# ARTICLES

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# BLINDNESS TO SPONSOR: APPLICATION TO SPORTS EVENT POSTERS

## *Ceguera al patrocinador: Aplicación a carteles de eventos deportivos*

## *Cegueira ao patrocinador: Utilização de banners em eventos esportivos*

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## ABSTRACT

Advertising posters in sports sponsorship are versatile marketing tools with significant media impact and high visibility. The purpose of this research is to measure the spontaneous recall of and attention toward business brands sponsoring sports events while assessing their location and congruence level. The sample was segmented according to gender. The experiment involved 12 stimuli related to three sporting disciplines corroborating the issue of media blindness with respect to advertising posters. Consistent with the placement theory, we found that the position of the sponsoring brand affected attention and recall with no remarkable differences between genders. Furthermore, we found no significant differences in the congruence levels, reinforcing the image transfer theory. A general guideline would be placing the sponsoring brand within the effective range of the poster while leveraging the effects of articulation and the remaining mediating variables in the literature.

**KEYWORDS** | Sponsorship, sports poster, site, eye tracking, memory.

## *RESUMO*

*O banner esportivo é um meio de comunicação versátil, com grande alcance e visibilidade, mas com escassa repercussão na literatura acadêmica. O objetivo desta investigação é medir a atenção e a lembrança espontânea dos patrocinadores dos banners de eventos esportivos em função de sua congruência e localização. A amostra foi segmentada por sexo. O experimento com 12 estímulos de três modalidades esportivas revela que, sim, existe cegueira ao patrocinador. Como previa a teoria da localização, a posição da marca do patrocinador gerou um efeito significativo sobre a atenção e a lembrança, não havendo diferenças significativas por sexo, embora não tenhamos encontrado diferenças por nível de congruência como sugere a teoria da transmissão de imagem. A recomendação geral é situar a marca do patrocinador na zona de ação do cartaz, e aproveitar fatores moderadores encontrados na literatura como a articulação.*

***PALAVRAS-CHAVE |*** *Patrocínio, banner esportivo, localização, rastreamento ocular, memória.*

## *RESUMEN*

*El cartel deportivo es un medio de comunicación versátil, con gran repercusión y visibilidad, pero con escasa repercusión en la literatura académica. El objetivo de esta investigación es medir la atención y el recuerdo espontáneo de los patrocinadores de los carteles de eventos deportivos en función de su congruencia y emplazamiento. La muestra se segmentó de acuerdo con el sexo. El experimento con 12 estímulos de tres disciplinas deportivas revela que sí existe ceguera al patrocinador. Como predijo la teoría del emplazamiento, la posición de la marca del patrocinador generó un efecto significativo sobre la atención y el recuerdo, no habiendo diferencias significativas por sexo. Sin embargo, no encontramos diferencias por nivel de congruencia como sugiere la teoría de la transmisión de imagen. La recomendación general es situar la marca del patrocinador en la zona de acción del cartel, y aprovechar factores moderadores encontrados en la literatura como la articulación.*

***PALABRAS CLAVE |*** *Patrocinio, cartel deportivo, emplazamiento, seguimiento ocular, recuerdo*


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## INTRODUCTION

Sponsorship, and in particular sports sponsorship, is one of the unconventional marketing techniques that has aroused considerable interest among companies and academics in recent years (Papadimitriou, Kaplanidou, & Papacharalampous, 2016). In the last decade, it has enjoyed greater economic investment and scientific research (Meenaghan, 2013; Prendergast, Paliwal, & Mazodier, 2016). This growing interest is due to the growing ineffectiveness of conventional media on one hand, and internationalization and dissemination of sports and leisure in social media on the other hand (Alonso Dos Santos, 2014). The economic importance of sponsorship is undeniable. However, while worldwide sponsorship expenditure increased from $53,100 million in 2013 to $62,800 million in 2017 (International Events Group, 2017), academics still have no agreed means to measure the return on investment (Meenaghan, 2013). Furthermore, net appearances on media or on social networks, attitudes towards the brand, or number of attendees at events, which are inefficient indices because of their low capacity for real predictions, are still used as indicators in the professional field (Breuer & Rumpf, 2015). Consequently, the literature recommends offering reliable and valid knowledge, methodologies, and measures to analyze, evaluate, and compare the effectiveness of the sponsorship activity (Grohs, 2015).

