

## Neuromarketing aspect of tourism pricing psychology<sup>☆</sup>



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### ABSTRACT

The price of a product is the key determinant of the revenues and profits of a tourism or hospitality business. Customers form their value judgments of a touristic product or service based on the price they have paid. Moreover, the price of a touristic product or service may have psychological influences on the customer. Thus, the way prices are perceived by potential tourists is of paramount importance. Against this backdrop, this study aims to provide insight into how tourists perceive prices and pricing issues. In particular, it provides neuromarketing examples to explain how tourists perceive prices in holiday advertisements in terms of design features, positioning and content.

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### 1. Pricing

In its simplest definition, pricing is the monetary value of a product or service (Nykiel, 2007: 235). From the customer's viewpoint, price is defined as 'what she or he must give up to purchase the product or service'. The 'what' may include actual money, time, cognitive effort, and transaction costs (Shoemaker & Mattila, 2009: 536). Price influences customers' perceived value. Buyers often use price as a perceptual cue to infer the quality of a product or service. Traditionally, the quality of a product has been treated as the mirror image of the price. Hence, businesses may emphasize the quality of their products and services by raising their prices and emphasize a bargain by decreasing their prices (Estalami & Maxwell, 2003; Hoffman, Turley, & Kelley, 2002). For example, the Gosforth Park Hotel, an upscale hotel in Newcastle, the UK, found that its occupancy rate increased as their prices increased (Kotler, Bowen, & Makens, 2006).

Customers may use price as a tool to compare products and to judge their relative value for money or their overall product quality (Weinstein & Johnson, 1999:86; Papatheodorou, Lei, & Apostolakis, 2012:170). Price triggers buyers to evaluate the quality of a tourism

product and its positioning in relation to the alternatives available in the same segment (Dwyer, Forsyth, & Dwyer, 2010: 176). As a result of this evaluation, customers are either attracted to a product or choose other available alternatives. Services are priced in various formats, including entrance fees, cover charges and green fees when customers purchase visits to museums, entry to dance clubs, rounds of golf and so on (Shoemaker & Mattila, 2009: 536).

#### 1.1. Pricing in tourism

Pricing in tourism is a complex phenomenon due to a number of fundamental characteristics and factors, such as the perishability of the product, intensive capital investment requirements, the cost of the extensive use of service personnel, tourists' characteristics and various price sensitivities, the uniqueness of the product, the degree of competition in the market and difficulties in accurately forecasting the tourism demand (Kamra, 1997: 29).

The intangibility and perishability of touristic products/services place extra burden on their pricing (Koc, 2007). Tourism decisions involve large sums of money on something that cannot be seen or tested prior to purchase (Koc, 2002). Additionally, tourism products/services cannot be saved, stored, resold or returned; therefore, spare seats on a package tour, vacant rooms in a hotel and unsold tickets to tourism events represent potential revenue that cannot be recovered. Hence, perishability increases tension for tourism and hospitality managers in performing their daily managerial activities and sustaining a strong brand image (Koc, 2015:125).

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The pricing of services requires additional effort on the part of managers. [Middleton and Clarke \(2001:141\)](#) explained that the difficulty in the pricing of services has been exacerbated by the following factors:

1. High price elasticity in the discretionary segments of leisure, recreation and vacation travel markets.
2. No possibility of stockholding for a wide variety of service products.
3. High probability of unpredictable but major short-run fluctuations in cost elements such as currency exchange rates.
4. Tactical price-cutting by major competitors whenever supply exceeds demand.
5. High possibility of provoking price wars.
6. Necessity for seasonal pricing to manage demand.
7. High level of customers' psychological involvement, especially with vacation products, in which price may be perceived as a symbol of status and value.
8. High fixed costs of operation.
9. High level of vulnerability to fluctuations in demand arising from unpredictable international economic and political developments.

The producers of goods products can base their pricing of a product on the tangible components and the inputs that go into the manufacturing of the goods and products. Although it is difficult to determine many of the costs associated specifically with services, cost-plus-pricing remains the most popular pricing method in services ([Avlonitis & Indounas, 2005](#)), as in the case of manufacturing. Managers in hospitality businesses need to take into account a number of intangibilities when pricing their services.

Specific customer expectations regarding the level of service are intangible because the actual service encounter cannot be experienced in advance. The customer does not have the opportunity to test or experience many aspects of the product, such as its price, quality, quantity, and duration. The expectations of pricing and service quality are usually based on either similar services consumed earlier or on broad assumptions alone. The service provider needs to make sure both that low prices do not cause negative inferences about quality and that high prices prevent the targeted customers from reaching the service product ([Kapoor, Paul, & Halder, 2011: 79](#)). Though some hospitality products such as hotels may have objectively determinable features (size of rooms, decor, position etc.), many aspects of evaluation are more subjective, and price can influence the image of a product upon which evaluations are based ([Seaton & Bennett, 2004:136](#)). As mentioned above, hospitality services are perishable, as they cannot be stored and subsequently sold at a more favorable time; what remains unsold constitutes lost sales ([Candela & Figini, 2012: 257](#)).

