 advertisements

	based on their age.	
H2b:	Voter's Fixation Count (FC) to AOI (claim, logo, and photo) of the printed political advertisements will be different based on their age.	1 out of 16 advertisements
H2c:	Voter's Total Visit Duration (TVD) to AOI (claim, logo, and photo) of the printed political advertisements will be different based on their age.	0 out of 16 advertisements

5. CONCLUSION

The study tries to elaborate more specifically on the effects of various variables like gender and age of the participants and its effects on subjects' TTF, FC and TVD. It aims to measure whether there are any differences among different participants and how they perceive the various visual stimulations. In general, it is clearly shown, according to the results of the eye-tracking experiment, that the participants have a clear tendency to quickly gaze at the claim (TFF) of the visual stimuli. Then they tend to gaze at the photo of the leader and lastly to the logo of the party. There are some exceptions in the advertising posters of (CHP: A&E), (MHP: D,E&G).

Predominantly, it is clearly shown, according to the results of the eye-tracking experiment, that the participants have a tendency to focus their gazes (FC) at the claim of the visual stimuli more than the photo and logo. Then they tend to fixate their gaze on the photo of the leader and lastly to the logo of the party. There are some exceptions in two advertising posters of MHP: E and HDP: D. It is also seen that according to the results of the eye-tracking experiment, the participants have a tendency to spend more time gazing (TVD) at the claim of the visual stimuli more than the photo and logo. Then they tend to spend more time gazing on the photo of the leader and lastly to the logo of the party. There are some exceptions in two advertising posters of MHP: D& E and CHP: B.

The results correspond with the findings of the study of both Pieters and Wedel (2004) and Poole and Ball (2005) Time of First Fixations (TFF) was the indicator of the visual stimulation impact on participants. Their studies have concluded that there is a significant direct relational association between TFF and certain parts of the AOI. In other words, when the viewer first fixates his or her eye on a visual material, it means that stimulus is the most prominent among other AOI. Furthermore, the research of Calvo and Lang (2004) and Rayner et al. (2001) found that the Total Visit Duration (TVD) essentially represents the respondents' association, attention, or commitment with the visual materials. Nonetheless, the Fixation count (FC), demonstrates the impact of the visual materials on the AOI that mainly encourages or minimally draws the attention of the viewers as in the study of both Janiszewski (1998) and Maughan et al. (2007).

On the other hand, the findings of the study conclude that young participants tend to look at the claim of the advertisements faster than the middle aged, adults and elderly people. Nonetheless, the results cannot be generalized as this conclusion was just observed in 2 displayed advertisements. A possible interpretation could be that the claims of the two advertisements are composed of only two words and that make young people look faster than older. It was discussed in the literature review that due to the progress in age, people develop familiarity with the different parties' advertisements, they become more aware of how the advertisement is designed and where each component is located and become better able to avoid attending locations where advertisements' elements are displayed. The overall results suggest that old participants tend to look at the photo of the advertisements faster than the middle aged, young individuals. It was found that the more the individuals grow up the faster they consider looking at the photo of the political advertisements. Nonetheless, the results cannot be totally generalized as this outcome was observed in 5 displayed advertisements

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Appendix

Ad. Number	CHP Advertisement
A	
B	
C	
D	
E	
F	
G	
H	

Ad. Number	AKP Advertisement
A	
B	
C	
D	
E	
F	
G	
H	

Ad. number	MHP Advertisement
A	
B	
C	
D	
E	
F	
G	
H	

Ad. number	HDP Advertisement
A	
B	
C	
D	
E	
F	
G	
H	