In relation to the effectiveness of the sponsorship, research about the attention that a sponsor effectively receives is scarce (Breuer & Rumpf, 2015), and specifically in non-television media (Rumpf & Breuer, 2014). A number of published studies employ factorial experiments of printed/digital images to test the effectiveness of sponsorship without initially testing if the sponsor has really received attention (e.g., Cornwell, Lipp, & Purkis, 2016; Gross & Wiedmann, 2015; Uhrich, Koenigstorfer, & Groeppel-Klein, 2014). Additionally, other studies conduct surveys in the same sporting event without considering the attention or the number of stimuli received by the subject (Close, Lacey, & Cornwell, 2015; Papadimitriou et al., 2016). Consequently, the research methodology used so far assumes that the subjects pay equal attention to the sponsors, receive the same impact, and dedicate the same time to process the information for all the subjects. However, assuming that all the subjects in the study process information about the sponsor is problematic. Similarly, one cannot expect all communication channels to be equally effective in transmitting the image of the sponsor in a sporting event (Meenaghan & Shipley, 1999).

Print sports media has received limited attention in sports literature (Conradie, 2011; Kelly, Coote, Cornwell, & McAlister, 2017), and sports posters as a medium has been little explored (Dudzik & Gröppel-Klein, 2005). However, its study is important for several reasons: its low cost, its versatility, its repercussion and visibility, and its investment and popularity (Nysveen & Breivik, 2005). First, it is crucial to not assume that the generalized results of television advertising, where there is in-depth research, are applicable to print advertising (Tipps, Berger, & Weinberg, 2006). Dedicated research on print sports advertising is scarce. Second, the importance of posters is highlighted as a key part of communication, especially at sporting events (Bennett, 1999). Not only are they on the streets and in sports facilities, they have also gone beyond the traditional media and have become popular across social networks. Third, communication through printed posters is not only suitable for large sporting events, as it happens with television. Small and medium-sized sporting events also use this type of advertising. After considering these aspects, the research question is: What attention does the sponsor's brand receive on a sporting event poster and what is the subsequent degree of brand recall? The aim is to verify whether sponsor blindness occurs, its influence on the recall, and whether the attention received by the sponsor depends on the gender of the subject. Following sections show the research questions, the experimental method used, and the results. Finally, we present the conclusion along with management recommendations.

## SPONSOR BLINDNESS

Advertising blindness or banner blindness is a concept that can be applied to the field of sponsorship to investigate the attention of the subjects to sponsorship. Banner blindness implies that the subjects do not receive the stimuli coming from the advertiser and ignore their presence, while they process the main content of the stimuli (the Web; Resnick & Albert, 2016).

The study of this subject is not new, and the literature contains several examples (e.g., Ortiz-Chaves, Martínez-de-Pisón, Cancela-López-Carrión, Gonçalves-de-Vasconcellos, & Marcos, 2014; Resnick & Albert, 2016; Zouharová, Zouhar, & Smutný, 2016). The applications have been diverse, with studies focusing on e-commerce (Resnick & Albert, 2014), Google AdWords (Ortiz-Chaves et al., 2014), tourism-oriented Web 2.0 (Hernández-Méndez & Muñoz-Leiva, 2015), and even social networks (Simola, Kivikangas, Kuisma, & Krause, 2013). Several solutions have been proposed to improve the visibility of banners (Porta, Ravarelli, & Spaghi, 2013), such as those based on the components of the message (Barreto, 2013), structure and type of information

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(Hsieh & Chen, 2011), aesthetics (Resnick & Albert, 2016), or thematic congruence (Porta et al., 2013).

Despite all the solutions, a standard method of measurement has not yet been developed or accepted for advertising blindness (Resnick & Albert, 2016). Some studies perform an exploratory analysis (Muñoz-Leiva, Hernández-Méndez, Liébana-Cabanillas, & Marchitto, 2016; Resnick & Albert, 2014), but most limit themselves to comparing advertisements according to their congruence, aesthetics, or structure (Barreto, 2013; Porta et al., 2013; Resnick & Albert, 2016; Rieger, Bartz, & Bente, 2015). The first research question examines the occurrence of sponsor blindness, which implies that users do not pay attention to the sponsors of the sports posters.

According to d'Astous & Séguin (1999), implicit location refers to the preferential location that the brand occupies within the advertisement without mentioning its characteristics or benefits. According to the emotional transference mode (Liu, Hu, & Grimm, 2010) that is based on the location theory (Russell, 1980), brands located in the main action scene receive more attention than others. These results are corroborated by subsequent studies (Valenzuela, Martínez, & Yáñez, 2015; Redker, Gibson, & Zimmerman, 2013). This implies that the brands of sponsors that are located in the field of action, will receive more attention.