Seasonality also affects product hospitality pricing. During off-peak seasons, for example, when the demand for travelling is low, developers can offer discounted prices to attract people ([Tseane, 2009: 228](#)). Tourism supply fluctuates with seasons of the year (for holiday destinations), with weekends and weekdays (for hotels) and with the time of day (for airline flights) as it attempts to match demand. This leads to price adjustments ([Dwyer et al., 2010:138](#)). Services, especially tourism operations, are usually characterized by high fixed costs and sensitive profit margins. Irregularities in demand for services ([Kotas, 1975, 1977](#)), caused by factors such as seasonality, tend to make the management of hospitality operations more difficult. Demand management and differential pricing are crucial tasks in the management of services ([Koc, 2007](#)). Furthermore, cancellations, no-shows and overbooking occur because advanced booking is allowed. Thus, the hotel industry faces uncertain and fluctuating demand, creating difficulties in making price decisions ([Hung, Shang, & Wang, 2010: 378](#)). Additionally, perishability may cause service providers such as hotels and other establishments to resort to sales promotion campaigns more often due to the pressure to make a sale; this eventually may hurt the brand image, especially when these promotion campaigns are not used appropriately ([Koc, 2007](#)).

Unlike many other organizations, it is not unusual for tourism organizations to pursue simultaneously a number of pricing objectives, such as the maximization of profit, market share, social pricing or pricing for survival. In selecting a pricing strategy, a number of options exist: cost-plus pricing, marginal pricing, demand-based pricing, price skimming, penetration pricing, product-line pricing, price bundling, tactical pricing, and business-to-business pricing ([Fyall & Garrod, 2005: 112–114](#)). Pricing tactics constitute the dominant elements in the marketing mix of hospitality industries ([Boksberger & Chan, 2006: 95](#)). Tourism enterprises can adopt different pricing strategies. However, the level at which the price of a product is pegged depends on factors such as marketing objectives, cost of marketing mix strategy, nature of demand, competition, and environmental factors (political, economic, socio-cultural, and technological) ([Mensah & Mensah, 2013: 304](#)). For instance, yield management was originally developed in the context of airline travel but has since been applied to other sectors, such as accommodation and transportation. Much of the practical application of yield management is performed via automated systems that can track minute-by-minute trends in the market and respond virtually instantaneously by lowering or raising prices ([Robinson, Lück, Smith, & Lackey, 2013: 376](#)). Yield management, also known as revenue management, involves several operational processes, such as segmenting customers and setting prices. It is a segmentation strategy that differentiates customers exclusively on price sensitivity and focuses on how much of a product to sell at established prices on daily, weekend, weekly, monthly, seasonal and annual bases ([Donaghy, McMahon, & McDowell, 1995: 146–147](#)). This strategy is known as peak-load pricing and is effective when demand for the product varies by time period and the product is not storable, as with airline seats ([Collins & Parsa, 2006: 94; Nagle & Holden, 1995: 215](#)). Although it has been widely and successfully applied in industries such as hotels and airlines, restaurants appear reluctant to apply demand-based pricing, probably due to fear of customer dissatisfaction. Studies on peak-load pricing in restaurants indicate that customers tend to perceive increased prices as unfair unless they are due to increased costs or changes in market conditions ([Heide, White, Gronhaug, & Østrem, 2008: 255](#)).

## 2. Psychological pricing

[Goossens' \(2000\)](#) conceptual model proposes that customers are motivated to make pleasure travel decisions based on push and pull factors involving the customer's leisure travel desire through hedonic responses to imagery and emotions. Studies show that as many as 95% of all consumer purchases of products and services may be impulse purchases ([Koc & Boz, 2014a, 2014b](#)). [Titz \(2008\)](#) summed up studies that examine the emotions involved in destination visitation intentions and the physical characteristics of a destination to determine the extent of influence of emotions on destination visitation choices and the perceptions of physical characteristics of a destination. [White \(2005\)](#) found that emotional response was a significant determinant of destination choice. The study of [Bigne and Andreu \(2004\)](#) showed that tourists experiencing higher pleasure were more likely to be satisfied, loyal, and less price sensitive. [Qui and Wu \(2005\)](#) conducted an experimental study on the influence of cognitive styles and negative emotions on tourism decision-making. While cognitive styles were not influential in decision-making, negative emotions were.

The study carried out by [Snyder and Kenneth \(1985\)](#) indicated that the differential favorability of high and low self-monitoring individuals to image and quality appeals was accompanied by differences in the consumers' willingness to spend on a product. If high self-monitoring individuals perceive that a certain price will enhance their self-image, they will readily evaluate that product as higher than one of a lower price. That is, high self-monitoring individuals will be willing to pay higher prices on a product as long as it helps them enhance their self-image. The image is worth the price for high self-monitoring individuals, while quality is what matters to low self-monitoring individuals.

