

Influence of service environment on client loyalty in luxury hotels: A test of the cognition-emotion approach

Abstract

Extending the Mehrabian-Russell model (1974), this study proposed a conceptual model to examine the impact of service environment on emotional responses, perceived service quality, and loyalty. As such, the mediator role of optimal stimulation level is taken into account. The proposed model was tested into the context of luxury hotels, which is one of the most important hotel segments in France. The data were collected from 354 individuals who were seen in different places in Nice and who have recently stayed in four or five stars hotels. The hypotheses were tested using structural equation modeling. The results showed that customers' perception of service environment increases customers' evaluation of service quality and positively affects the feeling of pleasure and arousal, which lead to loyalty. In addition, the results indicated that perceived service quality had a significant effect on pleasure and not on arousal. Finally, the moderating role of (OSL) was supported only for the relationship between pleasure and loyalty. The managerial implications, limitations, and suggestions for future research are discussed in the latter part of this study.

Key words: Service environment, Overall perceived service quality, Emotions, Loyalty, Optimal stimulation level.

> **Manar IBRAHEEM**

IAE Nice,
manar.adnan@gmail.com

> **Nadine TOURNOIS**

IAE Nice,
nadine.tournois@unice.fr

Introduction

In their quest for sustainable competitive advantages, luxury hotels try to create their own identity by preserving a prestigious and differentiated image that can contribute to customer loyalty. Service place management seems to be one of the key levers to meet this challenge. The idea is to configure the service setting by using sensory factors such as music, colors, light, smells, in a way to charm the consumer's senses and facilitate immersion in the consumption experience.

Mehrabian–Russell's (1974) environmental psychology model is widely applied in research into environmental marketing. This model claims that environmental stimuli could affect customers' emotional responses (pleasure, arousal and dominance) which, in turn, elicit approach or avoidance behavior toward the environment. Pleasure refers to an emotional state of well-being, joy and satisfaction, while arousal corresponds to the degree of awakening and activation. Dominance, denote the feeling of power and control. Many researchers have, however, proposed to exclude dominance dimension, confirming that pleasure and arousal can represent all emotional responses in a large number of environments (Donovan and Rossiter 1982; Matilla and Wirtz 2001; Walsh et al. 2011).

Despite the importance of the Mehrabian-Russell model, its affective view provides only a partial explanation of the relationship between consumption settings and consumer behavior (Liu and Jang 2009). Environment cues are also likely to influence personal belief and judgment about products and services in this environment, says Bitner (1992). A comfortable environment of a hotel could positively influence customers' perception of service quality as well as overall evaluations of experience. Therefore, in order to propose an enriched view of the space-customer relationship, it is necessary to extend the M-R model and examine the effect of environmental cues on behavioral responses through emotions and cognition. However, behavioral responses in this study don't present actual behaviors of customers, but rather their intentions to manifest a future behavior of loyalty to the provider (Jang and Namkung 2009). Otherwise, overall perceived service quality, which can be seen as the result of a global evaluation, is considered as representing cognitive response. Since many studies assume that customer's perception of service quality may lead to behavioral reactions or loyalty (N'Goala 1993; Zeithaml, Berry and Parasuraman 1996; Wakefield and Blodgett 1999), the concept

of overall perceived service quality has been overlooked in considering the relationship between environmental cues and loyalty.

Finally, research on sensorial marketing has paid a little attention to luxury hotels, the sector that is driving growth in France hotel market. As luxury hotels professionals invest a great deal in space management, it seems pertinent to investigate the benefits of this practice and its impact on customer responses in this context.

The purpose of this study is therefore to answer the following question: to what extent is perceived service environment likely to influence customer loyalty? To do this, we empirically test a conceptual model of the environmental cues effect on loyalty through overall perceived service quality and emotions, and explore the relationships between these internal responses.

Literature review

Service environment

Kotler (1973) claimed that customers perceive the store environment through a combination of different dimensions: visual, olfactory, tactile, and auditory. Baker (1987) identified three categories of environmental factors: design that corresponds to the visual dimension of the external or internal environment; ambience which includes the other sensory factors (olfactory factor, auditory factor and tactile factor); and social factors that include number, appearance and behavior of people in the place. Bitner (1992) proposed another typology according to what service environment consists of three dimensions: a) ambient conditions; b) Spatial layout and functionality that refer to the way in which equipment and furniture are arranged within an environment, and size and shape of these elements, as well as their ability to facilitate performance; and c) signs, symbols and artifacts that communicate the place to its users (Bitner, 1992). Wakefield and Blodgett (1996) consider cleanliness of a service place as a major dimension of service environment. Turley and Milliman (2000) also pointed out that the human elements (e.g., the appearance of employees and the interaction between consumers) and the exterior of the store (e.g., architectural style and parking area) should be viewed as principal environmental dimensions. Brunner-Sperdin, Peters and Strobl (2012) highlight the importance of jointly considering the physical and social dimensions of environment to capture the emotional responses of clients. For these authors, social dimension includes appearance, skills and behaviors of staff. The literature seems to support these propositions (Baker 1986; Baker, Levy and Grewal 1992; Keillor et al., 2004). Therefore, in our research,