## RECALL

According to Keller (1993), brand awareness is related to brand recall and recognition. It represents the cognitive stage, and comprises the first step in the hierarchical models of sponsorship. Moreover, it represents a key objective of sponsorship by the sponsoring organizations. Brand recognition studies often adopt recall and recognition measures to assess consumer awareness levels (Cianfrone, 2007). Based on the theory of memory, Rath & Mohapatra (2013) suggest that brand recognition is very important for consumers to build brand associations. According to the image transfer theory, these associations in sports sponsorship are essential so that the attitudes inherent in the sponsor are associated with the sponsored (Alonso Dos Santos, 2014).

A number of studies measure the effects of sponsorship, including the recognition of the brand as a dimension to measure consumer's brand awareness levels (Choi & Yoh, 2011). Following the aforementioned authors, three main approaches have been followed in order to measure this dimension: (1) identifying the factors that influence sponsor recall; (2) analyzing the internal processes related to the recall that takes place in the minds of the spectators; and (3) measuring the recall of the sponsors.

Two modes are used to measure recall: assessing the consumer's ability to name a sponsor without any hints and identifying the correct sponsor within a group of potential sponsors or through a set of signals. According to Wells (2000), recognition measures show interest in the promotion, while recall measures determine the recall of the brand. Both methods are used in the field of sports sponsorship (Cornwell, Humphreys, Maguire, Weeks, & Tellegen, 2006; Lardinoit & Derbaix, 2001).

All forms of the consumer's brand recognition and recall, directly and indirectly through sponsorship activities, can influence purchase decisions by creating brand awareness and interest. This can eventually lead to perceived differences between the advertised brand and other brands in the same product category (Pitts & Slattery, 2004). Therefore, sports marketing scholars have widely adopted the aforementioned forms of measurement to evaluate the effectiveness of sports sponsorship.

Brand awareness plays an important role in the formation of consumer behavior and attitudes (Keller, 1993). This can be applied to a consumer of sporting events, mainly for three reasons (Lee, 2010): (1) consumers can evaluate the brand only after knowing it; (2) brand knowledge influences the brand choice, particularly in low-involvement choices; and (3) brand recall and brand knowledge condition the consumer to form a brand image.

Considering these reasons, the effects of repeated exposure of the sponsors' message have been examined as a mechanism to increase brand awareness or to increase positive predisposition towards the brand (Madrigal, 2001, Meenaghan, 2001, Pitts & Slattery, 2004). The frequency of such exposure is the most important variable in the theory of mere exposure (Tom, Nelson, Srzentic, & King, 2007); repeated exposure will positively affect consumers, influencing knowledge and attitude towards the brand sponsoring the event (Maxwell & Lough, 2009). This has been applied previously to the image transfer theory (Dardis, 2009). Sports sponsors hope that the image of a sporting event will be transferred to their own brand, thus increasing the purchase intention or brand awareness. Nevertheless, this image transfer can only take place if the consumer recognizes or remembers the brand that sponsors the sporting event. Therefore, repeated exposure to the sponsor's advertised message can achieve an increase in recognition and recall of sponsorship.

Along with the frequency of exposure, congruence-adjustment between the sponsor and sponsored brand can

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influence sponsor recall (Papadimitriou et al., 2016; Alonso Dos Santos, Calabuig, Rejón Guardia, & Pérez Campos, 2016; Alonso Dos Santos & Calabuig, 2018). According to Amorim & Almeida (2015), the theory of schemes and the theory of associative networks facilitate sponsor recall (both theories related to the functioning of human memory).

Marketing literature contains several studies that mention the background and benefits of brand recall. For example, Barros, Barros, Santos & Chadwick (2007) found that prior knowledge of the sponsoring brand reinforces the recall of the said brand. They also postulated that the sponsor's preference for products increases the likelihood of remembering the name of the sponsoring brand. Pitts & Slattery (2004) examined the relationship between the frequency of attendance at a football tournament and the sponsor's brand recognition. Lee (2010) conducted an experiment that involved exposure to sponsorship of a NASCAR (National Association for Stock Car Auto Racing) sporting event, and found a positive and direct relationship between the frequency of exposure to the sponsorship and the attitude toward the sponsoring brand, which is consistent with the theory of mere exposure. Finally, Lee (2008) found a positive relationship between brand recall and attitude towards the sponsor. Sponsorship recall is often used as an explanatory variable for the effects of sponsorship (Pope & Voges, 1999; Speed & Thompson, 2000). Consequently, it can be assumed that exposure to sponsorship comes from greater attention to the sponsor's brand. Thus, a greater fixation in time and frequency provides more brand recall.

