EVALUATING THE VISUAL EFFECTIVENESS OF EARLY BOOKING CAMPAIGNS FROM A NEUROMARKETING PERSPECTIVE: AN EYE-TRACKING STUDY

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ABSTRACT

Purpose

This study aims to examine how the visual materials used in travel agencies' marketing campaigns influence consumer attention and cognitive processes, using the neuromarketing technique of eye-tracking. A further objective is to demonstrate the practical applicability of neuromarketing in the tourism sector and to provide empirical insights that can guide marketing strategies.

Methodology

The research employs Neurons AI, an artificial intelligence–based eye-tracking software trained on more than 100 million data points collected from over 180,000 participants. Five visuals from the "Early Booking" campaigns of the highest-ranked TÜRSAB-registered A-group travel agencies listed on the Turizme Bakış platform as of January 2024 have been analysed. Visuals have been examined across both online media (agency websites) and outdoor/TV advertisements. The analysis has relied on four main heatmaps and Area of Interest (AOI) metrics to evaluate attention distribution and cognitive engagement.

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Geliş/Submitted: 17.10.2025 **Kabul/ Accepted:** 19.12.2025

Makale Türü: Araştırma Makalesi

APA: Arslan İ, Buladı Çubukcu, B. (2026). Evaluating The Visual Effectiveness of Early Booking Campaigns from A Neuromarketing Perspective: An Eye-Tracking Study. Turar Turizm ve Araştırma Dergisi, 15 (1), 1-22.

Findings

All campaign components were found to influence consumer perception. Primary messages and human imagery attracted the highest levels of visual attention. Large-font main messages and human-centred visuals significantly increased focus, whereas small-font secondary texts were largely overlooked. High-density textual content raised cognitive load. Clear, simple, and visually balanced designs were identified as key elements enhancing consumer engagement and purchase intention.

Conclusion

The study demonstrates the practical usefulness of neuromarketing techniques in tourism marketing and highlights the importance of visual clarity and human-centred design in directing consumer attention and shaping decision-making. The findings offer practical recommendations for marketing professionals and contribute empirical evidence for future research in neuromarketing and visual communication within tourism.

Keywords: marketing, neuromarketing, travel agencies, campaign, eye-tracking, tourism

NÖROPAZARLAMA PERSPEKTİFİNDEN ERKEN REZERVASYON KAMPANYALARININ GÖRSEL ETKİNLİĞİNİN DEĞERLENDİRİLMESİ: BİR GÖZ İZLEME ÇALIŞMASI

ÖZ

Amaç

Bu çalışmanın amacı, nöropazarlama tekniği olan göz izleme (eye-tracking) yöntemi kullanılarak, seyahat acentelerinin pazarlama kampanyalarında yer alan görsel materyallerin tüketici dikkati ve bilişsel süreçler üzerindeki etkisini incelemektir. Ayrıca çalışmanın bir diğer amacı, nöropazarlamanın turizm sektöründeki pratik uygulanabilirliğini ortaya koymak ve pazarlama stratejilerine yön verebilecek ampirik bulgular sunmaktır.

Yöntem

Araştırmada, 180.000'den fazla katılımcıdan elde edilen 100 milyonun üzerinde göz izleme verisiyle eğitilmiş yapay zekâ tabanlı Neurons AI teknolojisi kullanılmıştır. Turizme Bakış platformuna göre Ocak 2024 itibarıyla en üst sıralarda yer alan TÜRSAB'a kayıtlı A grubu seyahat acentelerinin "Erken Rezervasyon" kampanyalarından seçilen beş görsel

analiz edilmiştir. Görseller hem çevrimiçi (acente web siteleri) hem de outdoor/TV reklamlarında yer alan sürümleriyle değerlendirilmiştir. Analiz sürecinde dört temel ısı haritası ve İlgi Alanı (AOI) metrikleri kullanılarak dikkat dağılımı ve bilişsel etkileşim ölçülmüştür.

Bulgular

Kampanyalardaki tüm unsurların tüketici algısını çeşitli derecelerde etkilediği görülmüştür. Birincil mesajlar ve insan temalı görseller en yüksek dikkat düzeyini toplamıştır. Büyük puntolu ana mesajlar ve insan merkezli görseller odaklanmayı artırırken, küçük puntolu ikincil metinler çoğunlukla gözden kaçmıştır. Metin yoğunluğunun artması ise bilişsel yükü yükseltmiştir. Net, sade ve dengeli tasarım unsurlarının tüketici etkileşimi ve satın alma niyetini olumlu yönde etkilediği belirlenmiştir.

Sonuç ve Katkı

Bu çalışma, turizm pazarlamasında nöropazarlama tekniklerinin uygulanabilirliğini göstermekte ve tüketici dikkatini yönlendiren görsel tasarım ilkeleri hakkında pratik öneriler sunmaktadır. Bulgular, hem pazarlama profesyonelleri hem de akademik araştırmacılar için değerli içgörüler sağlamaktadır ve turizmde nöropazarlama ile görsel iletişim alanına ampirik katkılar sunmaktadır.

