



An eye-tracking study on how the popularity and gender of the endorsers affected the audience's attention on the advertisement

Majid Zahmati¹ · Seyed Morteza Azimzadeh¹ · Mohammad Saber Sotoodeh¹ · Omid Asgari²

Accepted: 12 January 2023
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Abstract

Nowadays, advertising is regarded as one of the vital elements of marketing tools' promotional strategies. Therefore, advertising is very important to businesses' marketing strategies and policies. In light of this, the purpose of the current study was to ascertain the influence of endorsers' gender and the level of attention given to various aspects of advertising. A quasi-experimental study was used for the current investigation. All students at Mashhad's Ferdowsi University made up the study's statistical population. 80 students were chosen as the research sample out of the entire student body. Eye motions were captured using an eye tracking gadget. According to research findings, the number and length of fixes on advertisement items were significantly influenced by the popularity of their endorsers. However, there was no statistically significant difference between the genders in terms of the quantity and length of fixations. These conclusions suggest that the popularity of the endorser is a key factor in commercials, but that the endorser's gender has little effect.

Keywords Neuromarketing · Endorser · Advertisement · Eye-tracking · Attention · Fixation duration · Area of Interest (AOIs)

✉ Omid Asgari
omid.asgari@novasbe.pt

¹ Department of Physical Education and Sport Sciences, Ferdowsi University of Mashhad, Mashhad, Iran

² Nova School of Business and Economics, Universidade Nova de Lisboa, Lisbon, Portugal

1 Introduction

Nowadays, advertising covers such a wide range of topics that individuals are not even able to sleep without hearing it. Therefore, in order to reach its target market, every firm looks for and uses an advertisement. The efficacy of advertising begins with audience attention, and each distinct advertising stimulus must first catch customers' attention, according to the paradigm put forth by Robert and Stahl [31]. The audience's desire to purchase a product comes after interest, and action, or when customers choose to purchase a product, is the final stage. Without a doubt, marketing strategies can influence attention and improve advertising effectiveness in a variety of ways [14, 31]. However, in order to lessen the perceived pre-purchase risk, buyers frequently participate in pre-purchase investigative behavior [25, 26]. A person's memories, personal resources (word of mouth from friends and acquaintances), marketing resources (advertisements and other marketing-related elements), experimental resources (their own experiences), and independent resources (reputation) can all be used as sources of information [4]. With information from the company's marketing activities, independent resources seem more reliable and credible [29]. Information sources are typically only regarded as reasonable when believed to be honest and reliable [39]. As a result, advertising managers use product endorsements to spread reliable information.

2 Literature review

According to McCracken [24], using well-known and trustworthy people as endorsers is a good marketing strategy because: a person who is well-known to the public and uses it to their benefit by endorsing a product in a commercial for a consumer good [20]. In busy and chaotic media settings, famous people or celebrities commonly feature in marketing communications to promote brand familiarity and advertising differentiation [2, 9, 10, 24, 28]. Celebrities typically appear in 20 to 25 percent of advertising as brand ambassadors and product demonstrators [33]. Employing well-known male and female endorsers has expanded dramatically, especially in recent decades [38]. Few studies have specifically addressed this variable in their empirical research, despite the fact that the gender of the endorser has traditionally been considered to be significant [8, 24]. Given that persuasive research has demonstrated that men and women respond to male and female endorsers differently, the paucity of research on the effects of gender is quite unexpected [3]. Many marketers and advertising directors think that a significant number of human decisions are made automatically, frequently without conscious thought or control [23]. Since viewers extract the information in their glare, increased visual stability promotes high levels of processing at the attentional, memory, and subconscious levels [19, 27, 36]. William James, an American psychologist, said in the 1800s that something neglected will not leave any trace, even though we cannot guarantee that something noticed once will remain in memory [1].

A window to the mind is said to be the eyes and how they move. They recreate an essential function in communicating a person's desires, thought processes, and emotional states [35]. The way we gather the data required to recognize the elements of the visual environment is related to the significance of eye movements. We can determine which portions of the visual world are precisely processed, including visual attention, if we accurately track eye movement [7, 17]. Eye movements are a sign of covert visual attention, therefore using eye tracking techniques can provide new information about how consumers perceive visual stimuli including print advertisements, web pages, and packaging [37]. Eye movements, for instance, can reveal whether a user will be interested in a certain static or video ad element. Therefore, researching such trends may help to enhance marketing plans and sway potential customers. Therefore, monitoring consumers' eye movements can help manage how they maximize revenues [32].

