The Effects of Scent on Consumer Behaviour in Maltese Mid-Range Restaurants

Rebecca Camilleri, Melvin Mizzi*
Corresponding Author: melvin.mizzi@mcast.edu.mt
*Institute of Business Management and Commerce, MCAST

Abstract: The business world is run by marketing communications. Marketeers are interested in the consumer's decision-making process leading to a potential sale. Marketing can target any of the five senses and this research focuses on the sense of smell and ultimately its effects on the behaviour of consumers. Reference to older methodology is made along the study due to its remaining relevance to this day and age. This study seeks to assess the relationship, if any, between scents and consumer behaviour. More specifically, the objective was to assess if lavender and citrus scents impact a customer's dining experience in terms of money and length of time spent in mid-range restaurants in Malta. The experiment in this study was conducted in three restaurants. The restaurants were chosen according to specific standards highlighted in the methodology using convenience sampling. Three consecutive Fridays and Saturdays, were allocated to test the identified scents where the start time, end time, number of guests, total experience time and sales per table were noted. Once the experiments were carried out for all three restaurants, two statistical tests were conducted to prove whether the results were statistically significant, thereby providing answers to the research question.

The findings from this study suggest that scents did not statistically explain the results of time and money spent in restaurants by consumers. Following this result, a number of alternative factors for the statistical insignificance of scent on consumer behaviour, were suggested.

Keywords: Consumer behaviour, mid-range restaurants, scents, lavender, citrus, ambient; experiment, money spent, time spent

Background

“Marketing communications are set to attract customers visually and by means of hearing. But the decision-making process of a consumer which is the buying force, is influenced by sensory information” (Hulten et al, 2009). In his research ‘Sensory marketing: the multi-sensory brand-experience concept’ Hulten (2009) believes that by targeting the two senses of sight and hearing, a customer is not fully affected, leading to a lack of persuasion. This creates a space within the realm of marketing for other senses to be targeted. After researching the multi-sensory brand experience of a customer targeting the 5 senses (sight, smell, taste, hearing and touch), Bertil Hulten highlighted the importance of incorporating these senses in various ways to increase their impact on consumers’ purchasing behaviour.
One of the 5 senses, smell, is triggered by scent. This particular sense is researched further by investigating how different scents affect consumers' spending behaviour and the length of time they spend in restaurants. The scents selected for this research are citrus and lavender. Diego et al (1998), Buchbauer et al (1993), and Van Toller (1988) argue that while the citrus scent is a motivating smell which encourages the customer to speed up the dining process, lavender is a more relaxing aroma which makes customers want to lengthen their stay at the restaurant. These findings were fundamental in Guéguen and Petr’s restaurant experiment in 2006, in which the same dependent variables as those used in the current research (time and money spent per customer), were tested for each aroma. In Guéguen and Petr’s (2006) experiment their hypothesis that scent would positively influence the length of time and amount of money spent by consumers was later proved to be correct. Little empirical work has been undertaken to investigate the sense of smell as a marketing driver and, in particular, the impact of scent on consumer behaviour, purchasing behaviour and time spent in restaurants. There are no publications yet regarding this sensory marketing area regarding the restaurant industry in Malta which is what motivated the researcher to carry out research on this particular sense. This may open new doors for restauranteurs searching for research conducted locally which they can use for their own restaurants.

In a nutshell, this study was carried out to understand if the same conditions bring about the same results as the experiment carried out by Guéguen and Petr (2006), with some adjustments to the research questions. The same experiment will be recreated to see what conclusions can be drawn in the local context amongst mid-range restaurants.

Research Objectives

This study aims to assess if lavender and citrus scents impact a customer's dining experience in terms of money and length of time spent in mid-range restaurants in Malta. The following hypothesis and research questions were constructed to help the researcher provide answers to the main aim of the study.

The first hypothesis of this study is that lavender and citrus scents impact a customers’ dining experience positively in terms of money spent in mid-range restaurants in Malta

The second hypothesis of this research is that the length of time spent by customers in a restaurant is longer when a lavender scent is present, followed by a shorter time when ambient scent is present, and the shortest stay when a citrus scent is present, in mid-range restaurants in Malta.

