



Research note

The effect of visual and auditory elements on patrons' liquor-ordering behavior: An empirical study



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ABSTRACT

This study aims to empirically investigate the effect of music and visual congruency with a type of liquor in a bar. Specifically, it examines the effect of atmospheric elements' congruency with wine on patrons' liquor-ordering behavior and their expenditures. As most Koreans associate wine with French culture, French auditory and visual cues were used to investigate the effect of congruency. A total of 650 receipts from two different branches of a bar were collected for four weeks. The study found that in the visual congruency condition, the ratio of wine expenditure to the total expenditure of a table and the ratio of liquor expenditure to the total expenditure of a table increased. When the auditory congruency condition was implemented, the probability of ordering wine increased. There was no interaction effect. Implications based on the findings are discussed in the final section of the study.

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1. Introduction

Beginning with Kotler's (1973) study, the effect of atmospheric elements has been widely addressed in academic research. Atmospheric elements such as music, lighting, color, and aroma are closely related to sensory marketing, which engages "the consumers' senses and affects their perception, judgment and behavior" (Krishna, 2011, p. 332). Many retail companies and restaurants try to utilize these factors to achieve their goals by enriching consumer experience (Bitner, 1992; Demoulin, 2011). The atmospheric factors of eating situations in particular may be defined as "interior design for food," which uses elements such as food preparation and the dynamics of the eating experience "to design the right light, temperature and colors in the eating environment" (ifooddesign, 2015).

In academia, several prior studies focus on the effect of a specific atmospheric element, mostly color (e.g., Bellizzi et al., 1983; Guéguen, 2003; Piqueras-Fiszman et al., 2013; Van Ittersum and Wansink, 2012) or music (McElrea and Standing, 1992; Milliman and Ronald (1982, 1986); North et al., 1997; Roballey,

1985). Nevertheless, examining atmospheric factors from a holistic perspective is critical, as consumers perceive service environment collectively (Bitner, 1992; Demoulin, 2011). Thus, the congruency and harmony of the atmospheric elements are important to enhancing patrons' restaurant or store experience.

However, only a few studies about the effect of congruency exist in the retail and hospitality fields (Areni and Kim, 1993; Babin et al., 2004; North et al., 1997), and most of them focus on a single atmospheric element of congruency. To increase the external validity of the experiment, two or more elements should be considered. Therefore, the current work addresses not only auditory congruency but also visual congruency with a specific product. The definition of congruency in this study is adapted and modified from Demoulin's (2011) study: the extent to which consumers' subjective perceptions of auditory and visual congruency influence their perception of a specific product.

The present study focuses on visual and auditory congruency with liquor consumption by conducting an experiment in a bar. Most prior studies related to liquor consumption were conducted in terms of healthcare and alcohol abuse (e.g., Palfai and Ostafin, 2003; Ostafin et al., 2008; Peacock and Bruno, 2013), therefore studies from the marketing perspective are needed. Moreover, a bar is known to use atmospherics intensively (Grayson and McNeill, 2009), and sensory aspects are important for wine, especially among different types of liquor; thus, designing atmospherics for wine consumption in a bar is relatively critical. To

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investigate the effect of congruent atmospherics on patrons' behavior, wine expenditure ratio and liquor choice were set as dependent variables. Data in the form of receipts were collected for four weeks from two branches of an operating bar. Logistic regression and linear regression were used to examine the effect of visual and auditory congruency.

2. Theoretical background

Many atmospherics-related studies use the stimulus–organism–response (S–O–R) model created by Mehrabian and Russell (1974) to explain how atmospherics cause consumers' evaluation and behavioral responses. In their model, atmospherics are a stimulus that causes consumers' evaluation (O) and behavioral responses (R). Kotler (1973) divides atmospheric stimulus in four senses: visual, aural, olfactory, and tactile. We chose to use visual and auditory in our study, as they may be modified easily and at a low cost.