An eye-tracking device was used by Falsarella et al. [11] in Brazil to study how the audience paid attention to the endorser. Their research showed that consumers were more attentive to businesses and goods that a celebrity had promoted. Furthermore, Felix and Borges [12] conducted an eye-tracking study in which they examined a well-known endorser without considering the essential first stage of information processing and instead concentrated on the audiences' visual attention to the endorser. The endorser had a favorable association with the commercial's attractiveness and the recipient's perception of the advertisement, per their findings. Adil et al. [1] used an eye-tracking device to analyze whether faces and gaze directions were present in print advertisements and to see how they affected consumer responses. The findings demonstrate that the audience's attention, opinion of the advertisement and brand, and intention to buy a product from the advertised brand were all significantly influenced by the audience's perception of the face. A study named "Processing and evaluating electroencephalographic signals to analyze the influence of sports commercials on customers" was also carried out by Darabi et al. [6]. They reached the conclusion that electroencephalography recordings of the customers' brain waves could reveal the impact of Nike commercials on the consumers' brain waves (alpha, beta, delta, and theta). They also highlighted how it was possible to get the conclusion that commercials helped buyers think more analytically and with focus. Ferguson and Mohan [13] investigated the impact of a celebrity or non-celebrity in a B2B print advertisement. Their studies found that managers were more attentive to the commercial when a well-known endorser was present.

Additionally, Zhu et al. [40] investigated how social media endorsements affected how customers saw businesses, how attractive products were, and how motivated they were to buy them. Their research revealed that the endorser's beauty and confidence affected consumers' perceptions of the brand. Finally, a study named "Celebrity endorsement and brand enthusiasm among travelers: theory and evidence" was also carried out by Gilal et al. [18]. They demonstrated that the most important factor influencing tourists' fervor for a brand was celebrities' attractiveness. In light of this, it may be stated that the presence of the endorser is essential for the ads of organizations and businesses on the one hand. On the other side, the researcher discovered that studies on endorsements did not frequently employ impartial marketing methods. Therefore, the purpose of the current study was to determine whether

the gender of endorsers and their impact on visual attention to ad features would be examined.

3 Method

All male and female students enrolled at Ferdowsi University in Mashhad, Iran, during the academic year 2018–2019 made up the statistical population for this study. Out of all the students, 80 people (40 men and 40 women) volunteered to take part in the study. The researcher created the poster first. In this regard, a logo was created using the images of men's and women's sunglasses that were chosen. To avoid drawing attention to the product's shape, appearance, or logo, these pictures were repeated throughout all advertising posters. Because the participants were both men and women, two sunglasses were used for the poster.

Additionally, a logo was created so that participants' attention wouldn't be diverted by their familiarity with a particular brand. Then a picture of two well-known athletes, Kimia Alizadeh and Saeed Maroof (the male and female endorsers, respectively), was chosen for the poster. Additionally, a snapshot of a man and a woman who resembled Saeed Maroof and Kimia Alizadeh in terms of their bodies, attire, and facial features was chosen. To ensure that the poster design would not divert people's attention, all of the posters were created in the same manner. To regulate the effect of place or direction on people's attention, the placement of the endorser, the product, and the brand was also altered [30].

As a result, four of the posters featured the endorser, while the fifth did not. The placement of the endorser, the item, and the logo on each of the initial four posters were then altered to create three duplicates of each. Additionally, the poster without an endorser was copied with the product and brand placed in a different location. In the end, 14 posters were created. The posters were then presented to each participant in a random order in order to control the impact of the order on the posters. Each participant was instructed to put on eye-tracking glasses and sit in a chair in front of the monitor (Fig. 1).

Only at a distance of 50–60 cm from the display could they view the computer screen. The subject was then instructed to maintain a stationary gaze on the screen. The glasses were calibrated to make sure they were on the participant's eyes properly. The photographs were shown to the participants in the last phase. Each advertisement was viewed for 15 s by each participant for a total of 210 s [12]. In this study, The SMI-ETG2 eye-tracking glasses were utilized in this investigation to track participants' eye movements. This apparatus was used to document the participants' eye movements. The stimulus was shown on the monitor screen, and infrared cameras built into the frames of the glasses captured eye movements as the viewer saw the screen at a sampling rate of 60 Hz/s. The BeGaze software was utilized for preliminary data processing, while the I-view software was used to record eye movements. In BeGaze, three Areas of Interest (AOI) were specified. The statistical analysis also calculated and examined the quantity and length of fixations for each participant (Fig. 2).