we consider that service environment includes the physical components (ambient factors, interior and exterior design, etc.) and human components that may include static elements such as number, appearance and behaviors of consumers and employees. This may be explained by the fact that we are studying the hotel environment, so we should consider the quality of all the existing elements in this environment of what employees and customers constitutes a significant part. Thus, we adopt a typology widely used in marketing research, it is the typology proposed by Baker (1987) that identified the dimension of environment as three composites: design, ambience and social factors

Customer loyalty

Three traditional approaches are generally used to define customer loyalty: behavioral, attitudinal and composite. The behavioral approach uses indicators such as purchase frequency or purchase sequence to define loyalty. According to the attitudinal approach, loyalty is manifested by preferences, favorable attitudes and repurchases intention. The composite approach includes a combination of two behavioral and attitudinal dimensions (Plichon and Litchlé 2008). For some authors, the relational approach gives a broader view of loyalty without being limited to a succession of discrete transactions (Moulin 1998). Loyalty, from this perspective, is the deep and continuous relationship established between consumer and provider; it's manifested in multiple forms (cooperation, word-of-mouth, etc.) (N'Goala 2003). Moreover, Oliver (1999) distinguishes four sequential phases in the process of loyalty: cognitive phase (based on beliefs towards brand), affective phase (attitude towards brand), conative phase (behavior intention) and behavioral phase (product repurchase). In the service sector, loyalty has been widely defined according to its conative dimension (Jani and Han, 2014). Thus, customer loyalty is often apprehended through the intention to revisit for example the same destination, to return to the same hotel or restaurant, to recommend them to others (Demoulin 2011) as well as to spread word-of-mouth (Han and Ryu 2009). Therefore, we are adopting this fairly recognized perspective in tourism marketing to conceptualize loyalty in the luxury hotel industry.

Research hypotheses

Service Environment and Emotional Responses

According to the M-R model, when clients are exposed to environmental stimuli, they experience emotional reactions. Ryu and Jang (2008), in a study in upscale restaurants, found that environmental factors such as aesthetics, ambience, and social factors affect customers' pleasure feeling; while

ambience and social factors increase the level of arousal. In addition, Wakefield and Blodgett (1994) validated the role of baseball field environment in explaining audience' arousal during the game. Hyun and Kang (2014) claimed that arousal feeling can be evoked as a result of a favorable perception of the environment. Lin (2010)a concludes that positive arousal occurs when the client is interested in the hotel room ambience that he perceives to be similar to his expectations. Similarly, Mattila and Wirtz (2001), Walsh et al., (2011) have confirmed the influence of music and scent in store on consumer emotions (pleasure and arousal). Based on these discussions, the following hypotheses were proposed:

H1a: Service environment has a direct positive influence on customer pleasure.

H1b: Service environment has a direct positive influence on customer arousal.

Emotional responses and loyalty

Emotions have been shown to be an important determinant of behavioral intention or loyalty in many studies. It was indicated that pleasure increases customers' return intention to restaurant (Ryu and Jang 2008; Kim and Moon 2009; Hyun and Kang 2014). Others pointed out that customer pleasure and arousal feelings both influence purchase intention, word-of-mouth and loyalty (Walsh et al., 2011). Jang and Namkung (2009), for their part, confirm the existence of a relationship between positive and negative emotions, on the one hand, and future behavioral intention towards this restaurant on the other. Similar results were obtained in a study conducted in hospitality industry by Jani and Han (2015). Thus, the following hypothesis is proposed:

H2a: Pleasure has a direct positive influence on loyalty.

H2b: Arousal has a direct positive influence on fidelity

Service environment and overall perceived service quality

Given the intangibility of service and the complexity of its evaluation, consumers rely on many indices existing in the service environment to estimate performance, before, during and after consumption (Huang, Chou and Wu 2016). Perceived service quality, which represents a global judgment based upon perception of attributes quality (Kim and Moon 2009), could be viewed as an outcome of client exposure to environmental stimuli (Bitner 1992; Bagozzi et al. 1999). Hotel cleanliness, for example, helps customer to assess service quality (Barber and Scarcelli 2010). In a study realized within the field of sports activities,

Hightower, Brady and Baker (2002) found that environment perception is a predictor of overall perceived service quality. Kim and Moon (2009) empirically confirm this result in restaurant sector. Other studies have yielded similar results in different contexts (Temessek 2008; Hooper, Coughlan and Mullen 2013). Therefore, we hypothesize:

H3: Service environment has a direct positive influence on overall perceived service quality.