Following the hypothesis, the research questions being studied are:

• Do consumers’ spending habits in the presence of both scents (citrus and lavender) increase when compared with the spending habits of consumers in the presence of ambient scents in mid-range restaurants in Malta?

• Does a customer’s dining experience last longer in the presence of a lavender scent, followed by a shorter time in an ambient scent and the shortest time in the presence of a citrus scent in mid-range restaurants in Malta?
Methodology

A research can make use of many forms of tools to help in the evaluation of the research questions being set out. This section describes the tools used to better assess this study. When considering the aims of this research, the researcher started by focusing on secondary research to better understand the topic and determine the best data collection method. Ethical considerations were granted a high degree of integrity and these included adhering to the MCAST Document 074 Research Ethics Policy and Procedure (2019) whereby an information letter and a consent form was distributed to participants within the experiment. This research required the use of scent diffusers and scent capsules on which a flame test was performed to ensure no persons or animals would be in danger during the experiment, ensuring a constant safe environment. Complete anonymity of the participants of this research was ensured and data collected will be deleted once the research is over, ensuring all data remains undisclosed.

Research Approach

Based on existing theories, a deductive approach was adopted. This enabled the researcher to use a highly reliable statistical analysis to reach a conclusive answer. A field experiment was deemed appropriate to secure both reliable and valuable outcomes that sustained the primary scope of the research. The experiment carried out, aimed to calculate the average money spent and average time spent by customers in the restaurants chosen whilst in the presence of ambient, lavender and citrus scents, respectively. Results from each particular scent were then compared. The same experiment was replicated at each of the three mid-range restaurants and the results were then benchmarked by the researcher, thus answering the research questions and hypotheses.

Procedure: The Selection Process

The researcher was inspired by the standpoint adopted by Borg (2017) in which 69% of the 400 participants in the study, preferred casual dining. Borg (2017) does not mention to which extent a restaurant can be classified as mid-range, but according to Borg and Manicolo (2019), in a local restaurant casual dining means food is moderately priced, the atmosphere is casual and the dining is casual too. It is neither fast food nor fine dining. Due to these findings, mid-range restaurants were deemed ideal for this experiment and thus restaurants that fell under this criterion were selected.

For the results to be more reliable, three restaurants were deemed appropriate for this experiment. The restaurants were selected based on the length of time needed to complete each experiment whilst having a limited timeframe to complete the whole study. The selected restaurants were chosen from a full list of restaurants in Malta obtained from TripAdvisor using the filter mid-range to fit the genre of restaurants being analysed in this particular research. TripAdvisor was deemed imperative since as a restaurant review site apart from being the leader in its field (Bonelli, 2017), it is effective in the sense that it constantly updates data regarding performance and reviews of restaurant businesses within the Maltese islands. Furthermore, the researcher came across no other reliable sources which classified the list of restaurants by cheap eats, mid-range and fine dining. Besides the need of a mid-range classification of the selected restaurants, a set of preferred characteristics were determined as guidelines during the
selection process. These included the following:

- Restaurant area must not exceed 80sqm. This is the maximum area coverage of one Otello Mr & Mrs diffuser chosen as scent diffuser for this experiment. Two diffusers expelling the same scent, were used each time, for increased concentration of each scent.
- Restaurant area must not exceed 80sqm. This is the maximum area coverage of one Otello Mr & Mrs diffuser chosen as scent diffuser for this experiment. Two diffusers expelling the same scent, were used each time, for increased concentration of each scent.
- The restaurant cuisine must not possess rich scents of spices that would obstruct the scent distributed within the restaurant.
- The restaurant must not be using any form of scent diffusers of their own.
- The restaurant must have electric plugs available in the clients' sitting area for the electric diffusers to be used.
- The restaurant must be enclosed at most times.
- The main entrance door must be kept closed apart from when customers enter and leave.
- No windows must be open since this would impact scent dispersal.