## GENDER

Previous studies have explored the relationship between consumer's gender and sports marketing. A number of studies have shown that the ability of the gender variable to influence identification to a sports team (Menefee & Casper, 2011), the purchase of sponsored products (Kwon & Armstrong, 2002), motivation to attend sporting events (Funk, Toohey, & Bruun, 2008), and participation in sports activities (Muñiz, Rodríguez, & Suárez, 2014). It is a demographic segmentation variable that has been previously used in sports marketing. Earlier, Kinney, McDaniel, & DeGaris (2008) recognized the ability of gender segmentation in influencing the sponsor's brand recall. According to McDaniel & Kinney (1999) and Stipp & Nicholas (1996), males showed a greater recall capacity than females. The interpretation of the selectivity hypothesis (Meyers-Levy, 1988) suggests that gender differences are due to differences in cognitive processing, i.e., men selectively process available information based on a subset of highlighted factors instead of processing all information that is available, which is the case with women. Similarly, it is observed that the involvement of the subjects with the sponsored event and with sports influences the attention to the sponsors (Cornwell et al., 2006; Boronczyk, Rumpf, & Breuer, 2018); and that men have greater involvement (Wann, Melnick, Russell, & Pease, 2001), affection, (Wann, Waddill, & Dunham, 2004), and identification with sports (Menefee & Casper, 2011). Men tend to process information with which they are more involved.

If the gender variable is able to segment the degree of interaction and advertising effectiveness (McMahan, Hovland, & McMillan, 2009), the emotional level (Alonso Dos Santos & Pérez-Campos, 2015), and the quality and satisfaction of the sports events (Ko, Kim, Kim, Lee, & Cattani, 2010), it would be reasonable to think that it can influence the attention of print sports communications. Nevertheless, these investigations have been controversial. Some researchers state that men pay more attention to banners than women (Goodrich, 2014), while other researchers state that there are no significant differences (Barreto, 2013, Drèze & Hussherr, 2003, Muñoz-Leiva et al., 2016). Nevertheless, men are expected to show higher levels of attention to sponsors than women.

## METHOD

### Validation of stimuli

The process of construction of the stimuli consists of several stages. In the first stage, four sports categories are selected for convenience: tennis, sailing, rowing, and Formula 1 (racing). A sample of 100 university subjects provides four possible congruent and incongruent sponsorships for each of the sports categories through a questionnaire with open questions.

The result was processed after including the most frequently selected associations. The rowing discipline was eliminated due to the low number of associated sponsors. The next step consisted of a survey using the 1–7 Likert scale, in which the subjects were required to indicate the degree of coherence and incoherence of the associations generated in the first stage. Subsequently, commercial communications were created by modifying real posters of sporting events with no real or known characters in order to avoid possible involvement of the subject with the character. In the absence of an established script, the usual international practice in the design of sports posters is dividing the communication into two parts with a

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vertical format. Two thirds of the poster from the top contain the information of the event and the area of conceptualization of the event. The latter may consist of the brand of the event, popular players competing or sports scenes typical to the sport discipline of the event. Sponsors are usually located in the lower area.

Finally, a focus group is allowed to assess the build quality of the manipulated posters and images. The results of this qualitative test allow us to discard certain communications where the sponsor or the event is not well represented or has an insufficient image quality. All the generated images are available for download in the links shown in Table 1. The nomenclature of the observation sequence of the images contains three parts with the following explanation: sport category (Formula 1 = F1, Sailing = S, Tennis = T), congruence (C = congruent, I = incongruent), and position (W = within the action zone and O = outside).

## The experiment

The experimental design is based on previous designs and mixes banners with eye tracking (Hernández-Méndez & Muñoz-Leiva, 2015; Muñoz-Leiva et al., 2016). It has an inter-subject design with the gender and discipline variables and an intra-subject design with position and congruence variables. It consists of a 2×2 factorial design with a total of 12 stimuli that is divided into three sports disciplines. Four groups are formed with three sequences each. Each group is composed of ten subjects. The group is randomized and balanced according to the age and gender of the subject (see Table 1) but the random assignment of the test units to the groups and the groups to the congruent or incongruent experimental set remains. In total, 120 subjects participated. Table 1 shows the observation sequence, group name, and link of the stimulus image.