2.1. Auditory

Background music has been recognized as a critical factor influencing the mood of a store (Baker et al., 1992; Caldwell and Hibbert, 2002; Jacob, 2006; Milliman and Ronald, 1982, 1986; Yalch and Spangenberg, 1990); it is easy to control and costs less than other marketing tools designed to create mood. Numerous previous studies on background music have focused on consumers' behavior by controlling the tempo and dynamics of the background music. Smith and Curnow (1966) found that consumers spend less time shopping when listening to fast background music than when the music is slow. Moreover, some studies found that the tempo of background music affects the speed of consumers' movements (Milliman and Ronald, 1982) as well as the amount of time consumers spend in a restaurant (Milliman and Ronald, 1986), the amount of time they spend eating (Roballey, 1985), and the amount of time they spend drinking (McElrea and Standing, 1992). In addition, the interaction between the tempo and volume of the background music affects consumers' perceptions of service quality and satisfaction with their experiences (Sweeney and Wyber, 2002).

Some prior studies examined the effect of auditory congruency in various situations. Jacob et al. (2009) carried out an experiment in a florist's shop to determine the increase in consumers' expenditure amount with romantic music compared to pop music and no music. Some studies investigated congruency between type of music and wine. North et al. (1997) examined the nationality congruency effect between background music and selection of wine origin. French wine selection increased with French background music, while the rate of German wine selection increased with German background music. Areni and Kim (1993) also found an increase in consumers' expenditure amount when classical music was played in a wine retail shop. To broaden the prior discussion, the current study examines the congruency between background music and type of liquor in a hospitality situation. In the current study, we expect that there will be an increase in expenditure and selection congruent with the type of liquor: wine.

H1a. When music that is congruent with wine is played, the ratio of wine expenditure to the total expenditure of the table will increase.

H1b. When music that is congruent with the wine is played, the selection of wine as opposed to other types of liquor will increase.

2.2. Visual

Visual cues, such as the colors and theme of the environment, have been addressed in previous studies. According to

Stroebele and De Castro's (2004) review paper, colors are one of the most powerful marketing tools available, as they create emotional responses and direct attention to specific items or areas. The color of both the food and the environment in which it is served, including the color of the furniture (e.g., Grunert, 1993; Birren, 1988; Bellizzi et al., 1983), tableware, and dishware (e.g., Piqueras-Fiszman et al., 2013), are known to elicit certain sensations.

Moreover, choosing an interior theme based on a specific culture influences consumers' food selection behavior (Bell et al., 1994). Bell et al. (1994) decorated a restaurant with Italian visual cues (e.g., flags, tablecloths, menus, symbols), and consumers selected more Italian dishes (pasta and dessert) than English dishes (fish). In the current study, the matched culture with type of liquor was explored first; then, the effect of visual congruence with type of liquor selection was addressed.

H2a. When a visual that is congruent with wine is displayed, the ratio of wine expenditure to the total expenditure of the table will increase.

H2b. When a visual that is congruent with wine is displayed, the selection of wine as opposed to other types of liquor will increase.

3. Materials and methods

A field experiment was conducted at two different branches of a bar franchise for a total of four weeks. This method was used to increase the external validity, which is known to be useful in fine-tuning managerial strategies and decisions (Zikmund et al., 2012). Two branches, which have similar locational conditions, were selected to control the branch effect: thus, one branch is an experimental branch, and the other one is a control branch. At this bar, liquor products (wine, beer, whiskey), some snacks, and meals are sold, but wines are their main product. All the receipt data were collected from customers who visited the bars from Monday through Thursday while the bars were open (4pm–2am). As the number of patrons increases on Fridays and weekends, each branch adds more space outside of the store where background music cannot be controlled; thus, we excluded the data from Fridays and weekends. All of the mood factors except for background music and paper placemats remained unchanged.

3.1. Stimulus development

The pre-test was conducted to investigate Korean consumers' awareness of wine-related countries ($n=61$, 41.0% male, 59.0% female, average age=29.1). We limited the age of respondents to those in their twenties and thirties. About 79% of respondents stated that France was the country they most associated with wine and related products. Chile, Italy, Spain, the US, Australia, and the Republic of South Africa followed France. Therefore, French-related auditory and visual cues were selected as the congruent cues to go with the wine product.