**Procedure (Experiment)**

Each restaurant was allocated an equal 3-week time frame which included the evening services of Friday and Saturday of each week. Three aromatic conditions were tested. A non-aromatic condition (ambient scent) was tested during the first week, followed by a lemon scent in the second week and a lavender scent during the third week. Care was taken by the researcher to ensure that there were no public holidays, no local feasts, or events on the weekdays selected. The weather was noted to ensure it was stable on the days when these experiments were conducted because as mentioned by restauranteurs in Borg's (2017) study, weather impacts business prospects.

The researcher was present at least one hour before the restaurants opened their doors to customers for evening service, until their respective closing times to ensure all data collected was accurate. The researcher ensured they were at the restaurant before the first table was set to arrive, specifically on occasions when scents were to be used. This approach was vital so as to give sufficient time for the scent to diffuse uniformly within the internal restaurant ambiance.

The researcher constantly assessed the levels of sales per table and the exact time of the guests' entry and exit. The researcher was persistently cautious for any sudden changes which might affect the research outcomes such as unpredicted eventualities which might influence customers or the service at the restaurant.
Data Collection

An excel sheet was used to record, compile and maintain data in one location. The researcher made use of a timer to record the time each guest entered and left the restaurant. The tables in the restaurant were numbered and the number of guests per table was noted. At a later stage, when the guests departed from the restaurant, the sales for each table were recorded. A duplicate receipt was kept with each table when the bill was issued for the recording of sales. The average minutes per table, as well as the average sales per guest were computed according to the scent being analysed. For the interpretation of results to be possible, Microsoft excel was used to tabulate the data collected from each restaurant and facilitate the generation of means, for the variables being analysed. SPSS was then used to identify trend patterns in statistical analysis. For this a Two-way ANOVA test and an Independent T-test, were used.

Limitations

Throughout every stage of the research journey, the researcher encountered a number of challenges and it was vital to effectively address these limitations constructively. A constraint anticipated by the researcher is that some restaurant owners may tend to dislike or be irritated by the scent, possibly due to the restaurateur perceiving potentially negative responses from customers, towards the scents being diffused. As a restaurateur highlighted in Borg’s (2016) study, a lost customer is difficult to regain. Nevertheless, this was not the case for this research since the scents used were of a mild nature. The researcher ventured in, carefully planning the size of the sample. It was felt that it was necessary to be aware of the limitation of the sample size. It is vital that the sample is not too large nor too small so as to avoid misrepresentation. After the researcher contacted the prospective participants i.e. restaurant owners, a substantial number of them felt unsure whether they should participate in the research. This might have been due to business commitments, personal interest or possibly issues of confidentiality. In this regard the researcher ventured a stage further by briefing them on the research objectives and highlighted that the research outcomes would be beneficial to their business. This approach was in fact strategic in ensuring the restaurant owners’ willingness to participate. Finally, the researcher observed that certain restaurants approached were not a good fit in terms of size, cuisine and mode of operation to be included in this study. Due to GDPR regulations the names of the restaurants that were considered for the experiment but deemed unsuitable could not be mentioned. A total of 33 restaurants were rejected since they were deemed unfit to participate. Finally, 3 restaurants were chosen for the experiment.

Results

The length of time and the amount of money spent in the restaurant were the two dependent variables in our experiment. Distributions and descriptive statistics were analysed and it resulted that all three scents were very close when considering the total time spent, the average minutes per person and the average sales per person for all three restaurants. However, to verify that these results were statistically significant, two statistical tests were carried out on the data collected. Results from these tests determined whether any of the scents had any impact on either the time or money spent in the restaurant. A significant level of 0.05 was chosen indicating a 5% risk when drawing conclusions to discover whether both statistical tests really had an effect on the data.
collected. Three two-way ANOVA tests were carried out with the independent variables in all three cases: The scents and the restaurant and the dependent variables where the total minutes spent, the average minutes spent per person and the average sales per person respectively were calculated. The Two-Way ANOVA tests resulted in p-values higher than 0.05 (p=0.727, 0.939, 0.930) which meant that none of the independent variables i.e. the scents, explained the time spent in the restaurant.