Table 1. **Sequence of observation of the stimuli, assignment to the group, and download link of the image used.**

| Group | Observation sequence | | | Stimulus name | Link |
|---|---|---|---|---|---|
| 1 | F1_C_F | S_C_F | T_C_F | B | https://goo.gl/qDYoWi |
| 2 | T_C_F | F1_C_F | S_C_F | | https://goo.gl/CxKFjb |
| 3 | S_C_F | T_C_F | F1_C_F | | https://goo.gl/wZhfKE |
| 4 | F1_I_F | S_I_F | T_I_F | D | https://goo.gl/M4zfO7 |
| 5 | T_I_F | F1_I_F | S_I_F | | https://goo.gl/HAUEjq |
| 6 | S_I_F | T_I_F | F1_I_F | | https://goo.gl/umQM8w |
| 7 | F1_C_D | S_C_D | T_C_D | A | https://goo.gl/JDEpzX |
| 8 | T_C_D | F1_C_D | S_C_D | | https://goo.gl/wu4VFY |
| 9 | S_C_D | T_C_D | F1_C_D | | https://goo.gl/CbsLBW |
| 10 | F1_I_D | S_I_D | T_I_D | C | https://goo.gl/Lu8KAj |
| 11 | T_I_D | F1_I_D | S_I_D | | https://goo.gl/kcdyis |
| 12 | S_I_D | T_I_D | F1_I_D | | https://goo.gl/W1E20q |


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The field work was carried out during the first week of September 2016 in a room equipped for neurophysiological experimentation (International Telecommunication Union, 2002). The sample consisted of 60 men and 60 women with a mean age of 23.4 years (3.5 deviation). For convenience. this sample was captured at the university campus.

The system used is an EyeTribe device with a 60 Hz sampling rate, mean precision of 0.5 degrees of visual angle, and a spatial resolution of 0.1 degrees. This device has a latency of 20 milliseconds and admits 16 points for the calibration process. It is suitable for commercial research, allowing subjects to move up to 75 centimeters in horizontal and vertical angles. OGAMA (Open Gaze and Mouse Analyzer) software was used for this experiment. It is a free-to-use, open-source program, with previous use validated by scientific records (Popelka, Stachoň, Šašinka, & Doležalová, 2016; Voßkühler, Nordmeier, Kuchinke, & Jacobs, 2008).

The experimental sequence was as follows: First, the subjects were informed about the experiment and their consent was collected. Following that, they were accommodated and the calibration process began by fixing and displacing the gaze on 16 points. In accordance with the procedure of previous studies (Gülçay & Cangöz, 2016), each stimulus was shown for eight seconds, followed by an one-second interval in which a black image was shown. Subsequently, the sociodemographic and recall data of the subjects were collected from a survey.

## RESULTS

Sponsor blindness was analyzed using descriptive attention analysis with respect to the complete fixation time (CFT), time until the first fixation (TFF), and number of fixations (NF). The data on brand recall completed the analysis. A variance analysis was carried out to determine gender-based differences.

Table 2 shows in detail the fixation indicators for the area of interest (AOI) set on the sponsoring brand on the poster. For stimulus B and D, when the sponsoring brand is outside the action area, the mean number of fixations ≤0.5. This indicates that half of the subjects never looked at the sponsor, as the mean does not reach the unit value. Furthermore, the mean value is greater than the unit value for stimuli A and C. The following results are obtained after calculating NF for the total of stimuli and disciplines: 18% of subjects saw the brand in any of the posters, 52% of subjects did not see the brand in some of the posters, and finally, 6.1% of subjects did not see the brand in any of the posters. Additionally, out of 8000 ms (the total duration of the exhibition), the sponsors received an average attention of 332.6 milliseconds (4.16%).