Fig. 1 Subject recording the data

Fig. 2 SMI ETG-2 Eye-Tracking Glasses



4 Results

The distribution of data for the number of fixations and fixation time was normal in all AOIs, according to the Kolmogorov–Smirnov test results ($P < 0.05$). These findings supported the researcher's use of parametric testing.

4.1 Fixation durations

4.1.1 Endorsers AOI

Results of a 2 gender (male and female) \times 2 popularity (popular, non-popular) ANOVA revealed that popularity had a statistically significant impact on the length of fixation on body AOIs ($F_{1,79} = 19.68$, Sig.001, $\eta^2 = 0.17$). The interaction impact of popularity in terms of gender and the effect of gender were not statistically significant ($p = 0.308$). Figure 3 demonstrates that when seeing posters

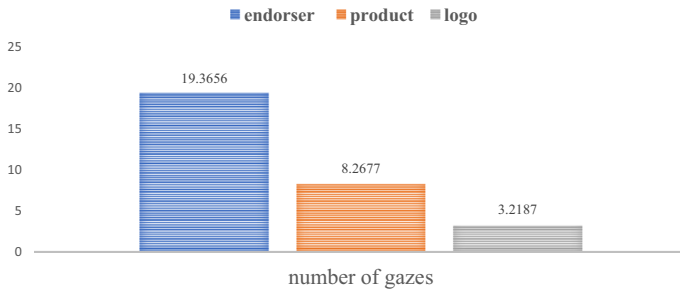


Fig. 3 Mean of number of gazes at the elements in the ads

featuring a male endorser, participants displayed longer fixations to the endorser AOI and shorter fixations to the endorser AOI.

4.1.2 Glasses AOI

Results of a 2 gender (male and female) \times 2 popularity experiment for glasses (popular, non-popular) The main effect of popularity ($p=0.631$) and its interaction with gender were not significant ($p=0.459$), according to an ANOVA, which also revealed that only the main effect of gender was significant ($F_{1,79}=32.23$, $p.001$, $2=0.290$). Participants' fixations on the glasses in the posters with the Female-Non-Popular endorser were longer than in the posters with the Female-Popular endorser, as shown in Fig. 3.

4.1.3 Logo AOI

Results of 2 genders (male and female) \times 2 popularity (popular, non-popular) Popularity ($F_{1,79}=4.01$, $p=0.048$, $2=0.048$) and gender ($F_{1,79}=36.50$, $p.001$, $2=0.316$) were also significant main effects in the ANOVA. The popularity by gender interaction, however, was not statistically significant ($p=0.904$). Participants had longer fixations on the logo in Male-Popular posters and shorter fixations in Female-Non-Popular posters, as shown in Tables 1, 2 and Fig. 3.

4.2 Fixation counts

4.2.1 Endorser AOI

The main effect of gender was significant ($F_{1,79}=49.66$, $p.001$, $2=0.386$) according to the results of a 2 gender (male and female) 2 popularity (popular, non-popular) ANOVA. However, neither the popularity's main effect ($p=0.195$) nor its interaction

Table 1 Results of ANOVA test for the number of gazes

Effect	df	F-value	Mean square	Sig	Effect value
Endorser	1/242	310/694	8793/240	0/0001	0.797

Table 2 Results of the Bonferroni post hoc test for the number of gazes

Elements		Sig
Endorser	Logo	0.0001
	Product	0.0001
Logo	Endorser	0.0001
	Product	0.0001
Product	Endorser	0.0001
	Logo	0.0001

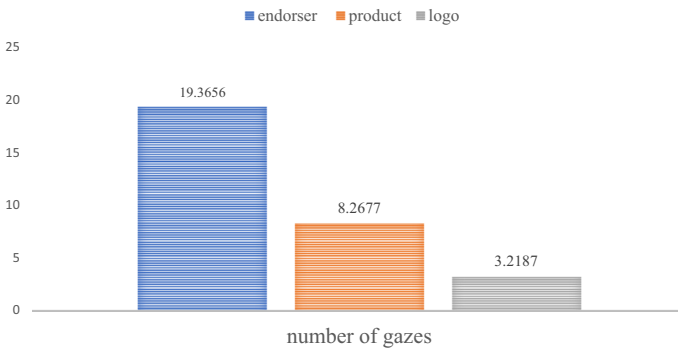


Fig. 4 Mean of number of gazes at the elements in the ads

with gender ($p=0.203$) was statistically significant. Figure 4 demonstrates that in the Male-Non-Popular posters, participants had fewer fixations to the Endorser AOI and higher fixations to the body AOI.