Thus, for high self-monitors, image drives price acceptance (Parsa & Njite, 2008: 367–368).

Perceived risk motivates intensified information seeking (Witt & Moutinho, 1995) and makes the design of marketing communications messages a significant task in tourism. Although the risk element of services is generally high for consumers, the decisions related to tourism may cause higher risk perception among consumers than other services. Tourism decisions involve committing large sums of money to something that cannot be seen or tested prior to purchase (Koc, 2007). Additionally, tourism decisions involve large emotional investments. A great majority of people may have only one opportunity to go on a trip in a year. If a trip goes wrong, that is it until another year; therefore, the fear of failure is high, and the opportunity cost is irreversible (Koc, 2005: 88).

Psychology is of crucial importance for the development of economic theory, the practice of marketing, and research on tourism. One should take into account the results of research on human behavior because people react to the economic conditions as they perceive them rather than to objectively defined conditions (Van Raaij & Crotts, 1994:1). All firms need to have an understanding of the role price psychology plays in influencing customers' buying decisions. Since people tend to buy emotionally and justify intellectually, the study of pricing psychology is a worthwhile endeavor, a field known as behavioral economics (Baker, 2011: 43). Innovation in pricing regards instances in which companies innovate their pricing strategies, tactics, or organization or where companies use an understanding of consumer psychology to change customers' perceptions of value and price (Hinterhuber, Liozu, Hinterhuber, & Liozu, 2013: 4). A common way of conceptualizing consumer psychology is to consider the three primary stages of the consumption or purchase process: pre-purchase, purchase and acquisition, and post-purchase. In each of these stages, consumer behavior in tourism is unique. Specifically, compared to most retail products, hospitality pre-purchase stage tends to occur much further in advance, and it frequently involves making purchase decisions from great distances and selecting among intangible, highly symbolic alternatives (Crouch, Perdue, Timmermans, & Uysal, 2004: 3). Psychological pricing strategy emphasizes consumer psychology and attitudes about pricing rather than economics (Parsa, 2010: 521). For example, consumers use previous promotional prices as reference prices. Therefore, it can be argued that the greater the experience a consumer has had with promotions, the lower will be the internal reference price developed for a particular product. Frequently assigning promotions to products could in the long run lead to reduced profitability (Parsa & Njite, 2008). To assess the fairness of a price, customers often access internalized reference prices, such as the last price paid, and/or externalized reference prices, such as the price most frequently paid, market prices, and/or posted prices. The perceived fairness of a price is, apparently, an important part of sustaining customer satisfaction, loyalty, and long-term profitability (Heo & Lee, 2011: 244).

Pricing is often used as a competitive advantage tool in tourism in a number of ways to try to influence consumers' purchasing patterns (Swarbrooke & Horner, 2007: 166). The most common example of psychological pricing is *odd pricing* (99p pricing), such as selling products for \$9.99 instead of \$10. Psychological pricing can work well for modestly priced products but would be out of place in, for example, a luxury resort (Robinson et al., 2013: 376). A convincing psychological explanation is that people group prices into rough bands and apply crude pattern-matching rules to make their decisions easier. Therefore, £2.99 falls into the £2ish band, while £3.05 would be placed in the £3ish band and might be subconsciously excluded from the buyer's consideration (Caldwell, 2015). *Prestige pricing* strategy may be adopted by high-end resorts and fine dining restaurants. It is based on the belief that consumers associate high prices with high quality and low prices with low quality. Restaurants that maintain a large inventory of wines follow this strategy to reflect the image of their valuable and prestigious wine collection. This strategy has limited appeal and limited usage for many