Table 2. **Mean scores (M), standard deviation (SD), and normality (N) for the indicators of attention to the brand**

| Tipo | CFT | | | TFF | | | NF | | |
|---|---|---|---|---|---|---|---|---|---|
| | M | SD | N | M | SD | N | M | SD | N |
| B | 129 | 151.4 | .8* | 2022.1 | 1828.2 | .8* | .5 | .5 | .8* |
| D | 142.8 | 224.3 | .6* | 1341.1 | 1395.8 | .8* | .4 | .6 | .7* |
| A | 526.9 | 321.3 | .96 | 1845.1 | 1144.9 | .94 | 1.3 | .8 | .91 |
| C | 531.7 | 373.4 | .9 | 1895.1 | 1237 | .91 | 1.2 | .7 | .92 |

* p <0.05

Figure 1 represents the analysis of the fixation map with a rainbow color palette. The heat map is indicated by a more intense color (red), and the normal distribution of all fixations based on their length is calculated according to the mathematical algorithm. An exploratory analysis reveals that the points with the greatest fixation were the player's face, date, and name of the event for the tennis poster, and the communications tower, event name, date, and place of celebration for the sailing event.

The scan path is examined in Figure 2 and shows the poster fixation history using infrared light reflection from the pupil. The numbers inside the circles represent a place in the fixation history, while the size of the circle represents its duration. The video replay can be seen at the following address: https://goo.gl/j6usRo.

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Figure 1. **Heat map for the two sample posters of stimulus B.**

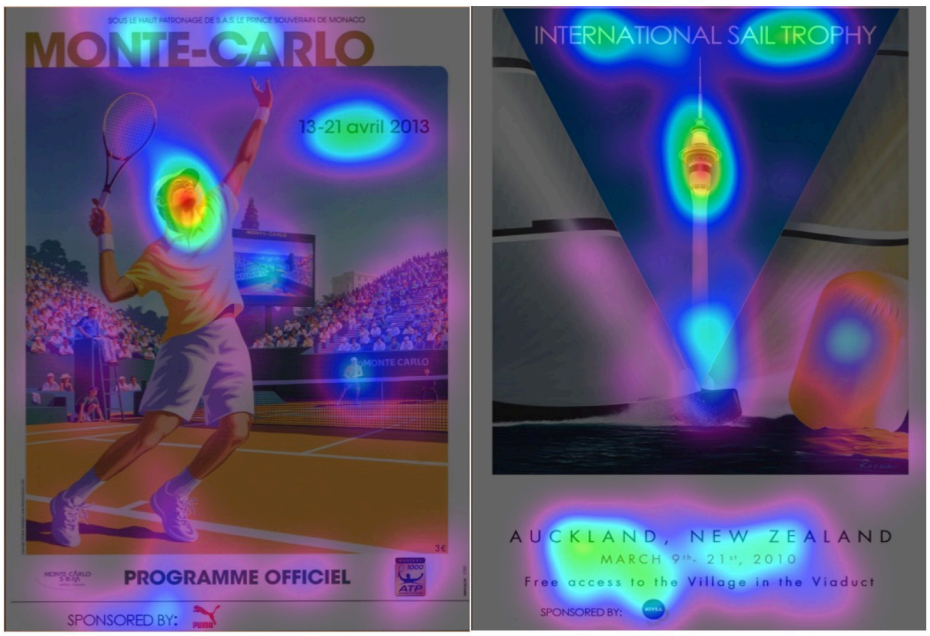



Figure 2. **Scan path for the two sample posters of stimulus B.**




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A comparative analysis with respect to the site shows that a message receives more attention when it is located within the action zone than when it is located outside for the CFT (F (1,118) = 50.68, p ‹000; NF F (1,118) = 28.43, p ‹000). There were no differences in TFF.

Table 3 shows the subject's spontaneous recall rate. The stimuli with the highest recall rate are A and C. These stimuli represent a congruent and incongruent sponsor respectively, but both within the action zone. This seems to indicate that the sponsors located inside the action zone have higher recall rates. This agrees with the previous fixation analysis of the CFT and NF.

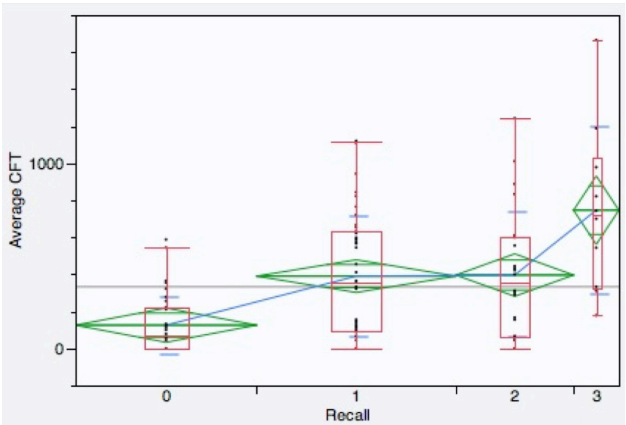
Table 3. **Sponsor recall rate N (%)**

| Stimulus | 0 hits | 1 hit | 2 hits | 3 hits |
|---|---|---|---|---|
| A | 7(23) | 15(50) | 5(17) | 3(10) |
| B | 14(47) | 7(23) | 7(23) | 2(7) |
| C | 7(23) | 14(47) | 6(20) | 3(10) |
| D | 12(40) | 8(27) | 8(27) | 2(7) |

Note: (n=30) by stimulus. Each stimulus has three sports categories and each category has a sponsor.