Overall perceived service quality and loyalty

The relationship between perceived service quality and loyalty has been the subject of much research on marketing (Zeithaml, Berry and Parasuraman, 1996; Wakefield and Blodgett 1999). It is based on the assumption that service quality is cognitively assessed and reflects a favorable attitude inducing behavioral intention in client (Cronin and Taylor 1992; Zeithaml 1988). But this relationship is far from obvious. The question of its nature and its significance remains interesting to discuss, and even more in the hotel context. Indeed, based on the Bitner's (1990) model, it is the cognitive responses which determine the customer behavior. Various research on client loyalty shows that a favorable perception of service quality makes revisiting more likely (Baker and Crompton 2000; Bigne, Sanchez and Sanchez 2001). Similarly, according to a survey of Korean consumers, perceived service quality is one of the three best determinants of loyalty: the other two determinants are brand image and switching costs (Kim, Park and Jeong 2004). In addition, in a qualitative survey, carried out by Mason et al. (2006), hotel guests were asked "what is hotel loyalty for you?" Quality of service was among the most mentioned factors in the responses. It also appears that research in business environment shows a greater interest to the question of predicting loyalty or similar variables by perceived service quality (Ha and Jang 2009; Namkung and Jang 2009). Therefore, the following hypotheses are offered:

H4: Overall perceived service quality has a direct positive influence on customer loyalty.

Overall perceived service quality and emotions

There are two schools of thought regarding the relationship between emotion and cognition. The first is that emotion precedes cognition during the evaluation process (Zajonc and Markus 1982; Pham et al. 2001). The second argues that emotion is derived by cognition (Lazarus, 1999). Since our structural model does not allow us to test a two-way relationship between overall perceived service quality (which represents a cognitive evaluation) and emotional responses, we have to choose one of two approaches to be tested in our study.

Based on these schools, Chebat and Michon (2003) tested two competing models combining emotions and cognition. They found that cognition-emotion model is the most robust and appropriate in sensory marketing research. They also conclude that ambient scent positively influences perceptions of shopping environment and product quality which, in turn, could influence arousal and pleasure, respectively. The authors confirm, therefore, that cognition mediates the effects of environmental stimulus (ambient scent) on emotions. Depending on this result and as well as on Oliver's framework (1999) according to what cognitive loyalty leads to affective loyalty, cognition-emotion model could be tested in our study. Thus, causal effect of overall perceived service quality on emotions is postulated. This proposition has been proven several times in environmental literature. Kim and Moon (2009) emphasized that servicescape positively influences perceived service quality which produces a pleasure-feeling. Jang and Namkung (2009) also affirm that positive emotion can be generated by service quality during a meal in restaurant. Lee and al. (2010) showed that service value and service quality, as cognitive components, have a positive impact on the emotions in green hotel. Similar results were obtained by Walsh et al. (2011) then Hyun and Kang (2014). Accordingly, we hypothesize as follows:

H5a: Overall perceived service quality has a positive influence on pleasure.

H5b: Overall perceived service quality has a positive influence on arousal.

Service environment and loyalty

Services marketing literature demonstrates the important role that did environment in determining behavioral intention (Wakefield and Blodgett 1994; Hightower, Brady and Baker 2002; Namkung and Jang 2009). Belk (1975) suggests that environment, as a situational variable, can largely determine consumer preferences for different types of products or services. Kim and Moon (2009) advocate that environmental stimuli positively influence pleasure and perceived service quality which, in turn, increase behavioral intention. In the same sense, Walsh et al. (2011) conclude that pleasure mediates the relationship between ambient stimuli (music and scents) and loyalty to the store, while arousal does not. Hyun and Kang (2014), nevertheless, confirm the mediating role of arousal in the relationship between environment and behavioral intention. Jani and Han (2015) also postulate that hotel ambience indirectly influences customer loyalty through positive and negative emotions. Based on this reasoning, we propose to examine the presence of a causal relationship between service

environment and customer loyalty in luxury hotels. It also seemed important to test the simultaneous mediation of overall perceived service quality and emotions, since this analysis is rarely addressed in the literature. To this end, it's hypothesized that:

H6: Service environment has a direct positive influence on loyalty.

H7: Service environment has an indirect positive influence on loyalty through overall perceived service quality and emotions.

Moderating effect of optimal stimulation level (OSL)

Falcy (1993) defines optimal stimulation level as "a point of stimulation to which every individual aspires will try, through his behavior, to maintain or restore". Mehrabian and Russell (1974) suggest that the amount of stimulation people prefer depends upon their optimal stimulation level. Thus, consumers with higher optimal stimulation levels prefer environments with greater stimulus intensity and variety (Mehta, Sharma and Swami 2013). Research on how personality traits, such as optimal stimulation level, may influence consumer responses yet is scant. Thus the moderating effect of this situational variable seems to be an important proposition in hotel literature. Several empirical studies tested the moderating role of OSL in the effect of music (Rieunier 2000), scent (Maille 2003), color (Roulet 2003), or advertisement color (Lichtlé 1998) on consumer reactions. Based on these reflections, we also consider OSL as a personality trait, particular to each individual and linked to the tendency of exploratory behavior or disloyalty. It is therefore possible to propose that loyalty intention varies according to optimal stimulation level. Hence, the following hypotheses are forwarded:

H8a: A consumer' optimal stimulation level moderates the effect of service environment and loyalty.