mid-price and low-end hospitality firms (Parsa, 2010: 521). For example, a luxury inn might be financially successful selling rooms at \$200 per night, but it may find that it actually does more business at \$300 per night because the higher price connotes a higher quality and exclusivity that may appeal to its target market (Robinson et al., 2013: 376). Restaurants often use *decoy pricing* to help make the prices of certain menu items seem more attractive. For example, a restaurant might put a very high priced wine on the menu. The purpose of that is not so much to sell that particular wine but to make the other wine prices seem more reasonable and affordable. By providing the "decoy" wine, the restaurant can increase the sales of other wines on the menu (Kimes, Phillips, & Summa, 2012: 114). *Bundling* is also commonly used in the restaurant industry. The basic idea of bundling is to combine multiple menu items into one price. The price of the bundle is typically lower than if the included menu items were purchased separately. In addition, a well-designed bundle might include a menu item that people might not normally purchase and lead to incremental sales of that item (Kimes et al., 2012: 114). *Complementary pricing* is applied when products are used together. One product may be priced relatively low to encourage purchase of another, which bears a premium price. For example, in many bars and some restaurants, salty snacks are offered free, while thirst-quenching beverages bear premium prices (Kumar, 2010:79). A term that has evolved in the domain of hotel room pricing is *best available rate* (BAR). There are two key approaches that a hotel can adopt when presenting BARs for individual nights within a multiple-night stay. The first is to present a blended rate. Essentially, this involves taking a simple average of the BARs for the individual nights requested and presenting the customer with one single nightly rate. For example, assume that the BAR is \$120 for the first night of a two-night stay and \$100 for the second. Using a blended approach, the customer would be quoted a simple average of the two nightly rates, i.e., a rate of \$110 per night. The alternative rate presentation approach is to use nonblended rates. This entails presenting the customer with a list of rates, one rate per night requested. Returning to the example above, if a nonblended rate approach were used, the customer would be quoted \$120 for the first night and \$100 for the second night of the two-night stay. The results of the study indicate that a nonblended rate presentation approach generates a higher willingness to book ratings than a blended rate presentation approach because in the context of BAR pricing, nonblended rates are perceived as being fairer and more acceptable, reasonable and honest. This finding is consistent with the idea that price discount information should be debundled to create more positive consumer evaluations (Noone, & M., & Mattila, A. S., 2009: 272, 278). *Camouflage pricing* is a presentational method of concealing parity pricing in markets where a number of organizations are adopting similar prices. It consists of the differential itemizing of services offered; thus, it is difficult for customers to make direct price comparisons because they are not comparing like with like (Seaton & Bennett, 2004:146).

### 3. Tourism pricing psychology

Determining the price of a touristic product is a complex phenomenon due not only to the features of the product (such as intangibility and inseparability, as stated above) but also to consumers' emotional, unconscious and subconscious states when making a decision. Marketing research is one of the main strategies to determine pricing strategies. Traditional data collection methods such as surveys, interviews, and focus groups are generally used in marketing studies. According to a study by Koc and Boz (2014a), only one data collection method was used in 70% of studies in the top three journals from 2003 to 2012. While two data collection methods were used in 27% of these studies, only 3% employed triangulation, the combination of multiple data collection methods. It is emphasized that data collection methods are crucial in terms of the reliability, validity, generalizability of the results (Koc & Boz, 2014a; Tillyer, Engel, & Calnon, 2010; Zhu & Brilakis, 2009).

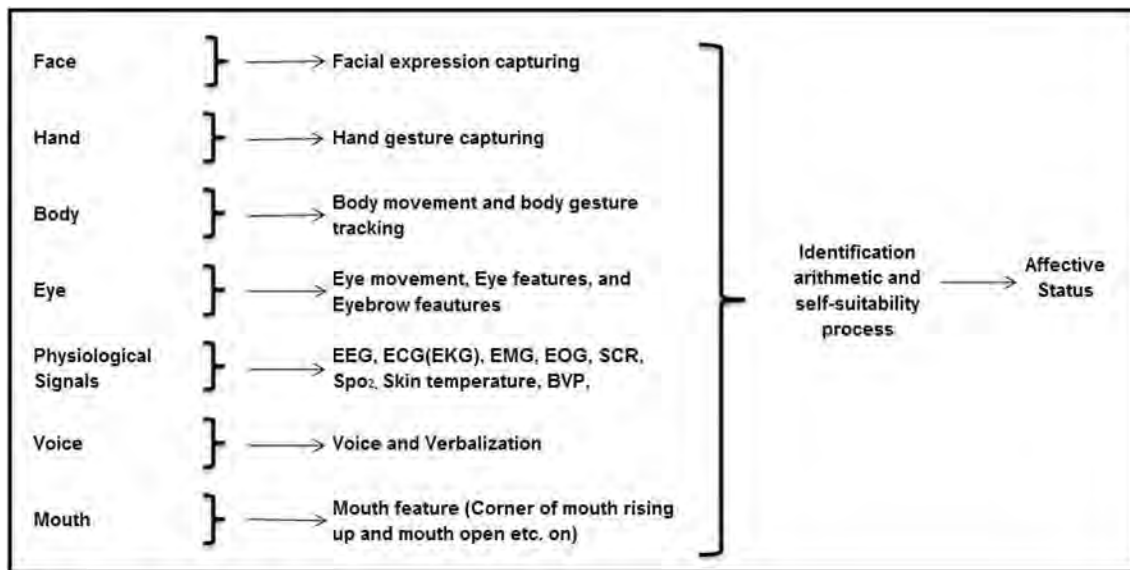


Fig. 1. Neuromarketing tools Source: Reproduced from Wu et al. (2015).

Furthermore, it is suggested that triangulation is necessary for more reliable, valid, credible and generalizable results (Gorard & Taylor, 2004).

