

# SOUND SYSTEM AND NOISE AS ESSENTIAL ELEMENTS OF VISUAL MERCHANDISING IN SELECTED RETAIL CHAINS IN THE SLOVAK REPUBLIC

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## ABSTRACT

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Music is an inherent element of visual merchandising tools. It can affect not only the amount of time spent on shopping, but also the overall satisfaction of customers at the point of sale. Nevertheless, it is essential to find the right compromise between the combination of music genres and basic factors of store sound systems, because everyone perceives music and sound with varying sensitivity. Properly chosen music and sound system factors provide numerous advantages to retail stores, including the more relaxed and friendly-behaving staff as well as the encouraged customers spending more time inside the store. From the customer perspective, the music influences him when determining which store to choose. Last but not least, music can help the customer to overcome stressful situations such as waiting at the cash registers. We assessed the sound system and noise levels in retail stores operating in the Slovak food market through a questionnaire survey with the managers of these stores as well as by measuring the noise intensity in the particular sales departments. The survey sample included 182 store managers. The research was carried out in stores located mainly in western Slovakia and included Slovak retail chains but also companies with transnational capital ties. The questionnaire survey results showed that the store sound distribution depends on the size of the sales format and not on the ownership of particular retail chains operating in the Slovak Republic. Through measuring the level of noise a different approach of these companies can be assumed when creating cultural and pleasant shopping environment.

## KEY WORDS

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visual merchandising, music, food retail chains, shopping behavior

## JEL CODES

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M31, L81

## 1 INTRODUCTION

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The consumer perceives the store environment by all five sensory organs. Solomon, Marshall and Stuart (2006) describe this perception as the process in which people collect, organize and interpret information from the outside world. It follows that in store shopping behavior is influenced by a variety of factors such as lighting, sound/noise, smell, air quality and merchandising). The resulting effect of this impact should be the customers feeling comfortable in the store. Otherwise, it is possible that the customer would be discouraged from buying goods that he would be interested in in a different situation.

Pradhan (2010) defines merchandising as the process of planning, development and presentation of product lines for identified target markets in terms of price, style, selection and timing. It can also be defined as a set of activities carried out in stores in order to improve the general visibility of products on the shelves and secondary exposures and thereby influence the final decisions of consumers to purchase and thus increase sales of the products, state Horská, Nagyová, Rovný et al. (2010). The task of visual merchandising is to create an environment and atmosphere in the store that will allow the identification of the customer with the business image of the company, notes Morgan (2011). Bell and Ternus (2006) say that a visual merchandiser should think based

on the SCAMPER model, which is an aid for conceiving unusual solutions and is an acronym for Substitute + Combine + Adapt + Modify (minify, magnify) + Purpose or put to other use + Eliminate + Reverse or rearrange. It is mainly a tool for achieving target sales in the sales area and a mechanism to communicate with customers and influence their buying decision, note Bhalla and Anuraag (2010). Visual merchandising is an independent component of communication that informs customers about what the store can offer.

Music is an inherent element of visual merchandising tools. According to Franěk (2007), unsuitably chosen background music might send a signal to the customer that he found himself in a place where he does not belong. Music can affect not only the amount of time spent on shopping but also customer satisfaction. If the store has a properly chosen store sound system (intensity, frequency, music genre, tempo and quality) the customer perceives less stress in different stress situations related to shopping, such as when waiting in queues at the cash registers or finding specific goods items. In this context, Boček, Jesenský and Krofiánová (2009) highlight that the faster the music, the faster the customers move through the store, while also the type (genre, origin) of music can greatly influence the product selection.

## 2 METHODOLOGY AND DATA

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In order to obtain information about the state of the sound system and the level of noise in the retail chains operating in Slovakia, we conducted a questionnaire survey with the managers of particular stores. The original sample consisted of 188 store managers, while six questionnaires had to be excluded due to incorrect entries, which means that the survey sample was reduced to 182 respondents. The research was conducted in stores located mainly in western Slovakia and included Slovak chains

(COOP Jednota, CBA, Nitrazdroj and other retailers) but also companies with transnational capital ties (Tesco, Kaufland, Lidl, Billa, Hypernova). In terms of the size of the sales format, the survey was carried out mainly in grocery stores (almost 50% of the sample), supermarkets (nearly 33%) and hypermarkets (nearly 12%), but also discount stores (about 4%) and wholesale outlets (less than 1%) were represented.

Subsequently, the level of noise was measured in the particular stores by a certified digital Sound Meter Velleman DMV 1326.

Primary data processing was carried out using descriptive statistics (frequency, quantiles, averages and standard deviations) as well as inductive statistics (chi-squared test). This test is used to determine whether the difference between the observed and expected frequencies is only random (independent variables, due to sampling variation) or is too significant to be merely incidental (there is a relationship between variables), see Rimarčík (2015).

The assumptions in this test were defined as follows:

- $H_0$ : Variables are independent.
- $H_1$ : Variables are dependent.

Computing the test statistic was based on a contingency table (Tab. 1), where

$$n_{i.} = \sum_{j=1}^s n_{ij}, \quad n_{.j} = \sum_{i=1}^r n_{ij}.$$

### 3 RESULTS

Regarding the most relevant finding, the aim was to determine whether store managers consider music and the store sound system an important marketing tool. 74% of respondents answered yes to this question, which tells us that the music and sound are essential parts of the factors in the shopping environment. Only less than 26% of managers do not consider these elements as tools which have the potential to influence customers, which might be a result of the unwillingness of store managers to participate in the questionnaire survey, lack of information and ultimately an aversion to any kind of music.