Anahtar kelimeler: pazarlama, nöropazarlama, seyahat acenteleri, kampanya, göz izleme, turizm

GENİŞLETİLMİŞ ÖZET

Amaç

Bu çalışmanın temel amacı, seyahat acentelerinin erken rezervasyon kampanyalarında kullanılan görsel unsurların tüketici dikkatini ve bilişsel süreçlerini nasıl etkilediğini nöropazarlama perspektifiyle incelemektir. Geleneksel pazarlama araştırmaları çoğunlukla bireylerin beyana dayalı verilerine odaklanırken, bu çalışma tüketici davranışlarını bilinçdışı tepkiler üzerinden analiz etmeyi hedeflemektedir. Bu doğrultuda göz izleme (eye-tracking) tekniği kullanılarak kampanya görsellerinde hangi unsurların dikkat çektiği, hangi alanların odak noktası olduğu ve bu unsurların tüketici algısı ile satın alma motivasyonu üzerindeki etkileri değerlendirilmiştir. Ayrıca çalışma, nöropazarlama yöntemlerinin turizm

sektöründeki uygulanabilirliğini ortaya koymayı ve sektörde faaliyet gösteren işletmelere görsel iletişim stratejileri açısından yol gösterici ampirik bulgular sunmayı amaçlamaktadır.

Yöntem

Araştırmada yapay zekâ tabanlı bir göz izleme sistemi olan Neurons AI kullanılmıştır. Bu sistem, 180.000'den fazla katılımcıdan elde edilen 100 milyonun üzerinde göz hareketi verisiyle eğitilmiş olup, görsel dikkat ve bilişsel süreçleri yüksek doğruluk oranıyla tahmin edebilmektedir. Çalışma kapsamında, Turizme Bakış platformuna göre Ocak 2024 itibarıyla en üst sıralarda yer alan TÜRSAB'a kayıtlı A grubu beş seyahat acentesinin erken rezervasyon kampanyalarına ait görseller analiz edilmiştir. Bu görseller hem dijital ortamda (web siteleri) hem de outdoor ve televizyon reklamlarında kullanılan versiyonlarıyla değerlendirilmiştir. Analiz sürecinde toplam dikkat, netlik (clarity), bilişsel yük (cognitive load) ve etkileşim (engagement) olmak üzere dört temel ısı haritası kullanılmıştır. Ayrıca ana mesaj, ikincil mesaj ve insan yüzü gibi görsel unsurlar "ilgi alanı" (AOI) olarak tanımlanmış ve bu alanlara düşen dikkat oranları yüzdelik olarak hesaplanmıştır. Elde edilen veriler görsel dikkat dağılımı ve bilişsel etkileşim açısından yorumlanmıştır.

Bulgular

Araştırma bulguları, kampanya görsellerinde yer alan unsurların tüketici dikkatini farklı düzeylerde etkilediğini göstermektedir. En dikkat çekici unsurların büyük puntolu ana mesajlar ve insan yüzü içeren görseller olduğu belirlenmiştir. Ana mesajların ortalama %29,5 oranında dikkat çekmesi, görsel hiyerarşi ve tipografinin önemini ortaya koymaktadır. İnsan yüzlerinin ortalama %13,3 oranında dikkat çekmesi ise bu unsurların dikkat yönlendirmede etkili olduğunu göstermektedir. Buna karşılık küçük puntolu ve ikincil konumda yer alan metinlerin neredeyse hiç fark edilmediği (yaklaşık %0,05) tespit edilmiştir.

Renk kullanımı ve kontrast düzeyine ilişkin bulgular, yüksek kontrastın dikkat çekme açısından etkili olduğunu, ancak aşırı renk kullanımı ve metin yoğunluğunun algısal yorgunluk yaratabileceğini ortaya koymaktadır. Netlik analizlerinde sade ve dengeli tasarımların daha yüksek algısal açıklık sağladığı görülmüştür. Bilişsel yük analizleri ise metin yoğunluğu ve karmaşık tasarımın tüketicilerin mesajı anlamasını zorlaştırdığını göstermektedir. Düşük bilişsel yük oluşturan sade tasarımlar daha hızlı ve doğru algılanmaktadır.

Etkileşim analizleri, kampanya görsellerinin genel olarak dikkat çekici olduğunu ancak teklif mesajlarının sunum biçiminin satın alma motivasyonunu sınırlayabildiğini

göstermektedir. Görsellerin ilk etapta dikkat çektiği, ancak karmaşık ve küçük puntolu mesajların tüketici tarafından yeterince anlaşılmadığı belirlenmiştir. Bu durum, dikkat çekicilik ile mesajın anlaşılabilirliği arasında denge kurulması gerektiğini ortaya koymaktadır.

Sonuç

Çalışma sonuçları, turizm sektöründe nöropazarlama tekniklerinin etkin bir şekilde kullanılabileceğini ve görsel tasarım unsurlarının tüketici algısı üzerinde belirleyici bir rol oynadığını göstermektedir. Özellikle büyük ve net ana mesajların kullanılması, gereksiz metin yoğunluğundan kaçınılması ve görsel unsurların dengeli bir şekilde sunulması tüketici dikkatini olumlu yönde etkilemektedir. İnsan yüzü gibi dikkat çekici unsurların stratejik kullanımı da kampanya etkinliğini artırabilmektedir; ancak bu unsurların ana mesajı gölgelememesi gerekmektedir.

Araştırma, turizm pazarlaması literatürüne nörobilim temelli bir yaklaşım sunarak önemli bir akademik katkı sağlamaktadır. Aynı zamanda pazarlama uygulayıcıları için kampanya tasarımında sade, anlaşılır ve dikkat yönlendirici görsellerin kullanılmasının önemini vurgulamaktadır. Bununla birlikte çalışma, yapay zekâ tabanlı göz izleme yöntemi kullanması bakımından metodolojik açıdan da özgün bir katkı sunmaktadır. Gelecek araştırmaların farklı örneklemlerle ve farklı nöropazarlama teknikleriyle yapılması, elde edilen bulguların genellenebilirliğini artıracaktır.