Indeed, traditional data collection methods have some limitations and are criticized for not revealing accurate results. Some studies set the failure rate of new products at 90% (Pradeep, 2010; Schlossberg, 1990; White, 2006). This gives clues that marketing studies conducted prior to launching the products do not produce reliable, valid, and generalizable results. A neuromarketing study by Boz (2015) used a questionnaire with EEG, GSR, HR and eye tracking to reveal that traditional data collection methods are insufficient to measure emotional responses to products. Koc and Boz (2014b) stated that participants may not reflect the actual truth about the reasons for their behaviors for two main reasons. Consumers may be directed by hidden motives, such as novelty-seeking, variety-seeking, and sensation-seeking behaviors, or subconscious factors. Therefore, consumers cannot be aware of the main reasons for their behaviors. Lehrer (2010) stated, "There's only one problem with this assumption of human rationality: it's wrong". It can be said that emotions are of crucial importance in consumers' evaluation of or satisfaction with a product purchased and the basis of consumers' behaviors (Andreassen & Lindestad, 1993; Barsky & Nash, 2002; Mano & Oliver, 1993; Westbrook & Oliver, 1991). More than 90% of information is processed subconsciously in the human brain (Zurawicki, 2010; from Agarwal & Dutta, 2015); this processing plays a significant role in consumer decision making (Agarwal & Dutta, 2015:457). Moreover, consumers may abstain from expressing their real opinions in traditional surveys due to their tendency towards impression management or social pressure (Boz, 2015; Koc & Boz, 2014b). Because consumers cannot be aware of the reasons for purchasing tendencies (such as impression management and hidden motives), neuroscience visualization technology is increasingly used in the social sciences. Thus, scientific disciplines such as neurophilosophy, neuroeconomics, neurofinance, and neuroeducation have emerged. One emerging new discipline is called neuromarketing, which is the study of consumers' attitudes towards and reactions to products through neurological and biological data gathering methods (Boz, 2015: iii). Neuromarketing is a multi-disciplinary approach that includes biology, chemistry, physics, biochemistry, physical chemistry, neurology, radiology, psychology, economy, psychology, psychiatry, engineering and marketing.

Neurological data collection methods, such as electroencephalography (EEG), positron emission tomography (PET), magnetoencephalography (MEG), and functional magnetic resonance imaging (fMRI), and

biological data collection methods, such as eye tracking (ET), Facial Recognition/Facial Coding System (FACS), galvanic skin response (GSR), and heart rate (HR), have recently started to be used in social science studies. The most widely applied neuromarketing methods are galvanic skin response (16%), facial recognition (11%), heart rate variability (9%), electroencephalography (EEG) (6%), and electromyography (EMG) (4%) (Wu, Huang, & Hwang, 2015). Moreover, eye tracking (ET) is among the most commonly used methods in neuromarketing studies (DosSantos, Oliveira, Giraldo, & Tech, 2015). While neurological data collection methods such as PET, MEG and EEG are more related to measuring neuronal electrical or bio-chemical activity (Fugate, 2007), physiological methods such as GSR, HR, FACS and eye tracking involve recording physical changes to the eyes, face, heart and skin. The data collection methods used in neuromarketing are shown in Fig. 1.

Neurological and physiological data collection methods attempt to estimate the attitudes and emotions evoked in consumers by a message (for example, advertisements) according to the changes in their brains (biochemical, electrical) or bodies (eyes, face, pulse rate, sweating) before and after viewing the message (Boz, 2015: 102–103). Their attitudes towards an advertisement (for example, purchase intention) or reactions (liking, enjoyment) can be measured simultaneously (Fugate, 2007). These instruments or methods can be used alone or in various combinations. As mentioned above, triangulation can be applied in studies conducted using neuromarketing tools, allowing more reliable, valid and generalizable results to be reached.

Boz (2015) measured the impact of 33 pricing strategies used in the tourism sector on consumers' buying decisions by employing neuromarketing tools (EEG, GSR, eye tracking, HR) and questionnaires. It was shown that the consumers paid much more attention to the discount rate than the reduced price and that displaying the discount rate and reduced price together made the message easy to understand. For instance, the presentation of early reservation discounts (such as 40% or 50%) along with the prices was much more effective. It was observed that women paid more attention to the discount rate price than men. On the other hand, men took notice of the discount rate much more through impulsive motives and a heuristic orientation. Furthermore, it was determined that the consumers never read phrases within a paragraph about the product promotion; they preferred to read short statements. Respondents concentrated more on the visuals of people facing forward, and the label of a price or discount rate located near a human face attracted more attention. Female consumers who observed sexy pictures of women in advertisements of family holiday villages