H8b: A consumer' optimal stimulation level moderates the effect of overall perceived service quality on loyalty.

H8c: A consumer' optimal stimulation level moderates the effect of arousal on loyalty

H8d. A consumer' optimal stimulation level moderates the effect of pleasure on loyalty

The conceptual model integrating all the above hypotheses is presented in Figure 1 (see appendixes A).

Research methodology

Measures

To measure the constructs in the conceptual model, scales were adopted from previous studies with slight modifications to ensure the

appropriateness in the study context. An initial pool of 48 items was employed to capture the latent constructs. Twenty one items were developed to measure the three dimensions of service environment (adapted from Hightower, Brady and Baker, 2002). A five-point semantic differential was used to measure six items of them, whereas a five-point Likert scale measuring the degree of agreement with the other items. Overall perceived service quality is measured by 5 items, adopted from Cronin and Tylor (1992) and Hightower, Brady and Baker (2000), corresponding to the overall impression of service. These five items were measured on a five-point Likert scale anchored from one (strongly disagree) to five (strongly agree). Emotions were measured using a five-point differential semantic scale with 12 items suggested by Plichon (1999): six items for pleasure and six items for arousal. Customer loyalty, apprehended in our research through its conative dimension (behavioral intention), was measured using a five-point Likert scale with five items developed by Zeithaml, Berry and Parasuraman (1996). Their scale is composed at the beginning of 13 items classified into five dimensions whose loyalty is a dimension grouping five items. Finally, we measured optimal stimulation level using (CSI II) scaled proposed by Steenkamp and Baumgartner (1995). These items were measured on a five-point Likert scale.

Data collection

Prior to conducting the final survey, the draft questionnaire was examined and refined by two experts whose the comments helped us to design the final questionnaire. To assess question wording and test item validity and reliability, a pilot test was administered to a convenience sample composed of 60 French and foreign people. After this pretest, questions that were ambiguous were deleted from the original version and some modifications were realized to some questions. The final questionnaire survey was conducted in many tourist areas of the city of Nice. The data were collected using the judgment method, a particular form of convenience. Thus, every respondent was asked if he was over 18 and had spent at least three nights in a four or five-star hotel in the PACA¹ region recently. Those who met these criteria were asked to complete the questionnaire. After deleting incomplete responses, 354 surveys were used for final analysis. The descriptive analysis indicates 51,14 to be female, 41,2% were under the age of 40. All socio-

1 PACA: Provence-Alpes-Côte d'Azur is a region of South-East France.

professional categories are represented in the sample. The overall sample was randomly split into two sub-samples, one for an exploratory phase (N = 100) and the other for a confirmatory factor analysis and hypothesis testing (N = 254).

Result

Measurement validation

Seven items were removed by principal component Analysis with SPSS. Coefficient alpha's were all above the recommended value of 0.70 in this phase. Then a confirmatory factor analysis was conducted to assess the convergent and discriminant validities of the construct measures. As shown in table 1, all of the items loadings are satisfactory. Jöreskog ρ values surpassed 0,80 indicating a good reliability for each dimension. The convergent validity was tested with the average variance extracted (AVE) and was higher than 0.5 for each construct. In addition, as displayed in table 2 (in Appendix B), all latent variables have met the criteria for discriminant validity since (AVE) for all of them was greater than the variance explained between the associated constructs (R^2) (Fornell and Larcker 1981).

Structural equation models and hypothesis testing

Structural model results

It has been suggested that LISREL approach requires at least ten observations per manifest variable to obtain robust results (Chin 1998). Our sample (254) does not meet this criteria because the overall model includes five constructs measured by 34 indicators (after the confirmatory phase). Hence, in order to validate the structural model and estimate the causal relationships, we used the Partial Least Squares (PLS) method with Xlstat (2014) which provides an index of the predictive power of structural model (Goog-of-fit or *Gof*).

Indeed, the results, summarized in table 3 (in Appendix B), highlight a good fit of the structural model with the data. All *GoF* indexes are greater than 0.5. The index of the global model and that of the bootstrap model has very similar values that reveal a stability of the model. In addition, critical ratios are all greater than 1.96, implying that the predictive power of the model is statistically significant (see table 3). The direct effect hypothesis test was performed using classical multiple regressions (OLS). Coefficient of determination (R^2), "*Path coefficients*" and value of f^2 were interpreted (Hair et al. 2016).