INTRODUCTION

Throughout human history, production and consumption have constituted the backbone of economic and social systems. From primitive forms of barter to sophisticated market economies, the dynamics of exchange have continuously evolved, giving rise to increasingly complex mechanisms of commercial interaction. Parallel to this transformation, the concept and practice of marketing have also undergone a significant evolution, shaped by changing societal needs, technological developments, and the emergence of competitive markets (Mucuk, 2016). While early marketing efforts were largely transactional and product-oriented, focusing on facilitating the sale of goods, contemporary marketing has become a strategic, multidimensional discipline.

Today, marketing is not merely a set of techniques designed to boost sales; it is a holistic process aimed at understanding and responding to the values, expectations, and behaviours

of consumers. It entails a systematic effort to comprehend how products, services, and brands are perceived, experienced, and evaluated by targeted audiences. This shift reflects a broader transformation in marketing thought—from production- and sales-oriented paradigms to consumer-centric and relationship-based models (Uysal, 2011). In this context, modern marketing integrates elements such as digital technologies, data analytics, experiential design, and emotional branding to foster long-term engagement and customer loyalty. Thus, marketing is now positioned as a vital strategic function that not only responds to market demands but also shapes them through value creation, differentiation, and sustained communication.

Neuromarketing—an important component of modern marketing—aims to comprehend consumer behaviour not only through surface-level data but also by means of subconscious reactions. Rather than relying solely on self-reported measures such as surveys or focus groups, neuromarketing investigates the underlying cognitive and emotional processes that shape consumer decisions. The field developed with the integration of neuroscientific tools such as functional Magnetic Resonance Imaging (fMRI), Electroencephalography (EEG), and eye-tracking into marketing research. These tools allow researchers to detect involuntary responses, such as attention, emotional arousal, and memory activation, offering deeper insight into how marketing stimuli are processed by the brain.

Neuromarketing entered the academic literature through the pioneering work of Gerry Zaltman, who emphasized the role of unconscious thought in consumer behaviour (Akın & Sütütemiz, 2014). Since then, the field has gained empirical support, with studies showing that neurological and physiological responses can often predict consumer preferences more accurately than traditional methods (Senior et al., 2007).

The tourism sector today stands out as a strategically important service industry owing to both its economic contribution and the employment it generates. Ensuring the sustainability of tourism enterprises depends largely on customer satisfaction. The intangible nature of tourism products and the simultaneity of production and consumption—features intrinsic to service industries—make accurate analysis of consumer expectations indispensable (Kozak & Sop, 2023). Consequently, travel agencies, key actors in the tourism industry, must develop effective, target-oriented marketing strategies to survive amid changing environmental conditions and intense competition (Aksöz & Yücel, 2019).

At this point, neuromarketing methods offer significant contributions to understanding which elements influence consumers' purchase-decision processes. Particularly with the impact of digitalization, techniques such as eye-tracking, which enable a deeper examination of consumer behaviour, help make marketing strategies more effective. Although neuromarketing is still a developing field, it is expected to become one of the most widely used methods in marketing research in the near future (Wen, 2018).

During the eye-tracking process, four fundamental components—attention, emotion, cognitive load, and memorability—are taken into consideration. Attention, as the primary trigger in the consumer decision-making process, provides critical insights for enhancing the effectiveness of campaigns and advertisements. Emotions reflect the understanding that individual behaviour is shaped not only by cognitive processes but also by emotional responses, thereby offering information on the consumer's initial reactions within the first seconds of exposure to a visual. Cognitive load helps assess the level of mental effort required to comprehend the conveyed message, while memorability provides data on the extent to which advertisements and campaigns leave a lasting impression on the consumer.

The literature contains only a limited number of experimental neuromarketing studies specific to the tourism sector, indicating a noteworthy research gap for both tourism scholars and marketing professionals. Neuromarketing-oriented approaches to the visual campaign content of travel agencies could therefore make original contributions to both sectoral practice and the literature.

This research primarily aims to analyse, using eye tracking—a neuromarketing technique—the impact of the visual materials in travel agencies' marketing campaigns on consumers. It also seeks to identify which elements capture consumer attention, become focal points, and shape their cognitive processes. The following hypotheses have been tested:

H1: The size of the "Early Booking" messages in the campaigns affects consumer attention.

H2: Human faces used in the campaigns affect consumer attention toward understanding the messages presented.

H3: Secondary Message in the campaign visuals are not effective in terms of consumer attention metrics.

H4: Colour contrast in campaign designs affects consumer perception in terms of attracting attention.

H5: An optimal cognitive load in campaign visuals affects consumer perception.

H6: Through the visuals and messages they create, agencies influence consumers' purchase motivation and perception.

By revealing the applicability of neuromarketing techniques in the tourism sector, the study also aims to provide empirical findings capable of guiding sectoral marketing strategies.

Methodology

This study has employed an AI driven eye tracking technique (Neurons AI, formerly Predict) to assess how travel agency campaign visuals affect consumer perception and attention. Neurons AI draws on the world's largest eye tracking database—over 100 million fixations from more than 180,000 individuals—and reports cognitive metrics such as attention, cognitive load, engagement, and clarity. Independent validations by Neurons Inc. indicate that the model reproduces human fixation patterns with > 95 % accuracy when benchmarked against laboratory grade eye trackers (Neuronsinc, 2025). The sheer volume of data, the heterogeneous demographic coverage, and the model's proven predictive validity give this analysis statistical power comparable to a large scale human experiment, eliminating the need for a separate participant sample.

Even so, any AI model is ultimately limited by the scope of its training set. To account for possible cultural or medium specific variation beyond the model's current horizon, the limitations section recommends follow up studies that replicate the analysis with context specific participant groups and complementary neuromarketing tools. This study does not require ethical approval, as it does not involve direct data collection from human participants; instead, it utilizes an AI-based eye-tracking analysis system trained on pre-existing large-scale datasets.