Figure 3 shows the differences in the recall rate as a function of CFT which is significant with F (3.119) = 14.05 and p‹0.001. There are also significant differences for the other indicators: TFF with F (3,118) = 8.05 and p‹0.001; and NF with F (3.119) = 13.96 and p‹0.001. These results indicate that higher recall rates are related to higher fixation frequencies, total fixation time, and time of the first fixation, time to first fixation being inversely related. The Tukey-Kramer HSD method is used to compare the recall rates and significant differences are obtained between all the pairs, except for pair 2-1. This confirms the three levels of recall with certainty: 0 (brands), 1 and 2 (brands), and 3 (brands).

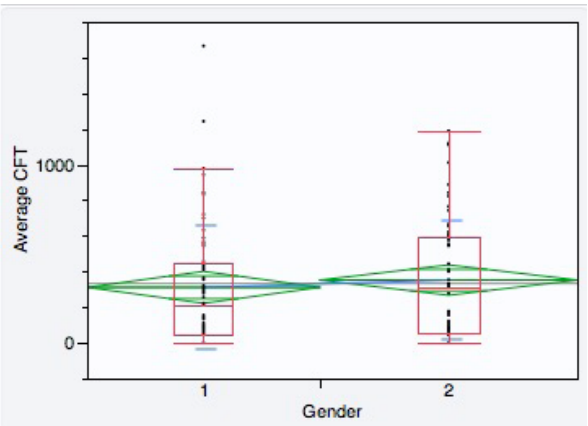
Figure 3. **Recall analysis and CFT fixation indicator.**




Note: The red lines describe the box diagram, the blue line connects the mean values, horizontal blue lines represent the standard deviation, and the green diamonds represent the mean values and confidence intervals.

Regarding the recall analysis and fixations based on the subject's gender, the results indicate that there is or association between the CFT (Figure 4), NF, and TFF and gender; as well as between the recall rate and gender. Similar results for banner attention were observed by Hernández-Méndez and Muñoz-Leiva (2015), Drèze & Hussherr (2003), and Barreto (2013).

Figure 4. **Analysis of the gender of the subject and the CFT fixation indicator.**




Note: The red lines describe the box diagram, the blue line connects the mean values, the horizontal blue lines represent the standard deviation, and the green diamonds represent the mean values and confidence intervals.

## CONCLUSIONS AND RECOMMENDATIONS

In the academic world, sports sponsorship is a field of study with significant repercussions (Meenaghan, 2013; Prendergast et al., 2016). However, some means of sponsorship communication have not been sufficiently addressed. Consequently, sports posters have received little attention in the academic literature despite their low cost, versatility, and rapid response advantages (Nysveen & Breivik, 2005).

The purpose of this research was to measure the degree of effectiveness of sports signage and sponsorship from the standard application of the banner blindness concept. Therefore, we measured the attention given to sponsors using indicators of eye attention and recall, in addition to segmenting the sample to test for gender-based differences. The experimental design consisted of 12 stimuli from three sports disciplines (sailing, F1, and tennis) and four groups of ten subjects each, randomized and balanced according to the age and gender of the subject. To give greater validity to the experiment, these were divided

into congruent and noncongruent stimuli, with two types of placement (inside and outside the action zone).