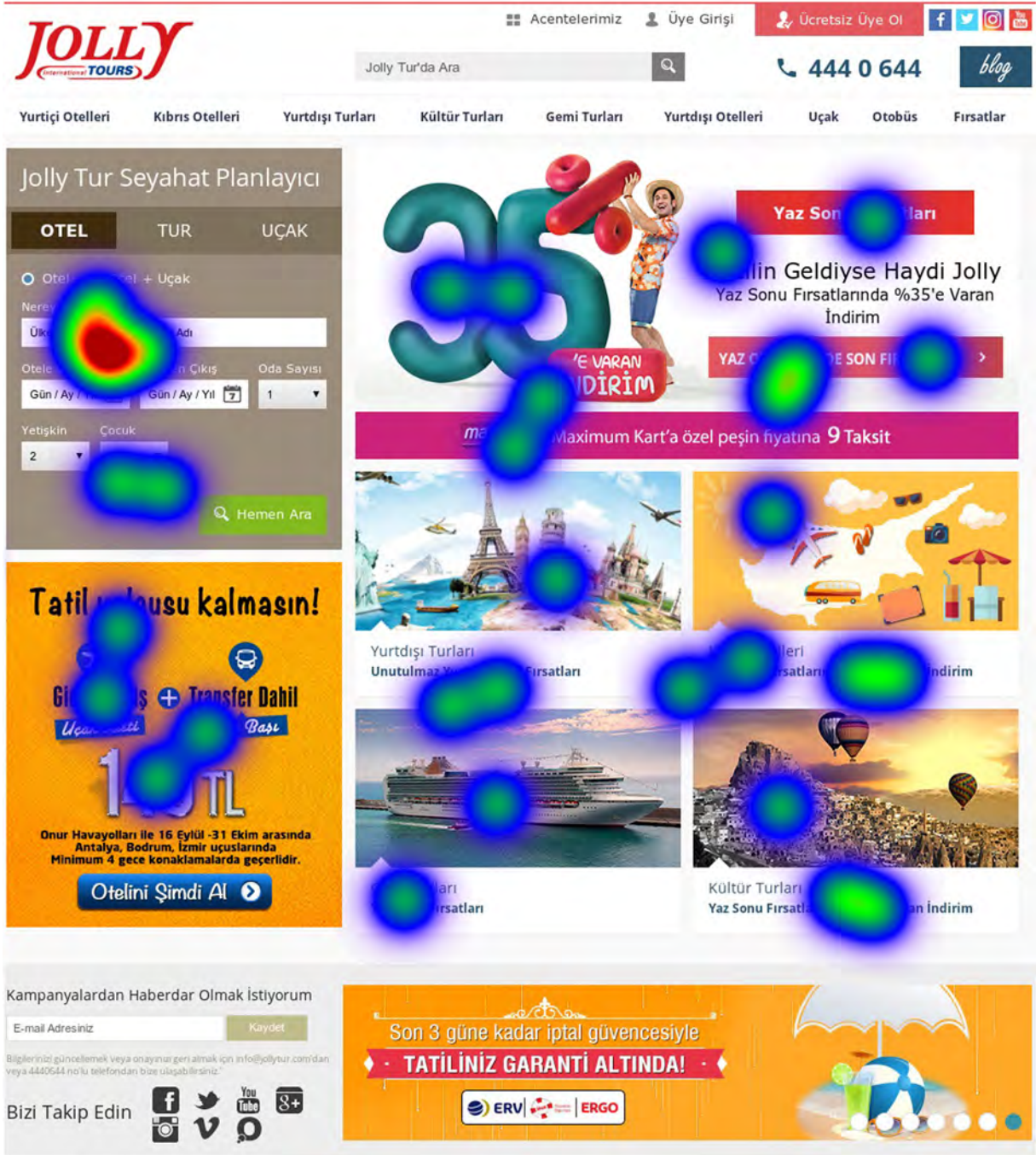


Fig. 2. Attention/heat map.

developed a negative attitude towards those hospitality establishments. According to other results of the study, the most appropriate of the 33 pricing strategies was to place labels of installment plans, discount rates and reduced prices at the center of the visual promotion. Additionally, positive statements from previous clients in visual ads shaped potential guests' impulsive preferences. When clients were offered three alternatives with similar service contents (for example, all-inclusive, 0–12 age free, located in Bodrum) except price, they most preferred the cheapest and the most expensive options, and they least preferred the hotel with the median price. The study analyzed the impact of Kahnemann and Tversky's (1979) prospect theory on price. As a test, on the visual ad of a holiday package, a statement reading 'free

cancellation 3 days before the check-in date' was added just under a statement reading 'a discount of 50% for 6 months advance purchase early-bird' and above a sexy female picture. In a different visual ad, a statement reading '5% fee Cancellation at least 3 days prior to check-in' was added just under the statement 'a discount of 30% for 3 months advance purchase early-bird'. Respondents focused on the female picture more as impulsive behavior in the first advertisement, in which the risk of losing money was very low, but they developed a negative attitude by focusing on the fine in the second advertisement, which displayed the risk of paying a fine. In addition, giving information about travel insurance and the price encouraged clients' positive attitude towards the message and helped them make a decision.



Fig. 3. Saccades/scanpath Map.

### 3.1. How to apply neuromarketing tools to research on pricing psychology of tourism products

ET is one of the main methods used in neuromarketing. It enables the quantification of visual attention as it monitors where people look at visual (for example, advertisements), verbal (for example, price, 50% discount) or physical (products on shelves) messages.