As shown in the table 4 all R^2 are greater than 0.3 indicating the significance of the model (Chin 1998). Service environment and perceived service quality explain pleasure to more than 60%: $R^2 = 0.604$. The contribution of environment to R^2 is higher than that of perceived service quality (63% vs 37%). In addition, there is a strong positive relationship between environment and pleasure: the coefficient is close to 0.5 with $|t| = 0.000 < 0.01$ and $CR > 1.96$. The hypothesis (H1a) is supported. The link between perceived service quality and pleasure is also positive with a coefficient of (0.324) and significant ($CR = 4.058, p < 0.01$), the hypothesis H5a is thus supported.

The results show that our model predicts more than 52% of arousal. The link between the service environment and arousal is significant and positive ($\beta = 0.686, |t| = 0.000$), which leads to support the hypothesis H1b. However, the link between overall service quality and arousal is not significant: $|t| = 0.436$; the hypothesis H5b is therefore not supported. Similarly, H3 is supported ($\beta = 0.72, CR = 19.465, |t| = 0.000$).

In addition, the initial model explains 67% of customer loyalty to hotel, 33% of loyalty could be explained by variables that are not included in our study. It seems that the influences of pleasure, arousal and perceived service quality on loyalty are all positive and significant ($p < .01$) with structural coefficients of 34.6, 0.39 and 0.18 respectively. Thus, the hypotheses H2a, H2b and H4 are supported. Nevertheless, the coefficient of the effect of environment on loyalty is not significant ($\beta = 0.039, CR = 0.56, |t| = 0.58$), which leads to reject H6.

Indirect effects of service environment

Based on the cognitive-emotion approach, adopted in this study, a causal pathway "environment-perceived quality-pleasure-loyalty" was explored. To test this multiple-step multiple mediator model, we used the *MEDTHREE* macro proposed by Hayes, Preacher and Myers (2011) with the following script:

MEDTHREE y = Loyalty/X = Environment/M1 = Quality/M2 = Pleasure/Boot = 5000.

According to this method, the total indirect effect of environment on loyalty is the sum of the three specific indirect effects ($a_1b_1 + a_2b_2 + a_1a_3b_2$) (see Figure 2 in appendixes A). The table 5 shows the test of a causal association between environment and loyalty through two mediators.

Indeed, the four effects are significant as the zero is not in their confidence interval. This confirms the indirect effect of service environment on loyalty passing sequentially through perceived service quality and pleasure. H7 is therefore supported. Moreover, since the direct link between service environment and loyalty is not significant, as explained earlier, the mediation between these two variables is therefore total.

Moderating effect of optimal level stimulation

The test of the moderating effects hypotheses was carried out using partial least squares structural equation modeling with the PLS method under XISTAT by creating an interaction variable between the exogenous variables and OSL (Kenny and Judd 1984). The moderating effect, therefore, is attested if the interaction variable has a significant effect on the endogenous variable. OSL effects are analyzed through four versions of the global model after verifying the goodness-of-fit (absolute $Gof > 0.60$) for each model.

Based on the obtained results, the interaction variable OSL * Pleasure has a significant negative effect on loyalty ($p < 0.01$). OSL therefore has a significant moderating effect on the link between pleasure and loyalty. The hypothesis H8d is therefore supported. However, the moderation effect is not significant for the other assumed links. H8a, H8b and H8c were thus rejected.

Discussion

Consistent with previous research, the results of the structural model affirm that service environment should not be subsumed as a dimension within service quality conceptualizations but as a separate construct which precedes perceived service quality (Hooper, Brady and Baker 2013). In addition, the link between these two constructs is strongly supported with a positive coefficient ($\beta=0.729$). This means that hotel service environment significantly affects the way customers perceive the hotel service quality. For example, if customers find a hotel exterior design pleasing, they may positively evaluate the quality of service' intangible elements, such as food quality, food price or hotel value (Radder and Wang 2006). The expected relationship between perceived service quality and loyalty (H 4) was supported. This implies that the more positive the perception of service environment, the more hotel clients would experience a positive evaluation of

hotel service, and the more their loyalty intention would be strong. This result is convergent with that obtained in previous studies which provide evidence for the cognitive evaluation of environmental cues as a sufficient condition to elicit behavioral responses (Wakefield and Blodgett 1999; Chebat and Michon 2003; Hooper, Brady and Baker 2013). Therefore, even in a context where the service is consumed for hedonic motivations, service quality can bring to a loyalty intention without being preceded by a pleasure or arousal feelings.

We found a direct positive relationship between overall perceived service quality and pleasure. Thus, a positive evaluation of hotel service increases consumer pleasure. This observation enriches the theory of Lazaros (1991) (cognitive theory of emotions) which postulates the causal role of cognition on emotion. In general, our result were consistent with previous studies that customer perception of product quality is a determinant of positive emotions (Baker, Levy and Grewal 1994; Chebat and Michon 2003; Kim and Moon 2009; Walsh et al, 2011; Siu ,Wan and Dong 2012).