The second statistical test which was carried out was an independent samples t-test, three tests were carried out for the average time spent per table, average time spent per person and average sales per person for each combination of scents (Ambient-Citrus, Ambient-Lavender, Citrus-Lavender). The p-values were all greater than the significance level 0.05. This implies that there was no significant difference in average time spent per table, per person and expenditure per person across the different scents. The only exception was the result for the average sales per persons for the combination ambient and lavender which gave a p-value of 0.049, less than the significance level of 0.05. Due to these statistical tests it could be further concluded that neither one of the scents gave better results in terms of customers' time and sales spent at the restaurant.

**Discussion**

The aim of this research was to provide answers to the hypothesis. The statistical tests carried out were used to analyse more than just the hypothesis of this research. The initial data collected from the restaurants enabled the researcher to further analyse the results and possibly notice any interesting information away from the initial scope of this research for future research. The first hypothesis set out to test the length of time spent by customers dining in the presence of a lavender scent, a scent popularly associated with relaxation. This was noted to be the longest stay when compared to the stay in an ambient or citrus scent. In the same hypothesis the researcher tested whether the shortest dining experience occurred in the presence of the citrus scent. Citrus scents are popularly known for use as activity motivators (Diego et al.1998; Buchbauer et al. 1993 and Van Toller 1988). Therefore, it could be concluded that the following sequence of length of time spent by customers starting from the longest and ending with the shortest, was hypothesised by the researcher:

<table>
<thead>
<tr>
<th>Most time spent in the restaurant by consumers</th>
<th>Median time spent in the restaurant by consumers</th>
<th>Least time spent in the restaurant by consumers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lavender Scent</td>
<td>Ambient</td>
<td>Citrus Scent</td>
</tr>
</tbody>
</table>

The sequences followed the format starting with the longest time followed by a shorter time, and finally the shortest time spent by consumers.

The following were the results from each restaurant when the average time per table was analysed.

Sequence for Restaurant A: Ambient – Lavender – Citrus.
Sequence for Restaurant B: Lavender – Citrus – Ambient.
Sequence for Restaurant C: Lavender – Citrus – Ambient.
Since a common denominator was achieved in the sequences of restaurant B and C. The average time per person rather than by table was taken into consideration.

The following sequences for each restaurant were achieved:

Sequence for Restaurant A: Ambient – Lavender – Citrus
Sequence for Restaurant B: Lavender – Ambient – Citrus
Sequence for Restaurant C: Citrus – Lavender – Ambient

It can be said that this particular research question was nullified. Even though there were instances where the sequence of time spent was followed, these instances were too little to draw conclusions which is why statistical tests were also used to continue to sustain the results already found. This led to the conclusion that the scents used – lavender and citrus – did not impact the sequence of the length of time as highlighted by researchers that lavender made the customers stay longer and the citrus scent encouraged the customers to speed up the dining process (Diego et al. 1998; Buchbauer et al. 1993; Van Toller 1988).

The second hypothesis highlighted whether the customers’ average expenditure increased when a citrus or lavender scent was diffused during their dining experience in the restaurant, and then compared to customers’ average expenditure when dining in the ambient scent of the restaurant. When the average sales per person were categorised by scent, in Table 1: Mean values by scent, results showed that customers tended to increase their spending when in the presence of citrus scent (€35). On average customers spent the same while in the presence of the ambient or lavender scent (€32). This shows that, in this case, the citrus scent positively affected sales, however with a small difference of only €3, when compared to sales when no scent was used (ambient).

<table>
<thead>
<tr>
<th>Scent</th>
<th>Mean</th>
<th>Mean</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Average time per table</strong></td>
<td>136</td>
<td>136</td>
<td>142</td>
</tr>
<tr>
<td><strong>Average minutes per person</strong></td>
<td>46</td>
<td>46</td>
<td>46</td>
</tr>
<tr>
<td><strong>Average sales per person</strong></td>
<td>32</td>
<td>35</td>
<td>32</td>
</tr>
</tbody>
</table>

*Table 1: Mean values by scent*
Table 2 below was created to separate the average money spent by restaurant and scent. Results showed that only in restaurant B, the average money spent per person was higher in the presence of a lavender or citrus scent, €24 and €22 respectively. At the same restaurant €20 was spent on average in the ambient scent. The difference in sales is minor, yet present. As for restaurants A and C, customers spent the least on average when there was a lavender scent. The researcher observed that similarly to Table 2, the citrus scent seems to consistently positively impact the money spent by the restaurant patrons. Nevertheless, none of the restaurants appeared to be following a particular spending trend per person based on scent.