The results indicate the occurrence of sponsor blindness. The term sponsor blindness refers to the tendency of subjects to avoid processing and paying attention to the sponsors that are exposed in a sports poster. To the best of our knowledge, there is no literature available on this concept. Sponsor blindness occurs because the fixation indicators reveal that only 4.16% of the total time of the poster is dedicated to the sponsor. This is a slightly shorter than the attention time given to the sponsor in the study by Breuer & Rumpf (2012), after including conceptual and methodological differences due to lack of comparable studies in this field. More than half of the subjects in the experiment paid no attention to any of the sponsors of the three posters. These results are further supported by an analysis of the heat maps and the scan path, in which we observe that the subjects dedicate short periods of time to the processing of the sponsor. This lack of attention could be due to the overload of information present in the poster (Tangmanee, 2016). These results can be seen by the placement of the sponsor in the lower part of the poster as well. According to Breuer & Rumpf (2012) and the overload theory, attention can be predicted depending on the placement of the sponsor's brand in the advertising medium and other exposure variables. The time taken up by the event information can be subtracted from the sponsor's brand processing time. Therefore, it is necessary that future investigations alternate not only the area of action but also the position of the sponsors. Similarly, it is necessary to apply these investigations to the professional field. The sponsor is supposed to know how much attention is received by its brand, as opposed to merely the number of times it appears on the screens or monitors. Algorithms capable of predicting and evaluating the exposure of sponsorships in social networks are among the latest developments (e.g., www.blinkfire.com). However, these algorithms do not assess whether the sponsor's brand is indeed observed and how much attention it has received.

We demonstrated that the sponsors located in the action area receive more attention than the others. However, we could not demonstrate that variation in attention depends on congruence. The literature claims that greater the congruence, better the information processing (Cornwell et al., 2006), although several studies point in the opposite direction (Alonso Dos Santos & Calabuig, 2018; Tribou, 2011). However, our results could not make the argument lean in either direction.

Academic literature shows that the effectiveness of the site can vary depending on its congruence (DeLorme & Reid, 1999), although we could not prove it. Moreover, sponsor blindness can influence the last result. The subject may not have enough time to process the congruence or incongruence of the message. This suggests that the location in the action area should be planned only for the main sponsor to improve its performance in terms of its brand attention.

Conversely, recall data were obtained using a post-stimulus question, without the assistance of the brand. Only 8-10% of the subjects were able to remember two of the three brands shown in the experiment and this is a relatively low percentage (Tangmanee, 2016), but in agreement with previous studies in online environments (Hamborg, Bruns, Ollermann, & Kaspar, 2012). This comparison should be made with caution, as the methods, environments, and areas are different. Recall rates are hardly comparable in the sports field. According to Carrillat, d'Astous, Bellavance, & Eid (2015), research is very heterogeneous in terms of exhibitions, events, sponsors, and methodologies. Carrillat et al. (2015) show the disparity in recall success between different studies, with the recall rates ranging from 9.25% (Nicholls, Roslow, & Dublish, 1999) to 68% (Quester, 1997). This gap is too broad to allow a timely comparison or to define a recommended limit, but lower than the usual recall rates shown in previous research. Some of them are around 63% (Barros et al., 2007), over 40% (Cornwell, Humphreys, Maguire, Weeks, & Tellegen, 2006), or 20% (Breuer & Rumpf, 2012). It is important to keep the relationship between recall and the strategic result of the sponsorship investment in mind, since it is one of the most valued indicators of effective investments (DeGaris, Kwak, & McDaniel, 2017).

These results include several recommendations for the sports sponsors. First, it is better to position oneself within the area of action for attentive communication, although we have not been able to verify the economic profitability that could be derived from a possible contract by a main sponsor with this right. Second, the possible occurrence of sponsor blindness can be mitigated with changes in the situation (Resnick & Albert, 2014), animation of digital posters (Hernández-Méndez & Muñoz-Leiva, 2015), or congruence with the environment or sponsored event (Rieger et al. al., 2015). In any case, gender does not appear to have an effect on attention, which indicates that segmentation strategies based on gender do not seem to have an effect on the sponsor. Finally, it is advisable to use a reliable method to test the effectiveness of sponsorships with greater economic investment. As demonstrated in this work, the use of eye tracking can be a reliable method for testing the effectiveness of communication in sponsorship. According to Breuer & Rumpf (2012), this type of research shows the cognitive process of input and output of information in the consumer, to an extent

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that we are able to analyze and specify how much information is processed by the subject and how much information is recalled. However, the processing system, unconscious processing of the brand, and its association with other concepts have not been observed (Cornwell et al., 2006). This line of research needs to be investigated further.

It is important to note that the sample used in this research is not representative of the population, particularly because of the use of university students. Similarly, sports categories are chosen for convenience. After considering the laboratory limitations in future research, it would be interesting to replicate this experiment in real situations. Other variables can be included to measure the moderating factors that could alter the effectiveness of sponsorship communication. Involvement with the sport, the team, or the athlete can be considered as a variable for such a study. Advances in means of exposure and repetition of message could significantly help in understanding the effectiveness of sponsorship.

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