However, the expected relationship between service environment and arousal was not supported (Chebat and Michon 2003; Walsh et al. 2011). This result may rely on our study context. Indeed, Wakefield and Blodgett (1999) confirmed the influence of service quality on arousal in quite particular contexts (Hockey games, a large family recreation center, and movie theaters) where activities are, themselves, very stimulating. Similarly, Hyun and Kang (2014) confirm this influence in the restaurant context where customers normally spend no more than three hours in the service place, while the stay in hotel is normally much longer and customer cannot be stimulated during the whole period of his stay.

In addition, luxury hotels, where our study was conducted, comply with a set of standards which makes them interchangeable in the eyes of customers. Thus, the low level of differentiation of service quality between luxury hotels may explain the lack of a significant relationship between perceived service quality and arousal. This argument is consistent with the theory of stimulation that new stimuli are better at stimulating clients than older stimuli (Berlyne 1960). Furthermore, upscale hotel customers generally have a high level of expectations, they wait an excellent service. As a result, it is very likely that a high service quality does not influence critically arousal state (Walsh et al. 2011).

According to the results of data analysis, it was revealed that service environment of luxury hotel does not directly influence customer loyalty. However, it can influence pleasure which in turn could elicit loyalty. This implies that pleasure provoked by service environment in customer increases his loyalty intention (confirming Kim and Moon 2009).

As expected, the chain of causality (service environment → service quality → pleasure → loyalty) was confirmed. The result of this multiple step multiple mediator effect implies that good hotel design could provide customer with a positive image of service delivered, which produce pleasure emotion. This emotion could, afterwards, provoke the desire to repeat the experience in the same hotel in the future, to recommend this hotel to those around him and spread word-of-mouth.

Finally, our study revealed the reducing effect played by OSL only for the relationship between pleasure and loyalty (H8d: $\gamma = -0.561$, $p < 0.05$). Thus, the higher is customer' optimal stimulation level, the less is the pleasure contribution in the formation of loyalty intention (confirming Bonnefoy-Claudet 2011). Moreover, OSL was not found to be a significant moderator between service environment and fidelity. Accordingly, whatever the optimal stimulation level, the direct relationship between service environment and loyalty remains insignificant.

Nevertheless, Maille (2003) partially validated the moderating role of the tendency for exploratory behavior (which reflects OSL) on the link between congruence of scents on purchase intention. Its study was carried out in retail context where switching, increasing or decreasing purchase intention don't imply a significant perceived risk that can be associated with the purchase of hotel service. As a result, we suggest that the relationship between behavioral intention (loyalty, purchase intention, etc.) and environmental stimuli more likely moderated by individual variables such as OSL in retail context than context of luxury product or service (Giannelloni 1997). Again, OSL is not found to be a moderator neither between perceived quality and loyalty nor between arousal and loyalty. Therefore, in case of high cognitive or affective evaluation, the variance in loyalty intention was not due to a tendency to search for variety. To a certain extent, this result is convergent with that of Temessek-Behi (2008) which showed that OSL does not moderate the effect satisfaction on loyalty in hotel context.

Conclusions, implications, limitations and future research

Managerial implications

Our study can help luxury hotel managers better understand how each type of quality stimuli can contribute to eliciting either emotional or cognitive evaluation eventually enhance guest loyalty intentions. The findings suggest that service environment seriously should seriously be considered in the marketing toolbox. The results also indicate that in the luxury hotel industry, it would be required to focus on different aspects of service environment, as the factorial contributions of its three dimensions are strong and significant (ambience: $\lambda = 0.73$, design: $\lambda = 0.74$ and social factors: $\lambda = 0.84$). All environmental elements should be carefully chosen to propose a pleasing service offering and create an immersive and memorable experience for clients. However, according to the results, the dimension "Social factors" has the highest weight (design was the second one in terms of factorial contribution). This suggests to give a greater importance to the "social factors" dimension, especially because it has the highest correlation with overall perceived service quality as well as pleasure and the second strongest correlation with arousal. One of the key drivers of success will be recruiting individuals who meet criteria of neat appearance and friendly personality. It is also essential to always strengthen employee training to refine their performance.

Similarly, when managers are decorating a hotel, account must be taken of tastes and preferences of targeted customers. In addition, place beauty and human capital should be in harmony with the overall image of the hotel and the type of service delivered in order to maximize the positive customer feedback. Based on the results relating to the links and emotions-loyalty and perceived service quality-loyalty, we recommend that luxury hotels should implement all strategies to promote positive emotions and cognitive reactions, such as innovation in decor, gastronomy, exceptional staff, equipment, customer instant request management, digital communication and in advertising campaigns (Hosany and Gilbert 2010) to generate future favorable behaviors. The last managerial contribution that we want to highlight is derived from the results concerning OSL's moderating effect, which is reflecting in this work, the disloyalty intention or exploratory behavior. Indeed, we advise to focus on clients whose optimal stimulation level is low since they would have an intention to return, to

recommend the hotel to others or to spread positive word-of-mouth.