<table>
<thead>
<tr>
<th>Restaurant</th>
<th>Average sales per person (€)</th>
<th>Mean</th>
<th>Mean</th>
<th>Mean</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Average sales per person</td>
<td>49</td>
<td>46</td>
<td>45</td>
<td>47</td>
</tr>
<tr>
<td></td>
<td>(€)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>20</td>
<td>22</td>
<td>24</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>39</td>
<td>40</td>
<td>37</td>
<td>39</td>
<td></td>
</tr>
</tbody>
</table>

Table 2: Average sales per person by restaurant and scent

Whilst there can be varied reasons behind the results obtained in this research, the statistical tests did not prove the hypothesis of this study to be true since the statistical results were not significantly different. The objective of this research was to assess if lavender and citrus scents impact a customer’s dining experience in terms of money and length of time spent in mid-range restaurants in Malta, and the statistical evidence of this research did not support the hypothesis.

The results achieved from the statistical tests were not statistically significant which challenged the results achieved in the study carried out by Guéguen and Petr (2006). In their experiment a conclusion was made that consumer behaviour positively impacted the average spending when scents were used. Other reasons behind these results could be the difference in cultures. The experiment carried out by Guéguen and Petr (2006) was done in France which hosts a different dining culture when compared to that of Malta. Maltese citizens tend to eat out for other reasons besides the sole purpose of eating and many locals normally allocate a generous amount of time, if not the whole evening to dining out. Many Maltese tend to perceive eating out as a fun activity, something to look forward to and a time to be in good company increasing the probability that the dining experience is a long one. Regarding sales, the statistical tests showed that the scents did not have a significant. For this reason, it is believed that other scents should be tested not to exclude the fact that scents other than lavender or citrus might bring about an increase in sales from restaurant patrons.
Recommendations

It is recommended that for future research even though results in this research are statistically proven, one cannot generalise such results to the whole restaurant industry since only restaurants classified as mid-range were used.

The following are more examples of how this research can be extended.

- At the same time results cannot be generalised for all the restaurants classified as mid-range since a small sample of three restaurants was used due to time constraints, therefore it is recommended that future similar experiments use a bigger sample to be considered representative.
- Consumers’ ability to report the influences on their decisions is another issue, since the impact of scent is very subjective. A facial EMG, a facial expression tool, is suggested to help analyse the reactions of customers to the scent and to use as an additional method for data collection.
- During data collection in the restaurants, the researcher took note of the start-time and end-time of the guests which showed the time the first customer sat at the table until all the guests at the table had left. For more accurate results, the time spent by guests should instead be calculated individually whereby the start-time and end-time of each individual guest is recorded.
- Another recommendation is to have the same experiments carried out at restaurants where the guests per table is standardised e.g. By using only tables for two to compare like-with-like. Once number of guests per table is standardised, the average time spent in the restaurant is more reliable since larger groups at table, require a longer service time.
- Future research in the field could use other scents besides citrus and lavender.
- Table 3 below, highlights a similar average time per table was spent across all three restaurants when a lavender scent was used and similar average time per table across all three restaurants when a citrus scent was used. However, there was no similarity in the average time spent per table across all three restaurants when there was an ambient scent. A study on this can be: Does a particular scent (lavender or citrus) bring about a similar average time spent at the restaurant by patrons, in any restaurant?