The campaign visuals analysed have been selected from the "Early Booking" campaigns of five TÜRSAB-registered A-group travel agencies operating in Türkiye, identified by the sectoral platform Turizme Bakış as the best as of January 2024. These visuals were published both in digital media (websites) and in outdoor TV advertisements. Because campaigns may have been updated over time, the analysis is limited to the visuals valid as of the specified date.

Neurons AI analyses consumers' responses to visual stimuli (advertisements, logos, images, etc.) based on focus duration and gaze intensity, visualizing the results as heatmaps.

In these heatmaps, red indicates the highest level of attention, yellow indicates a medium level, green indicates low attention, and white indicates no attention (Moran, 2019).

In the analysis process the benchmark type was first determined. Because the campaign visuals were published both digitally and in outdoor media, the benchmark was defined as any type. This definition is crucial for the reliability of the analysis results and the correct interpretation of metrics.

The analysis outputs have been evaluated via four primary heatmaps:

Total attention heatmap – depicts attention intensity across the visual using a colour scale.

Clarity Heatmap – identifies areas that consumers perceive clearly; green areas represent clearly perceived regions, whereas red areas represent blurry or difficult-to-understand regions.

Cognitive Demand Heatmap – indicates the level of information processing required in consumers' minds; red signifies high cognitive load, green low cognitive load.

Engagement Heatmap – measures the visual's engagement power with consumers and follows an analysis method similar to the clarity heatmap.

Each campaign visual's key attention-directing elements (main message, secondary message and human face) were defined as AOIs by the researcher. These areas were then analysed using the Neurons AI software to measure their share of total attention and their contribution to cognitive engagement.

The study's limitations are as follows: the research is confined to the campaign visuals of the five travel agencies identified as of January 2024. Unlike traditional experimental methods conducted with participants, no experimental group was employed; instead, analyses were carried out directly via AI-supported eye-tracking software. Consequently, results obtained from experiments conducted with actual users may differ. Moreover, studies employing different neuromarketing tools and techniques could provide more comprehensive and comparative findings. The study's findings should therefore be evaluated within the context of the AI-based eye-tracking method.

RESULTS

Effects of Main and Secondary Message and Human Faces on Attention

In all campaign visuals examined, the phrase “early booking” used as the main message was presented in larger font sizes than any other textual element. By contrast, Secondary Message appeared in only two visuals and were placed at the bottom of the images in very small fonts. All campaigns included human figures, although in one campaign the faces were not oriented toward the consumer.

The total attention heatmaps, generated from eye-tracking data, visually present the distribution of consumer attention and are supported by AOI scores (%) expressing the degree of focus. Examination of the heatmaps revealed that the highest attention clustered in red-coloured regions, which mostly corresponded to the main messages and human faces. Conversely, the Secondary Message in the two relevant visuals achieved very low attention scores, indicating that they were virtually unread (Figure 1).

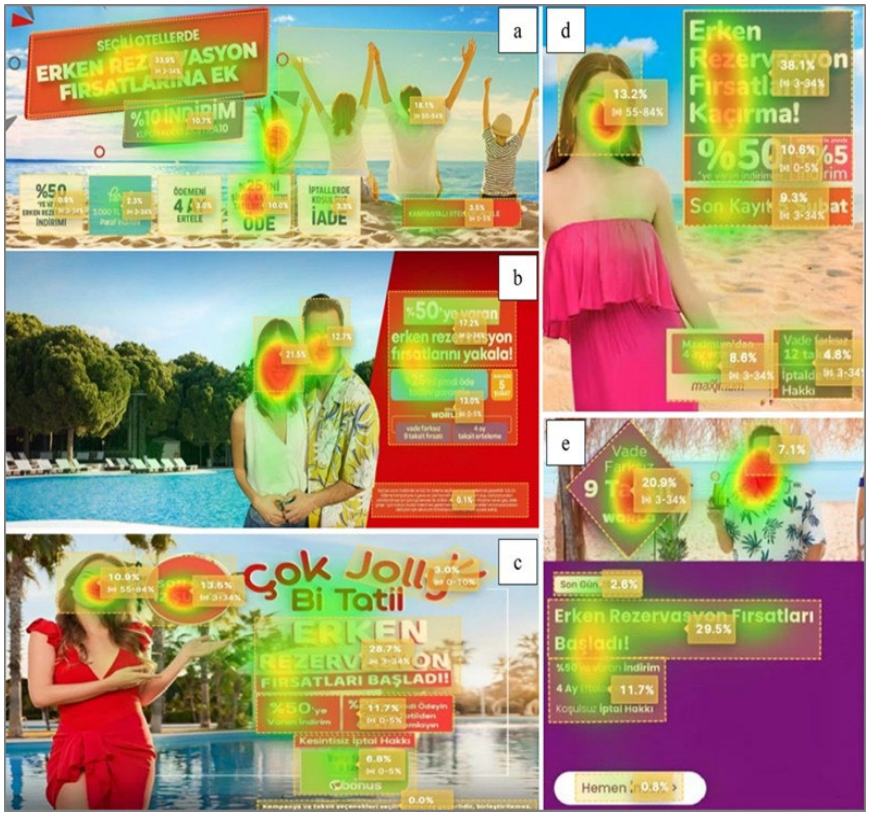

Figure 1. Overall attention heat maps illustrating the effects of main and Secondary Message together with human faces on attention (a. Touristica Tur, b. Setur, c. Jolly Tur, d. ETS Tur, e. Tatilbudur)

The calculated area-of-interest (AOI) scores further corroborated these findings. The AOI scores presented in Table 1 quantitatively demonstrate the relative impact of the various content components within the campaign visuals on consumer attention.