Limits and future research

Our study has some limitations that offer opportunities for future research. The sample is composed of tourists crossed in some key places of the city of Nice (airport, SNCF station, beaches, Castle of Nice, etc.), the question of sample representativeness arises this method of data collecting could lead to ignore a category of people who do not frequent these places. We also mention that we did not work on eventual loyalty behavior in the luxury hotel as the longitudinal study on a real field was not possible. Also, we based on the cognition-emotions school to study the relationship between emotions and overall service quality by following Chebat and Michon's (2003) recommendation. Thus, for further research, it will be interesting to examine the alternative approach (emotion-cognition), and compare the two competing approaches to identify the most appropriate model for hotel context. Similarly, it is also desirable to explore the direct effect of arousal on pleasure (Hyun and Kang 2014), since this effect has never been tested in hotel industry.

Additionally, we can suggest to complete the conceptual model by incorporating other non-environmental explanatory variables such as food quality, price, hotel location, and to compare their effects with those of other environmental elements. Further work conducted, would consider optimal stimulation level, at the same time, as a moderator and an explanatory variable (Bréda 2005). We could also integrate other moderating variables such as need for cognition (Rieunier, 2002), need for stimulating, risk-taking tendency (Giannelloni 1997). And, last but not least, it will be interesting to examine the moderating role of culture to understand how different cultures react to different service environment. Given this, resultants could help managers better plan their development strategies or at least know how to operate reservations in their hotels by checking the client's culture and give them a room whose design is appropriate for their culture.

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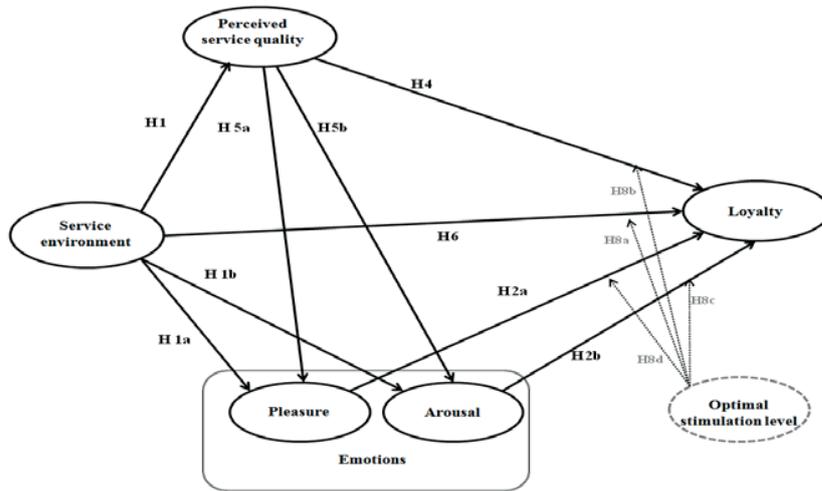
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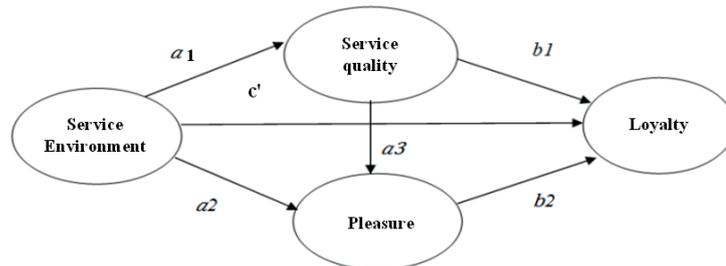
Appendixes
Appendix A: Figures

Figure 1. Conceptual model



Notes: the hypothesis H7 concerning the indirect effects is not presented.

Figure 2: A multiple-step multiple mediator model with two proposed mediators.