For the congruent auditory cues, 88 French songs that are generally recognizable as typical French music in Korea and 94 Korean pop songs were selected for the congruent and incongruent conditions, respectively (Table 1). To control the effect of tempo, a beats per minute (BPM) analysis program was used to check the BPM for each song. We excluded some songs that were far from the desired range and adjusted the French and Korean pop songs according to the following equation: [(BPM × play time of each song)/total play time]. Regarding the congruent visual cues, pictures of the Eiffel Tower, the French flag, and cheese were used, as these images were the most frequent results when "France" was searched using a Korean search engine. Paper placemats printed with these French images (Image 1) were used in the congruent

Table 1
Playlists of French chanson and Korean pop music.

French Chanson in the Congruent Condition			Korean Pop Music in the Incongruent Condition		
No.	Title	Artist	No.	Title	Artist
1	Un Jour Tu Verras	M. Mouloudji	1	Mi-in	Lee, Ki-Chan
2	Sous Le Ciel De Paris	J. Greco	2	Chueokeun Sarangeul Dalma	Park, Hyo-shin
...
88	Padam... Padam	E. Piaf	94	Bureunda	Seo, In-guk

Table 2
Experimental procedures.

Week	Experimental branch (<i>Hongdae</i>)		Control branch (<i>Daehakro</i>)	
	Auditory cue	Visual cue	Auditory cue	Visual cue
1st week	Congruent (chansons)	No image	Korean pop songs	No image
2nd week	Incongruent (Korean pop songs)	French-related images	(incongruent)	(incongruent)
3rd week	Chansons	French-related images		
4th week	Korean pop songs	No image		



Image 1. Paper placemats in the congruent condition.

condition, and placemats with no image (Image 2) were used in the incongruent condition.

Table 2

3.2. Procedure

In the experimental branch, only auditory congruency was implemented during the first week, and only visual congruency was implemented during the second week. During the third week, both auditory and visual congruency were implemented. Lastly, only incongruent cues were implemented during the fourth week. In the control branch, only incongruent cues were used throughout the experimental period to control the branch effect.



Image 2. Paper placemats in the incongruent condition.

4. Results

For sampling, 650 receipts were collected, 384 from the experimental branch and 266 from the control branch. We found that 606 tables (93.2%) ordered at least one bottle of wine, while 635 tables (97.7%) ordered other liquor in addition to wine. To analyze the effect of the auditory and visual congruency on the wine expenditure ratio and wine choice, a regression analysis was used (Eq. (1)):

$$Y = b1 \cdot X_{\text{auditory}} + b2 \cdot X_{\text{visual}} + b3 \cdot X_{\text{branch}} + e \tag{1}$$

The branch variable was used to control the effect of the cues. The interaction variable –the auditory and visual cues – was left out because it had no significant effect ($p > .10$). To examine the effect of seasonality, an ANOVA and chi-square analysis were performed on the dependent variables (i.e., wine expenditure ratio, wine choice) among weeks (1st, 2nd, 3rd, 4th) or days of the week (Monday, Tuesday, Wednesday, Thursday). As there were no significant differences, no effect of seasonality was posited.

When the French visual cue was presented, the ratio of wine expenditure to the total expenditure of a table increased by 6.2% (H2a, one-tailed test, $p < .10$) (Table 3). The results of the *t*-test examining the price per bottle of wine (Table 4) showed that this phenomenon was due to consumers' tendency to purchase higher-priced wine when a visual cue was present (one-tailed test, $p < .10$). On the other hand, there was no significant difference in the price per bottle of other types of liquor.

Auditory congruency had a significant effect on the selection of liquor type (Table 5). When music that was congruent with the wine was offered, the probability of a consumer ordering a bottle of wine was 1.86 times higher than the probability that a consumer would order a different type of liquor (H1b, one-tailed test, $p < .10$).