Table 1. Area-of-Interest Scores (%) of Elements in the Campaign Visuals

Agencies	Main Message	Human Face	Secondary Message
Touristica Tur	33,9	18,1	-
Setur	17,2	21,5 - 12,7 (17,1)	0,0
Jolly Tur	28,7	10,9	0,1
ETS Tur	38,1	13,2	-
Tatilbudur	29,5	7,1	-
Average	29,5	13,3*	0,05

*For the calculation, the average of the AOI values separately computed for the two distinct human faces featured in Setur's campaign visual was used.

Accordingly, the "early-booking" phrases that form the campaigns' main messages attracted the greatest share of attention among all visual elements, registering an average AOI score of 29.5 percent. This result aligns with their dominance in font size and their central placement within the layout. It once again demonstrates that factors such as visual hierarchy and typographic emphasis are decisive in directing consumer attention. From the perspective of cognitive information-processing theories, the main messages can therefore be regarded as pre-attentive features—elements that surpass the attention threshold and are perceived at first glance.

The fact that average AOI scores for human faces reached 13.3 percent indicates that these elements also capture consumer attention to a significant degree. Although the attention level is lower than for the main messages, visuals that establish direct eye contact or convey emotional cues through facial expressions have the potential to reflexively draw the viewer's focus. In this context, eye-tracking data show that human figures play a guiding role in directing consumer attention rather than serving merely as aesthetic or decorative elements.

On the other hand, the AOI scores for Secondary Message displayed in a confined area and in small type within the campaign visuals remained well below 10 percent (averaging just 0.05 percent), indicating that participants scarcely perceived these texts at all. In the Jolly Tur and Setur examples, attention levels were only 0.1 percent and 0.0 percent, respectively, demonstrating that small-font, secondarily positioned copy is ineffective from a neuromarketing standpoint. These findings are consistent with the "inattentional blindness" concept in the visual-attention literature: because consumers direct most of their attention to dominant, meaning-laden elements, they fail to notice content that falls below their perceptual threshold.

Considering these findings, the first three hypotheses of the study have been supported. The hypothesis "H1: The size of the 'Early Booking' messages in the campaigns affects consumer attention" has been accepted. Similarly, the hypothesis "H2: Human faces used in the campaigns influence consumer attention toward understanding the presented messages" has also been accepted. Lastly, the hypothesis "H3: Secondary messages presented in the campaign visuals are not effective in terms of consumer attention metrics" has been supported, indicating that these elements do not significantly capture consumer attention.

Effects of Colour Contrast in Designs on Attention

The campaign visuals examined in this study exhibit marked diversity in terms of colour contrast. All of them favor vivid, saturated hues. Touristica Tur combines a light-blue sea and sky in the background with a red panel for the main message, using high contrast to capture attention. In Setur's campaign, every line of copy on the right side of the screen appears on a red background, while the left side shows a softer contrast of blue sky, sea, and green nature elements. Jolly Tur relies on natural colours—blue sky, pool, and palm trees—but steers the viewer's focus toward the text by placing red-background message boxes in the foreground. ETS Tur strengthens contrast by positioning red and dark-blue message boxes against a light-blue sky and light-brown sand. Tatilbudur, in contrast, avoids red entirely; it presents its messages in white type on a purple background, setting them off against a light-blue sea and sand backdrop.

The clarity heat maps created to analyse the attention distribution in these designs visualize how colour, brightness, and contrast levels affect attention (Figure 2). In the heat maps, green areas represent clear, attention-grabbing regions that generate a positive perception for

consumers, whereas red areas indicate distracting, tiring, or readability-problematic zones. Moreover, the clarity scores should be kept inside the boxes.

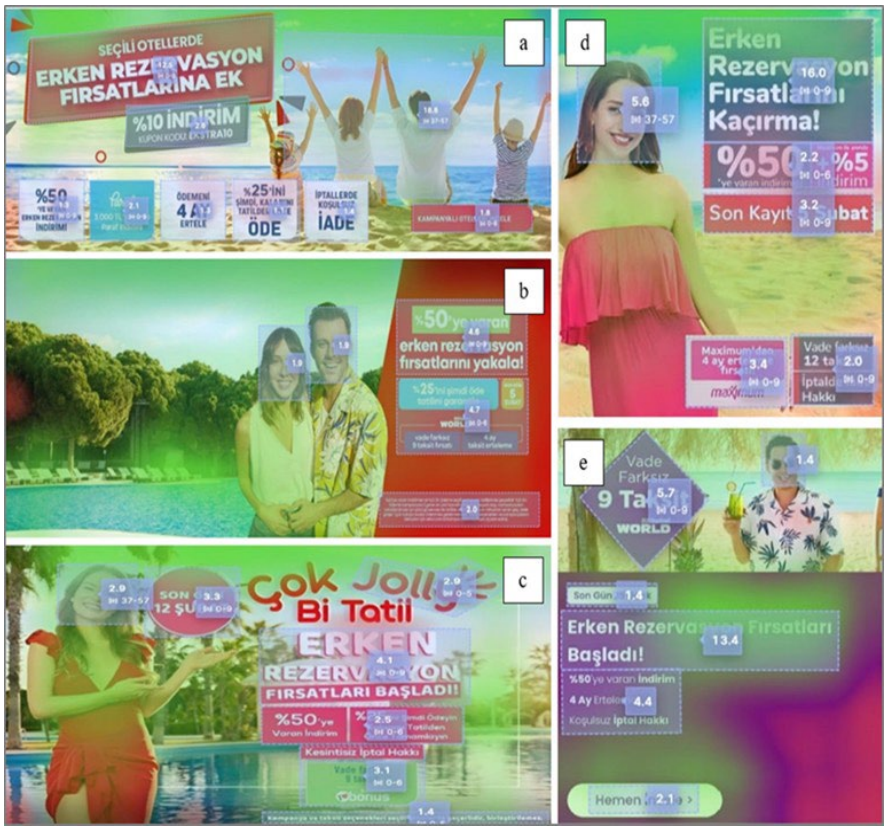

Figure 2. Clarity heat maps illustrating the effects of colour contrast in the designs on attention (a. Touristica Tur, b. Setur, c. Jolly Tur, d. ETS Tur, e. Tatilbudur)