4.2.2 Glasses AOI

The results of an ANOVA with two factors—gender (male and female) and popularity (popular, non-popular)—showed that there was a gender main effect that was statistically significant ($F_{1,79}=33.39$, $p.001$, $\eta^2=0.297$). Popularity’s main effect ($p=0.897$) and its interaction with gender ($p=0.465$), however, were not statistically significant. Figure 4 demonstrates that participants fixed their attention less frequently on the glasses in the posters featuring Female-Popular endorsers and more frequently on the glasses in those featuring Female-Non-Popular endorsers.

4.2.3 Logo AOI

The main effect of gender was significant ($F_{1,79}=8.57$, $p=0.004$, $\eta^2=0.098$) according to the results of a 2 gender (male and female) 2 popularity (popular, non-popular) ANOVA. However, neither the popularity’s main effect ($p=0.359$) nor its interaction with gender ($p=0.950$) was statistically significant. Figures 4 and 5 demonstrates that participants focused less on the logo in the posters with Male-Popular endorsers and more on those with Female-Non-Popular endorsers (Tables 3 and 4).

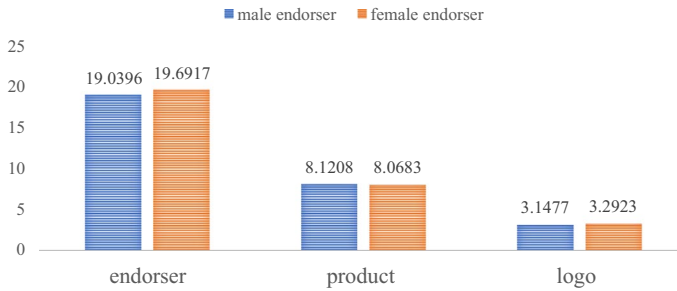


Fig. 5 Results of ANOVA test for the duration of the gaze

Table 3 Results of ANOVA test for the number of gazes

Effect	df	F-value	Mean square	Sig	Effect value
Endorser	1.116	325.935	75,009.765	0.0001	0.805

Table 4 Results of the Bonferroni post hoc test for the number of gazes

Elements	Sig	
Endorser	Logo	0.0001
	Product	0.0001
Logo	Endorser	0.0001
	Product	0.0001
Product	Endorser	0.0001
	Logo	0.0001

5 Discussion

The proprietors and designers of the advertisements have always placed a high priority on capturing the interest of the target audience. The use of humans in the advertisements was one of the factors that caught the audience's attention. Advertising effectiveness can be increased in several ways by using marketing techniques to catch audiences' attention [14]. The goal of the current study was to determine how much attention audiences gave to advertisements using well-known and less well-known endorsers. (Fig. 6). The inclusion of an endorsement on an advertisement poster, according to research findings, may draw consumers' attention. The findings of the investigations by Adil et al. [1], Falsarella et al. [11], Felix and Borges [12], and Lee et al. [22] agreed with this finding. (Fig. 7).

According to Weaver and Lauwereyns [35], among the stimuli in the advertisements, people's faces and bodies drew more attention from viewers. Additionally, it is suggested by arguments put out by Langton et al. [21] and Theeuwes and Van der Stigchel [34] that people and the human face draw the most attention. Even young children prefer human faces to those of other faceless objects. With age, this

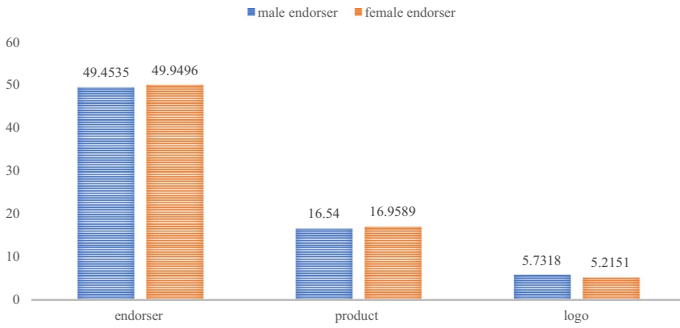


Fig. 6 Mean duration of the gaze at the elements in the ads in association with the gender of the endorser