Appendix B: Tables

Table 1: items and confirmatory factor analysis results

Constructs and measured items	Standard loadings
<i>Ambience</i> (Cronbach alpha=0.88; $\rho = 0.88$; AVE= 0.72)	0.73
The lighting is disagreeable / agreeable	0.77
The hotel is clean	0.86
The hotel is noisy/quiet	0.90
<i>Design</i> (Cronbach alpha= 0.87; $\rho = 0.89$; AVE= 0.59)	0.74
The hotel is decorated in an attractive way	0.80
The use of color in the decor scheme adds excitement to this hotel environment	0.77
The rooms are well designed	0.75
The architecture unattractive /attractive	0.73
The style of the interior design accessories is fashionable.	0.79
<i>Social factors</i> (Cronbach alpha=0.91; $\rho = 0.90$; AVE= 0.649)	0.84
The employees are clean and well dressed	0.87
The employees are friendly	0.86
The employees are always willing to help the guests	0.81
The clients are well dressed	0.71
The number of clients is not adequate / adequate	0.76
<i>Pleasure</i> (Cronbach alpha= 0.873; $\rho = 0.87$; AVE= 0.70)	
Displeased / pleased	0.85
Dissatisfied / satisfied	0.86
Unhappy / happy	0.80
<i>Arousal</i> (Cronbach alpha= 0.837; $\rho = 0.84$; AVE= 0.64)	
Without energy/ full of energy	0.80
Sleepy / wide-awake	0.76
Not stimulated /stimulated	0.83
<i>Perceived service quality</i> (Cronbach alpha =0.892; $\rho = 0.89$; AVE= 0.63)	
Overall, I got a very good service in this hotel	0.81
In general the service provided is excellent	0.85
The overall quality of service is exactly as I expected	0.64
The overall perceived service quality is just what it should be	0.81
I believe the performance of the employees is excellent	0.84
<i>Loyalty</i> (Cronbach alpha= 0.893 $\rho = 0.89$; AVE= 0.63)	
Say positive things about this hotel to other people	0.84
Encourage friends and relatives to make a stay in this hotel	0.85
Recommend this hotel to someone who seeks my advice	0.73
Consider this hotel as my first choice to make a stay	0.75
Return to this hotel when the opportunity arises	0.97
<i>Optimal stimulation level</i> (Cronbach alpha= 0.967; $\rho = 0.96$; AVE= 0.82)	
I like to try new and different things rather than doing the same old things (-)	0.868
I am constantly seeking for new ideas and experiences	0.899
I like constantly changing activities	0.914
I like to experience novelty and change in my daily routine	0.92
I like a job that offers change, variety, and travel, even if it involves some danger	0.917

Table 2: Discriminant validity

	Design	Social	Ambience	Quality	Pleasure	Arousal	Loyalty
Design	0.662						
Social	0.292	0.718					
Ambience	0.236	0.301	0.808				
Quality	0.266	0.503	0.315	0.697			
Pleasure	0.380	0.433	0.314	0.483	0.798		
Arousal	0.293	0.337	0.573	0.302	0.292	0.756	
Loyalty	0.315	0.287	0.594	0.442	0.507	0.498	0.698

Table 3: Goodness of fit of the final model

	GoF	GoF (Bootstrap)	standard error	Critical ratio (CR)	Lower bounds (95%)	Upper bounds (95%)
Absolut	0.66	0.654	0.020	32.192	0.605	0.693
Relative	0.917	0.902	0.014	67.530	0.870	0.928
External model	0.999	0.998	0.000	3462.878	0.997	0.998
Internal model	0.917	0.904	0.013	68.006	0.872	0.930

Table 4: Structural model results

Endogenous variables (R ²)	Exogenous Variables	Coefficient path (β)	Poefficient path (Bootstrap)	Pr > t	Critical ratio (CR)	f ² (%)	Resultat
Pleasure (0.604)	Environment	0.509	0.501	0.000	6.868	62.708	H1a supported
	Qualit	0.324	0.328	0.000	4.058	37.292	H5a supported
Arousal (0.523)	Environnement	0.686	0.679	0.000	7.717	94.774	H1b supported
	Quality	0.050	0.052	0.436	0.675	5.226	H5 not supported
Quality (0.531)	Environment	0.729	0.72	000	19.465	100	H3 supported
Loyalty (0.67)	Environment	0.039	0.035	0.580	0.560	4.167	H6 not supported
	Pleasure	0.346	0.358	0.000	4.774	36.76	H2a supported
	Arousal	0.390	0.384	0.000	6.479	41.06	H2b supported
	Quality	0.181	0.180	0.001	3.314	18.01	H4 supported

Table 5: Indirect effects of service environment on loyalty (Environment → Perceived quality → Pleasure → Loyalty):

Indirect effects	Value	Lower bounds (95%)	Upper bounds (95%)	Result
Total indirect effects ($a1b1 + a2b2 + a1a3b2$)	0.4016	0.277	0.511	Significant
Environment→Service quality→Loyalty ($a1b1$)	0.1476	0.052	0.244	Significant
Environment→Pleasure → Loyalty ($a2b2$)	0.1734	0.088	0.266	Significant
Environnement→Service qualité→Pleasure→ Loyalty ($a1b3 b2$)	0.0806	0.029	0.139	Significant

Table 6: Test of the hypothesized moderating effect of OSL

	Structural links	Path coefficients	Pr > t	Critical ratio (CR)
H8a	OSL*Environment → Loyalty	-0.128	0.559	-0.560
H8b	OSL*Quality → Loyalty	-0.234	0.200	-1.306
H8c	OSL*Arousal → Loyalty	-0.222	0.266	0.225
H8d	OSL*Pleasurr → Loyalty	<u>-0.561</u>	<u>0.002</u>	<u>-2.592</u>