Fig. 2 displays the points of the gazes of clients who viewed the webpage of a travel agency in Turkey (Jolly Tour) as a heat map ranging from blue to red. The red areas are where participants focused most, and the blue areas are where they focused least. Areas with no color signify that participants may not have fixated there. Fig. 2 shows that participants did not pay attention to the logo (Jolly Tour) again because they visited the webpage of the travel agency consciously. Participants

displayed a relatively high number of fixations on the hotel search engine in the upper-left side of the webpage, but they did not pay attention to the travel insurance information at the bottom of the page.

Eye movements are composed of fixations and saccades. Scanpaths present the whole sequence of fixations and saccades and can illustrate the pattern of eye movement across a visual scene or materials. Scanpaths or saccades are used to measure visual perception, cognitive intent, interest and salience. Customers' web-browsing habits can be analyzed via scanpaths or saccades (Zurawicki, 2010: 51). Several studies suggest that saccades are not accidental but related to viewers' frame of mind, expectations, and purposes (Hembrooke, Feusner, & Gay, 2006; Josephson & Holmes, 2002; Lorigo et al., 2006; Yarbus, 1967). According to Goldberg and Kotval (1999), a longer-lasting scanpath indicates less efficient scanning. A longer-lasting scanpath may be a sign of a user's



Fig. 4. Area of Interests (AOI).

difficulty in elaborating information. As observed in Figs. 3, 35% of participants first viewed the announcement about the discount, followed by the search engine and the link to summer hotels in the upper-left part of the page. However, the message about the cruise was not taken into account at all. If the aim is to increase cruise sales, this visual ad should be placed in the upper part of the page, or ET (Web Usability Test or A/B Test) may be applied to determine the most attention-grabbing area.

Fig. 4 and Fig. 5 contain data on the analysis of areas of interest. In this analysis, the visual materials shown to participants are divided into different areas. Thus, what is examined is not participants' attention to the advertisement in general but their attention to specific areas. In the sample above, participants sustained their attention on the discount area for the longest time. Second, they focused on the hotel-introducing area at the bottom of the page, and third, they focused on the area that contained the hotel search engine. However, although the visual of the family on the uppermost part of the webpage was located in the most visible area, it did not draw attention, and it occupied that position

vain. The location of the family picture can be shifted, or an important announcement can be placed in that spot.

Fig. 6 displays the results of a webpage ([www.tatilbudur.com](http://www.tatilbudur.com)) analysis using four neuromarketing tools (EEG, GSR, HR and eye tracking). The data reflect participants' level of emotions (arousal, valence, attention) after viewing the website, the HR and GSR figures, and the areas of focus. The results of the study indicated that the website generally left an impression on the participants, and the attention level of participants who found the website attractive was the highest.

#### 4. Conclusion

This study has explained the psychological aspects of pricing as a marketing mix element. The intangibility and perishability of services pose significant challenges regarding pricing for managers in the hospitality sector. Due to the lack of tangible elements of services, customers may attach a greater significance to price. Moreover, the perishability of services renders the planning and management of day-to-day

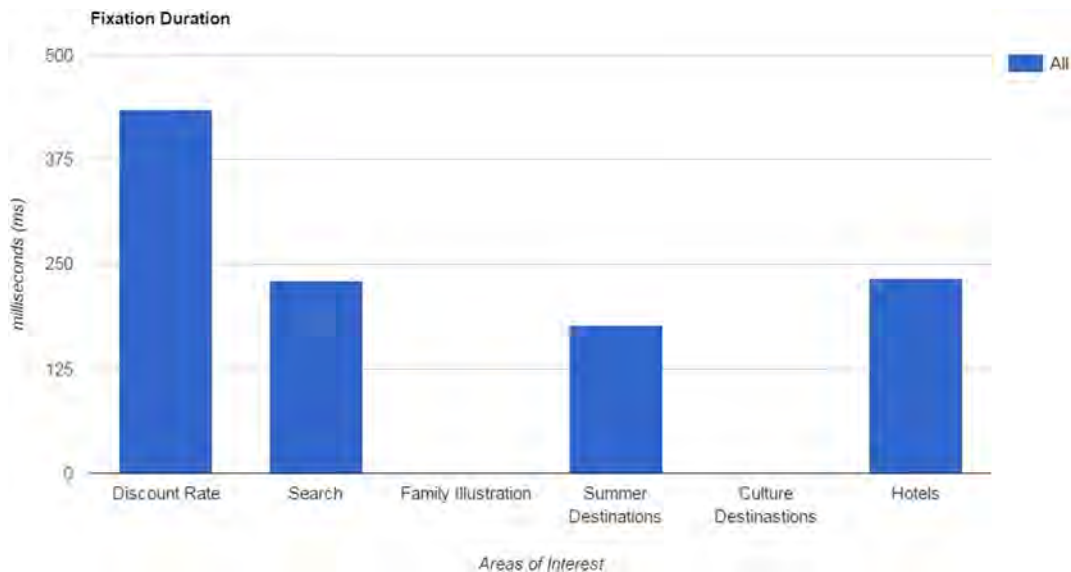


Fig. 5. Fixation duration of AOI analyses.