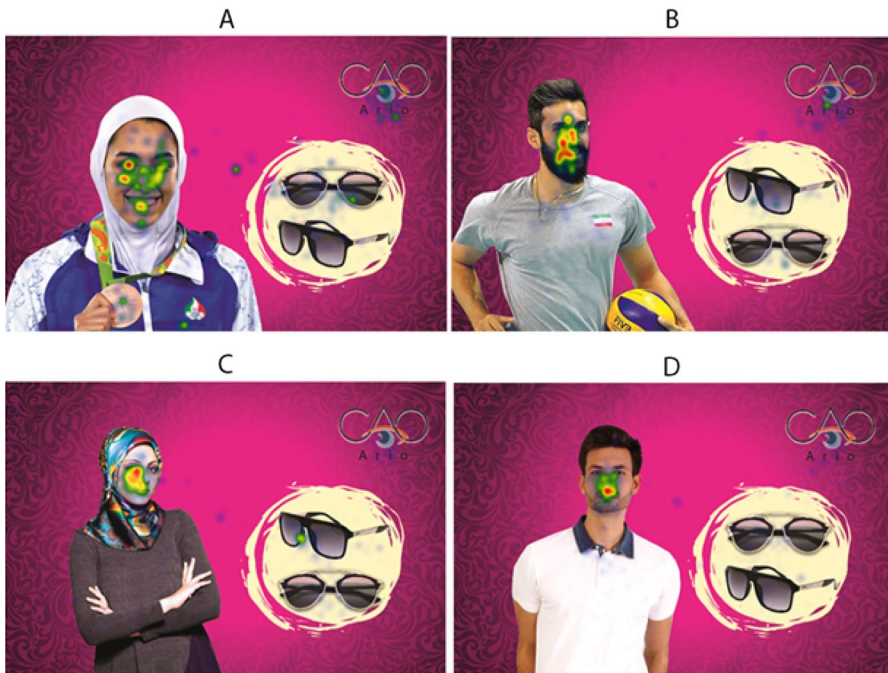


Fig. 7 Heat map for the following groups: **A** Female-Popular; **B** Male-Popular; **C** Female-Non-Popular, and **D** Male-Non-Popular

preference simply gets stronger [15]. The results of this investigation supported the existence of a substantial link between gender and audience attention. Advertising’s effectiveness as a visual communication medium depends on how attentively viewers pay attention to its message [5].

Advertising professionals frequently hold the opinion that the more visually compelling an advertisement is, the more likely viewers will pay attention to it. The general belief is that longer gazes indicate greater levels of interest

Table 5 Results of ANOVA test for the number of gazes

Effect	df	F-value	R ²	Sig	Effect value
Endorser	1	0.764	34.01	0.38	0.002
Logo	1	0.505	1.67	0.47	0.002
Product	1	0.009	0.221	0.923	0.0001

Table 6 Results of ANOVA test for the duration of the gaze

Effect	df	F-value	Mean square	Sig	Effect value
Endorser	1	0.055	19.685	0.815	0.0001
Logo	1	2.241	21.360	0.135	0.007
Product	1	0.115	14.043	0.734	0.0001

and attention. Furthermore, it is presumable that higher attention translates into favorable reactions and even attraction to the marketed goods [23]. According to this hypothesis, looking at the overall mean duration of the glance and the average number of gazes, it can be seen that having an endorser in an advertisement can draw attention to it. As a result, using endorsers in advertising may play a role in grabbing the attention of the target audience. In order to more thoroughly assess the level of effectiveness of the endorser on the attention, a separate section of the research examined the influence of the endorser's gender. There was no difference in the attention given to male and female endorsers, according to research findings (Tables 5 and 6).

This finding was consistent with the outcomes produced by Freiden [16]. As a result, they might make the promoted good or services more noticeable to the viewers. However, because of the restrictions in place, such attractions are not permitted in Iran. Therefore, there was no distinction in the participants' attention given to male and female endorsers. As a result, it could be inferred that this lack of distinction would probably stop the gender of the endorser's endorsement from having an impact on the commercials. It was found in the current study that the presence of the endorser attracted audiences' attention to the advertisement, indicating that using a person in advertising could do the same. Furthermore, it was discovered that in the advertisement, individuals attracted greater attention than other stimuli. Another study also showed that the audience's interest was unaffected by the endorser's gender. However, it should be emphasized that focusing on a certain person, a company's emblem, or a particular product did not always spark interest. Therefore, other factors that were not assessed in this study could influence the relationship between visual attention and a positive attitude. Future research might therefore concentrate on this gap.

One of this research's main contributions is gender differences among endorsers. According to the literature, more space has been devoted to research on the impact of popularity, so we suggest future studies. In addition, researchers consider how to stress even more the results of gender differences. However, that no gender difference emerges is also an exciting result of this research.

Acknowledgements This work was funded by the Ferdowsi University of Mashhad.

Funding Open access funding provided by FCTIFCCN (b-on).

Declarations

Conflict of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

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