Based on the data obtained, the campaigns' overall average clarity score was calculated at 75.6 percent, with every score falling within the designated boxes. ETS Tur stood out with the highest clarity score of 89 percent. This high figure stems from the contrast created by the red text boxes against the light-blue background. The contrast effectively attracts attention, but the copy's density suggests simplification. Tatilbudur followed with a clarity score of 80 percent.

The predominance of green areas in the heat map indicates that the messages were clearly perceived, and that consumer attention was positively guided. The Setur campaign achieved a 72 percent clarity score, with red areas concentrated solely in the text boxes. This implies that further simplification of those boxes could enhance the overall clarity of the visual. Touristica also reached an adequate clarity level at 70 percent. By contrast, Jolly Tur recorded

the lowest clarity score, 67 percent. The heat-map findings show that the heavy use of red in the visual created a distracting effect and led to visual fatigue.

Overall, the clarity-heat-map analysis indicates that colour contrasts in the visuals exert a meaningful impact on attention-grabbing power. Opposing colour combinations that generate strong contrast are especially effective in highlighting the main messages, whereas overly saturated or text-heavy areas can adversely affect consumer perception. Accordingly, H4: "Color contrast in campaign designs influences consumer perception in terms of attracting attention" has been accepted.

Effects of Cognitive Load in Designs on Perception

Within the scope of this research, the campaign visuals examined exhibit significant differences in terms of cognitive load. Cognitive load refers to the mental burden on the consumer's perceptual process, determined by factors such as the amount of information in the visual, text complexity, the number of elements, and how these elements are arranged. In this context, the cognitive load level of the designs directly impacts both the time it takes consumers to comprehend the message and the accuracy of that comprehension.

The distribution of cognitive load in the campaigns was examined in detail using heat maps (Figure 3). These maps visualize which elements become challenging to comprehend at the very first moment consumers encounter the visual or its messages. Green areas represent an ideal cognitive load, indicating content that is easy for consumers to process, whereas red areas denote zones that impose excessive cognitive load and demand greater mental effort. In addition, low scores within the designated analysis boxes show that cognitive load is at an optimal level—a factor that should be viewed positively from a consumer-perception standpoint.

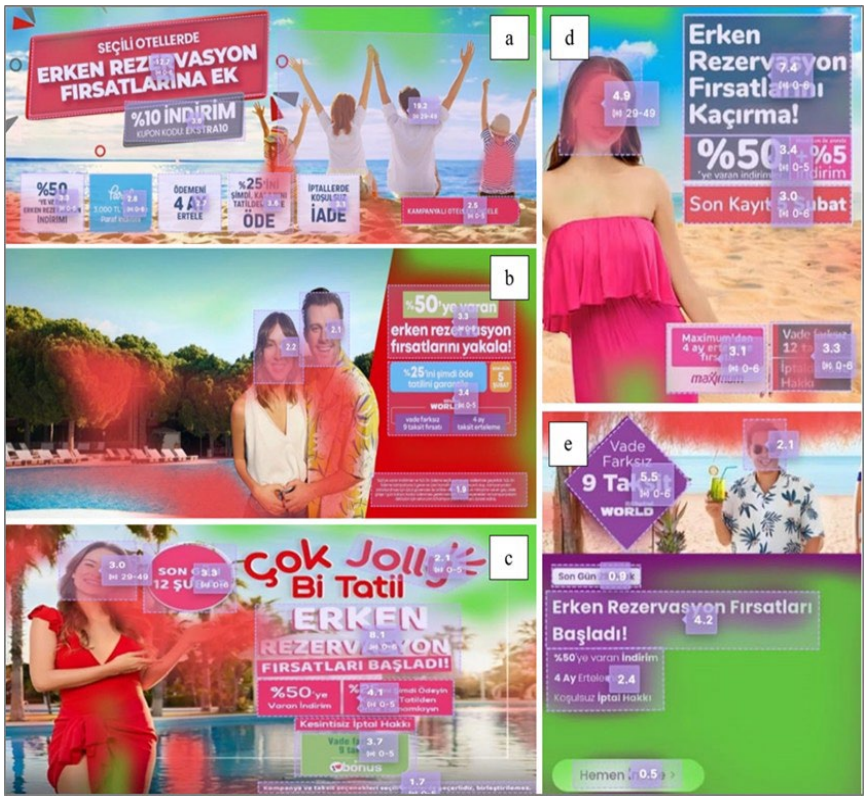

Figure 3. Cognitive-load heat maps illustrating the cognitive load in the designs: (a. Touristica Tur, b. Setur, c. Jolly Tur, d. ETS Tur, e. Tatilbudur)

An assessment of the visuals' cognitive-load scores shows that the Touristica campaign bears the heaviest load. Its 78 percent score indicates that the dense text and complex element placement make it difficult for consumers to grasp the message. Similarly, the Jolly Tur campaign registers a high cognitive load of 73 percent. The heat maps reveal red areas concentrated both on facial elements and within the message boxes. This pattern suggests that the visual generates cognitive clutter in the viewer's mind, impeding message comprehension and demanding substantial mental effort to process.