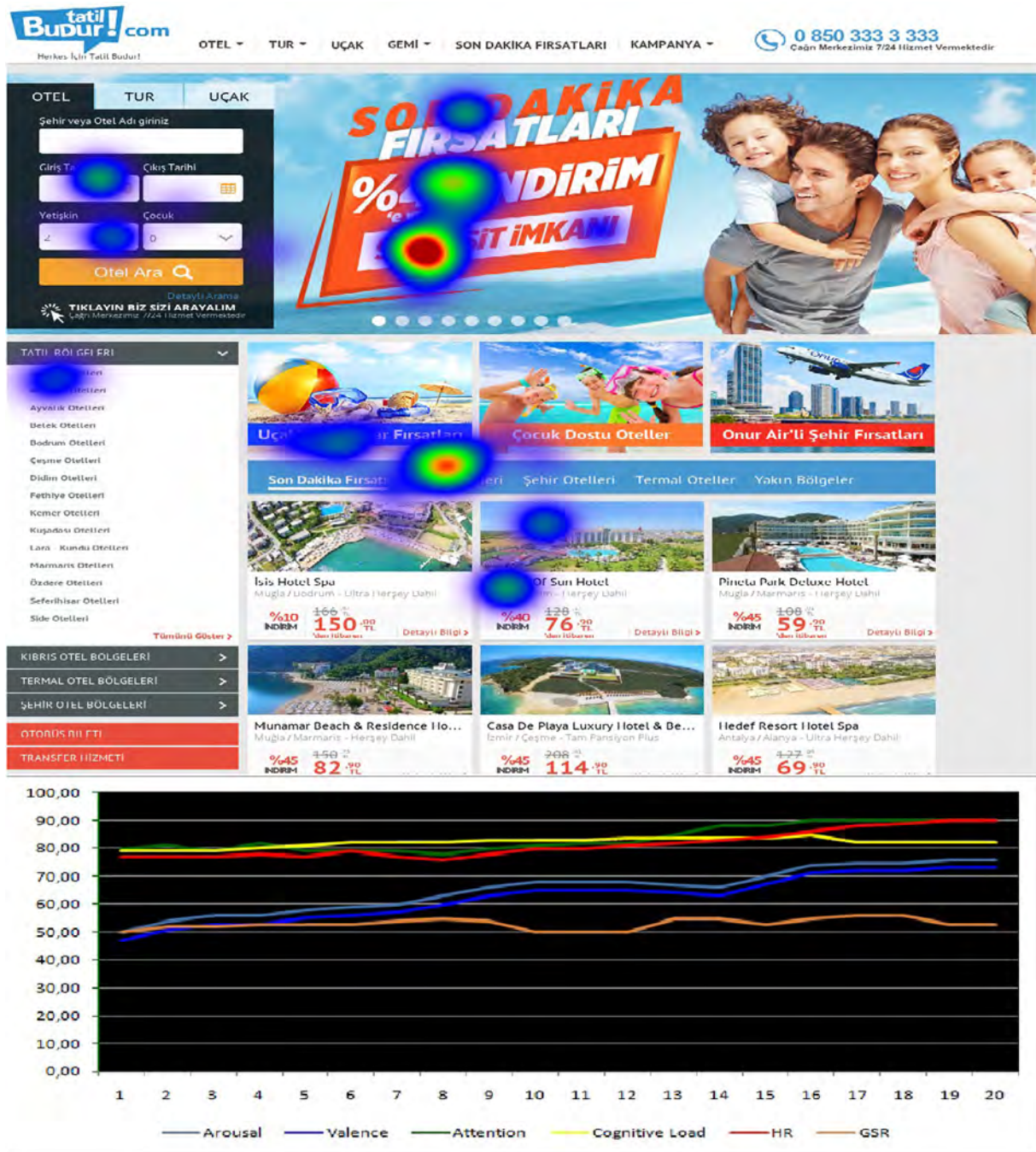


Fig. 6. EEG, GSR, and HR data combined with eye tracking.

operations more difficult for managers. Without well-planned and well-implemented demand and yield management systems, hospitality managers may often have to resort to price-based promotions. This in turn may prevent the development of a strong brand image and result in even narrower profit margins in the hospitality sector. Based on the above limitations, the study has explained how neuromarketing tools can provide insight into understanding pricing from the viewpoint of customers. The study provides case study examples on pricing with the use of neuromarketing tools such as electroencephalography, positron emission tomography, magnetoencephalography, and functional magnetic resonance imaging and biological tools such as eye tracking, facial recognition/facial coding system, galvanic skin response, and heart rate. A combined use of these methods may allow data

triangulation and hence increase the validity and reliability of data on consumers' perception of prices and pricing.

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