5. Discussion and implications

Several results can be inferred from the findings. First, when presented with a congruent visual cue, patrons' wine expenditure ratio increased (Table 3). We found that this result was due to patrons'

Table 3
Results of linear regression (y = ratio of wine expenditure to total expenditure of a table).

Variables	B	S.E.	Stand.B.	t	p
Auditory cue	-.027	.025	-.049	-1.051	.147
Visual cue	.033	.025	.062	1.313	.095
Branch	.010	.026	.020	-.386	.350

Table 4
Result of the *t*-test regarding the different effects of visual cues.

		<i>n</i>	Average	S.D.	<i>p</i>
Price per bottle of wine (KRW)	Visual congruency	197	34,376	21,576	.074
	No visual cue	453	31,978	18,346	
Total number of bottles of wine per table	French visual cue	197	1.79	1.37	.277
	No visual cue	453	1.72	1.44	
Price per bottle of other types of liquor (KRW)	French visual cue	25	13,329	45,187	.251
	No visual cue	58	8415	20,205	

Table 5
Results of binary logistic regression (*y* = selection of wine or other type of liquor).

Variables	<i>B</i>	S.E.	Wals	df	<i>p</i>	Exp(<i>B</i>)
Auditory cue	.618	.436	2.009	1	.078	1.855
Visual cue	-.274	.425	.414	1	.260	.761
Branch	-.406	.450	.814	1	.183	.666

tendency to purchase higher-priced wine rather than consuming more bottles of wine (Table 4). Second, when presented with a congruent auditory cue, the probability to order wine increased (Table 5). Therefore, patrons' choice to purchase wine products from liquor lists is affected by congruent auditory cues, while the overall expenditure on the wine – particularly the price per bottle – increases when appropriate visual cues with wine are presented. This result supports prior scientific research on visual and auditory sensitivity. After Ng and Chan's (2012) study, the response time of auditory stimuli is shorter than that of visual stimuli; thus, patrons have a tendency to respond to congruent auditory cues first, choosing which liquor to consume. After the auditory stimuli, congruent visual cues may affect patrons' decision about the expenditure size of their wine consumption.

The results of this study have the potential to contribute to both academic research and the practical field. First, this study investigated the effect of circumstantial cues on purchasing decisions on a group level rather than an individual level by collecting the receipt data of each table. To study the patrons' behavior in a bar, group-level decisions should be considered, as one of the reasons to visit bars is to engage in social interaction with other patrons (Grayson and McNeill, 2009). Moreover, group decisions are critical in investigating wine consumption, as bottles of wine are usually shared by the whole table. Wine is often sold by the bottle, rarely by the glass, in Korea. Second, this study aimed to increase the external validity by using a field experiment method and collecting receipt data. Previously, eating behaviors were mostly studied in controlled laboratory settings or in a natural environment with self-report surveys (Stroebele and De Castro, 2004). The current study was conducted in a natural environment with observed data, receipts, which may increase the external validity of the experiment.

For bar and restaurant managers, appropriately designing atmospherics is important for their sales. Many restaurants tend to prefer to sell specific products due to achieve "economy of scale." The bar where we conducted the experiment focuses on selling wines, which means they prefer to sell wines to increase their profit margins. Utilizing background music and visual aids that are appropriate for the main product of the restaurant may help to increase consumers' expenditure and to influence patrons' choice.

Several limitations of this study that may impede its generalizability are as follows. There are several unobserved demographic variables—the receipt data did not include patrons' demographics or the number of patrons at each table. Although we used the ratio of expenditure on wine as a dependent variable, future studies may include individual- or group-level variables. Observation methods may be useful in collecting these data. Other than the unobserved variables, uncontrolled mood elements may be another limitation. We only investigated two out of the four atmospheric stimuli. This

study can serve as a starting point for research regarding the interaction of other atmospheric elements. Future liquor-related studies should explore the effect of the olfactory and tactile dimensions, as eating and drinking behavior are closely related to the five senses of human beings.

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