<table>
<thead>
<tr>
<th>Scent</th>
<th>Mean</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lavender</td>
<td>168</td>
<td>137</td>
</tr>
<tr>
<td>Citrus</td>
<td>123</td>
<td>135</td>
</tr>
<tr>
<td>Mean</td>
<td>113</td>
<td>137</td>
</tr>
</tbody>
</table>

Table 3: Average time per table by restaurant and scent
Conclusion and Recommendations

This study examined the effects of scents on consumers behaviour in mid-range restaurants in Malta, where ambient, citrus and lavender scents were used to test two hypotheses on time and money spent at 3 different restaurants. It was crucial to analyse various literature to be able to perform this experiment and generate a set of statistical results from the data collected in all the restaurants allowing the researcher to draw the conclusions set out by the research hypothesis. The second hypothesis that the length of time spent by customers in a restaurant is longer when a lavender scent is present, followed by a shorter time when the ambient scent is present, and the shortest time in the presence of a citrus scent in mid-range restaurants in Malta was rendered null since the significance difference level was over the acceptable risk range. There were times where the sequence of time spent was followed as suggested by the research question, but the differences again, were too small to ascribe significant effect, thus the importance of the researcher's choice to use statistical tests within such an experiment. Once the p-values resulted to be higher than the significance level of 0.05 there are no doubts that there could have been a possible positive contribution because there is no significant difference between the scents used and the hypothesized sequence of lavender-ambient-citrus. To confirm these results, and dismiss external factors effecting the variable being observed, statistical tests were carried out analysing the average time spent per table and the average time spent per customer. This reassured the researcher about the results because they both achieved a p-value higher than the significance level.

Possible reasons behind these results, are highlighted in the previous section. The most important factor, believed to have caused the most impact is the cultural traditions of eating out shared by Maltese citizens. Locals who eat out tend to go out not for the sole purpose of eating. Eating out is an activity for some, this includes moments to socialise, interact, catching up with loved ones, discuss current affairs or events, plan an activity etc. When eating out in a restaurant many Maltese tend to allocate a generous amount of time if not the whole evening. It is perceived as an activity to be enjoyed, to look forward to and time to be in good company, thus ensuring that the dining experience amongst Maltese is an extended one. Statistical tests showed that money spent by patrons was not be influenced by the scents diffused in the restaurants for this experiment. Potentially, other scents – besides lavender and citrus – should be tested to determine if they would increase money spent by restaurant patrons.

This research has identified several gaps in the literature within this sector, which can be addressed by future research whether it is to achieve better results or new areas of study. The results achieved in this study, cannot generalise the whole restaurant industry since only restaurants classified as mid-range participated. In addition, since a small sample of three mid-range restaurants participated, results could not be generalised over all local mid-range eateries. To overcome this limitation, a larger sample of restaurants is required for similar future experiments. Another issue the researcher encountered was regarding the restaurant patrons’ ability to report the influences on their decisions since the impact of scents is subjective. Therefore, the researcher it suggests that future research add different methods to this experiment such as facial EMG. This facial expression tool would analyse the facial reactions of customers as their facial muscles respond and this would add value to the data collection of such an experiment.

Also, during the data collection in the restaurants, the researcher took note of the start
time and end time of the guests which showed the time the first customer sat at the table until all the guests at the table left. For accurate results, the time spent by guests should not be calculated by table but by each individual guest’s arrival and end-time marking the duration of their dining experience at the restaurant. Another recommendation is to have the same experiments carried out at restaurants where the number of guests per table is standardised across the experiment e.g. Selecting only tables for two for an accurate comparison. Once guests per table is standardised, the average time spent in the restaurant is more reliable since larger groups at a table require a longer service time.

Furthermore, other scents – besides lavender and citrus – can be used in future research within this sector to determine if other scents would draw more impact on increasing time and money spent by patrons in local mid-range restaurants. Another area of research could feature an analysis of correspondence between diffusing lavender and citrus scents on selection of items from a restaurant menu the specific food chosen on the menu in comparison to the selection in the ambient scent. **Table 3** highlighted the fact that a similar average time per table was spent across all three restaurants when a lavender scent was used and similar average time results were observed, per table, across all three restaurants when a citrus scent was used. However, there was no similarity in the average time spent per group of patrons at a table across all three restaurants when there was an ambient scent. A future study could set forth the question: Does a particular scent – lavender or citrus– bring about a similar average time spent by patrons in any restaurant?

**References**

Air Aroma: https://www.air-aroma.com


Mr & Mrs fragrances: https://mrandmrsfragrance.com.


Patton, M.Q. 1990. Qualitative evaluation and research methods. SAGE.


TripAdvisor: https://www.tripadvisor.com