The Setur campaign shows a relatively borderline cognitive load of 65 percent; several portions of the visual would benefit from simplification. The ETS Tur campaign, with a score of 53 percent, carries a moderate cognitive load. Inspection of its heat map reveals red areas concentrated in the small-font text and the face element, while the rest of the visual remains largely uncluttered.

By contrast, the Tatilbudur campaign posts the lowest cognitive-load score, 51 percent. Messages presented in white type on a purple background integrate smoothly with the light-blue sea and sand backdrop, giving both the copy and the imagery a clean, uncluttered

structure. The predominance of green areas in the heat maps indicates that this visual affects consumer perception positively and that its messages are easily understood.

Overall, the findings reveal that densely packed text and visual elements in campaign images raise cognitive load, which can adversely affect consumer perception. Conversely, simplified, well-balanced designs are processed more quickly and accurately by consumers; when cognitive load is kept at an optimal level, consumer perception is positively influenced. Based on these assessments, H5: "Maintaining cognitive load at an ideal (optimal) level in campaign visuals affects consumer perception" has been accepted.

Effects of the Designs on Purchase Motivation

To investigate how the campaign visuals evaluated in this study influence consumer purchase motivation, engagement heat maps have been analysed. These maps offer valuable insights into the attention, emotional involvement, and buying propensity that the visuals evoke in consumers. In the engagement heat maps, green areas denote regions that draw consumer attention positively and generate a favourable impact, whereas red areas highlight zones that may create negative interaction by increasing cognitive load. The heat maps for the campaigns are presented in Figure 4.

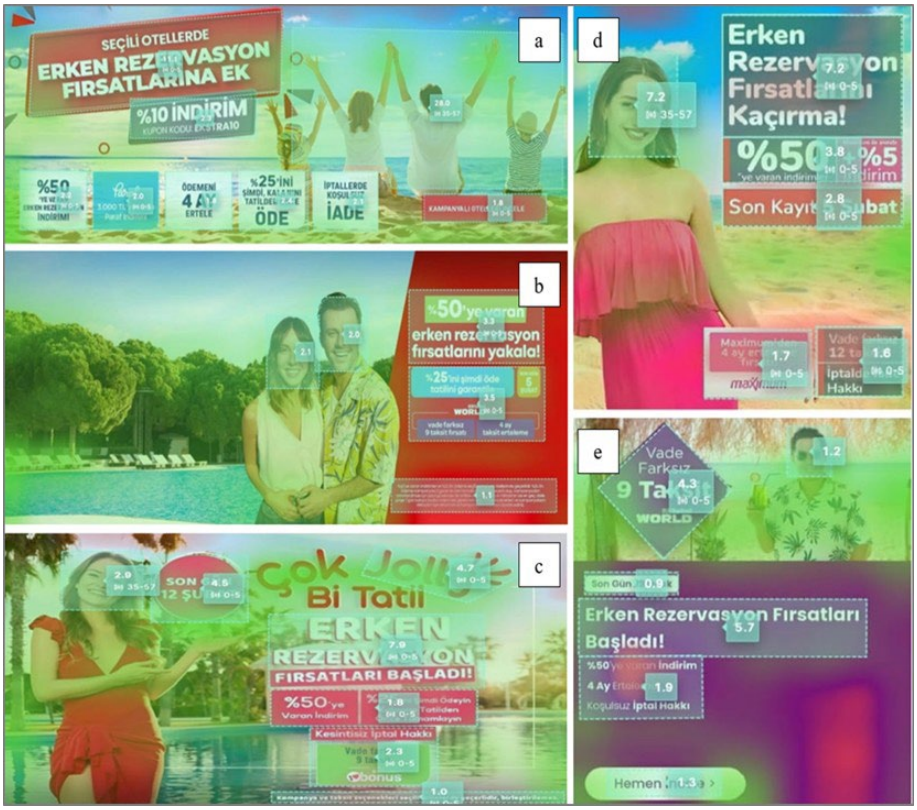

Figure 4. Engagement heat maps illustrating perceived purchase motivation in the designs: (a. Touristica Tur, b. Setur, c. Jolly Tur, d. ETS Tur, e. Tatilbudur)

An examination of Figure 4 shows that, while the visuals register high overall engagement scores, red areas are concentrated in the regions containing the offer messages. This pattern suggests that the images initially capture attention, yet consumers do not fully grasp the offer because the messages are not presented in a sufficiently simple form. The visuals' ability to boost purchase motivation could therefore be further enhanced by simplifying these offer messages.

The Jolly Tur campaign visual received the highest engagement score at 85 percent. The woman's prominent, positive posture and the use of warm colours stand out and draw attention. However, the offer messages written in small font turning red indicate potential difficulties in perception. In the Touristica campaign, the engagement score was 82 percent. The dynamic pose of four people raising their arms, combined with the use of contrasting colours, contributed to the visual's appeal. However, the abundance of information and multiple messages may have limited overall engagement. ETS Tur achieved a high engagement score of 71 percent. The area featuring the female figure appeared green, reflecting positive interaction, while the offer texts, highlighted in red, suggest that purchase motivation was not fully activated.

The Setur campaign visual reached a relatively high engagement score of 68 percent. The couple in the image generated a positive perception, but red areas concentrated in the offer sections indicate that, while the visual's overall appeal remains strong, the offers themselves may not have been fully understood. In contrast, the Tatilbudur campaign recorded a moderate engagement score of 56 percent. The green colour in the main message area created a favourable perception, but additional offers written in small font appeared in red, drawing attention to potential comprehension issues. The lack of vibrant colours in the visual may also have contributed to the lower engagement score.

Based on these findings, it can be concluded that the campaign visuals are generally attention-grabbing and engagement-oriented; however, the format and presentation of the offer messages have a direct impact on purchase motivation. In this context, the hypothesis "H6: Travel agencies influence consumer purchase motivation and perception through the visuals and messages used in their campaigns" is accepted.

CONCLUSION

This research is an innovative study which has analysed consumer perception of travel agencies' early booking campaign visuals using eye-tracking methodology. Conducted through the Predict software, the analysis evaluated campaign visuals from five different travel agencies based on four core metrics: focus, cognitive demand, clarity, and engagement. The evaluation was supported by heat maps and area of interest (AOI) data.

According to the research findings, presenting early booking messages in large font had a significantly positive impact on consumer attention. This finding is consistent with the study by Taşçı and Özpınar (2022) on attention-grabbing elements in packaging design. Both studies demonstrate that messages written in large font led to a meaningful increase in consumer attention.

In the overall attention heat maps, the most attention-grabbing areas are the main campaign messages and the human visuals. Faces that establish direct eye contact or convey emotional cues, in particular, reflexively draw the viewer's attention. However, this may negatively affect the comprehension of the campaign messages. The study by Becan and Alan (2022) on the use of human visuals in advertisements also revealed that, while human figures can enhance engagement, they may overshadow the core messages.

In the analysis of secondary messages, the AOI results for the small-font texts used in the Jolly and Setur campaigns were measured at 0.0% and 0.1%, respectively, indicating that such texts are ineffective in capturing attention. This finding supports the study's H1 hypothesis as well as the findings of Taşçı and Özpınar (2022).

From a colour usage perspective, the campaigns predominantly employed contrasting colours, with particular emphasis on attention-grabbing hues such as red. Devrimsel's (2020) study supports the findings of this research by revealing that the colour red creates a strong expectation of discounts among consumers. However, the influence of cultural differences on colour perception should be taken into account, and campaign designs must be tailored to the target audience accordingly.

When evaluating cognitive load scores, it was observed that consumer attention was dispersed and cognitive effort increased in areas where small-font text and human visuals were concentrated. The Tatilbudur campaign stood out with a lower cognitive load due to its simple visual structure and messages presented in large font. This finding supports both the H3 and H5 hypotheses.

When examining engagement scores, it was observed that while the campaign visuals were generally engaging, the presentation of the offers created confusion and failed to trigger purchase behaviour. Boz's (2015) study supports these findings by showing that content which is superficially attention-grabbing but creates complexity in detail can negatively influence purchase decisions.

The tourism sector is characterized by a dynamic structure in which consumer decisions are largely emotionally driven, and experiential consumption is emphasized. In this context, the use of new methods to gain deeper insights into consumer behaviour holds strategic importance for industry success. Neuromarketing stands out as a powerful tool for explaining purchasing behaviour by measuring individuals' unconscious responses, and in doing so, it offers significant contributions to both academic literature and practical applications. In this study, the effects of travel agencies' campaign visuals on consumer perception were analysed from a neuromarketing perspective, and based on the findings, a range of recommendations were developed for both researchers and industry practitioners.

From a research perspective, it has been observed that neuromarketing studies specific to the tourism sector remain quite limited in number. These highlights the originality and contribution of the methodological approach presented in this study. Unlike traditional analytical techniques, the use of neuroscience-based data distinguishes this research from others in the field and demonstrates its potential to pave the way for future studies. In this context, it is recommended that researchers conduct studies analysing consumer responses to visual marketing tools—such as campaign visuals—on a biophysiological basis. This approach can help develop a more holistic understanding of consumer perception in marketing strategies and contribute innovative insights to the tourism literature.

From an industry practice standpoint, it is evident that the elements used in campaign visuals directly influence consumer attention and perception. In particular, presenting text messages in large fonts and a simplified format positively guides consumer attention, while excessive and small-font messages increase cognitive load and negatively impact comprehension. Therefore, simplicity and message clarity should be prioritized in campaign design. Moreover, the use of attention-grabbing visual elements such as human faces may overshadow the intended messages and cause distraction. This underscores the importance of clearly defining the focal point within visual materials.

The research findings reveal that secondary-text messages are generally overlooked by consumers and contribute to additional cognitive load. In this context, unnecessary text should be avoided in campaign visuals, and messages should be structured in a way that positively directs consumer attention. Similarly, incorporating the brand logo or name into campaign visuals emerges as an important strategy to strengthen brand association and memorability.

The study also highlights that the use of colour in campaign visuals plays a critical role in capturing consumer attention. However, it should not be overlooked that this effect can vary depending on the cultural associations of colours and their interaction with text density. Therefore, when selecting attention-grabbing colours in visual design, limiting the amount of text and creating a cohesive visual language will be more effective in enhancing consumer engagement.

In conclusion, considering that consumers make purchasing decisions not only based on need but also through aesthetics, presentation, and perceptual influence, campaign visuals should be designed to be eye-catching, simple, and clearly associated with the brand. The data obtained in this study are believed to offer valuable guidance for both academic research and future marketing activities in the industry. Moreover, it is anticipated that the increased use of advanced measurement methods—enabled by technological developments—will contribute to a better understanding of consumer behaviour in the tourism sector and support the development of innovative marketing strategies.

Acknowledgements

This study has been produced from the study titled "Consumer Perception of Travel Agencies' Campaign Visuals: A Research with Eye Movement Tracking Method", which was prepared and accepted as a thesis study at Atatürk University Institute of Social Sciences, Department of Tourism.

Funding

This work has been supported by Atatürk University Scientific Research Project Unit [Project code: SYL-2023-13224].

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