Store managers who expressed the opinion that music and sound in the store are essential for success were asked for which types of goods or parts of the store is music of utmost importance, according to them. The results are shown in Fig. 1, where it can be seen that nearly 117 store managers considered music to be important for the entire sales area. The importance of music and sound in the particular

The value of the test statistic was computed using the equation (1):

$$G = \sum_{i=1}^r \sum_{j=1}^s \frac{(n_{ij} - n'_{ij})^2}{n'_{ij}} \quad (1)$$

The rejection of the null hypothesis was based on the chi-squared distribution. The null hypothesis is rejected if

$$G > \chi_{1-\alpha}^2 [(k-1)(m-1)]. \quad (2)$$

The chi-squared test for independence was computed using the RapidMiner software and MS Excel. The degree of association was assessed by Cramer's  $V$  correlation coefficient and measure of association, giving a value between 0 and +1 (inclusive).

The measured values of noise levels have been grouped into clearly arranged tables and graphs that allowed us to compare the different environments in grocery stores.

departments separately was not considered that significant.

One of the objectives of primary research was also to find out what equipment is available in the particular stores in terms of the sound system and whether it is within the responsibility of store managers to affect the various attributes of music at the point of sale. 38% of stores are not provided with any sound system, but in this case it might be assumed that these answers were recorded mostly in smaller sales formats located in rural areas. On the contrary, 30% of larger sales formats use integrated audio system. Many shops operating in the Slovak food market are equipped only with an ordinary radio, which was also confirmed by 28% of store managers asked in the survey.

In the case when the store was equipped with just an ordinary radio, we asked what radio station most often is tuned in in the particular stores. Tab. 4 shows that Radio Expres was the most listened to in Slovak retails, followed by Európa 2 and Funradio.

Tab. 1: Contingency table

	Variable 1 (1 <sup>st</sup> category)	Variable 1 (2 <sup>nd</sup> category)	...	Total
Variable 2 (1 <sup>st</sup> category)	observed frequencies	observed frequencies	...	$n_{1.}$
Variable 2 (2 <sup>nd</sup> category)	observed frequencies	observed frequencies	...	$n_{2.}$
Variable 2 (3 <sup>rd</sup> category)	observed frequencies	observed frequencies	...	$n_{3.}$
⋮	⋮	⋮	⋮	$n_{j.}$
<b>Total</b>	$n_{.1}$	$n_{.2}$	$n_{.j}$	$n$

Source: Paralič (2003)

Tab. 2: Answers to the question whether store managers consider store sound system together with music as an important marketing tool

Answer	Absolute frequency	Relative frequency
Yes	135	74.18%
No	47	25.82%
<b>Total</b>	<b>182</b>	<b>100.00%</b>

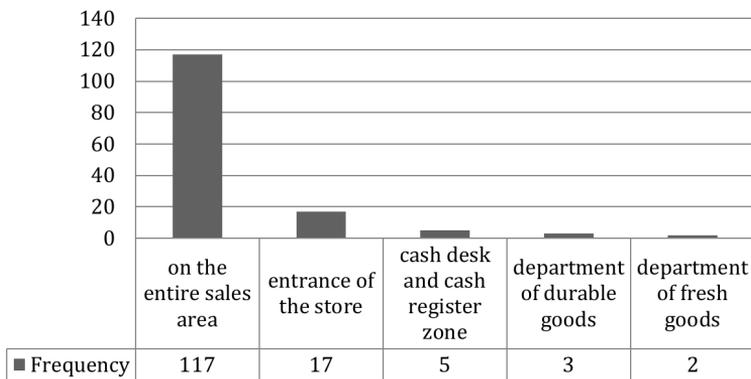


Fig. 1: The importance of music and sound system in particular store departments based on the evaluation of store managers

Tab. 3: Audiotechnical equipment of grocery stores

Equipment	Absolute frequency	Relative frequency
Without audio or music	70	38.46%
Only an ordinary radio	50	27.47%
Integrated audio system	55	30.22%
Other	7	3.85%
<b>Total</b>	<b>182</b>	<b>100.00%</b>

Tab. 4: Radio stations tuned in grocery stores

<b>Radio</b>	<b>Absolute frequency</b>
Anténa Rock	1
Beta rádio	2
Európa 2	7
Funrádio	5
Jemné melódie	2
Rádio Expres	19
Rádio Lumen	2
Rádio FM	2
Rádio WOW	2
Rádio Yes	1
RTVS	1
Viva	1

Tab. 5: The possibility to influence the intensity of the sound system at the point of sale

<b>Answer</b>	<b>Absolute frequency</b>	<b>Relative frequency</b>
Yes	100	54.95%
No	82	45.05%
<b>Total</b>	<b>182</b>	<b>100.00%</b>

Tab. 6: Perception of the sound system of the store by managers of particular stores

<b>Perception</b>	<b>Absolute frequency</b>	<b>Relative frequency</b>
Very positive (1)	29	15.93%
Positive (2)	100	54.95%
Rather negative (3)	29	15.93%
Negative (4)	24	13.19%
<b>Total</b>	<b>182</b>	<b>100.00%</b>

Tab. 7: The distribution of music factors according to importance by store managers

<b>Distribution</b>	<b>Sound frequency</b>	<b>Intensity of the sound system</b>	<b>Music genre</b>	<b>Quality</b>
25% quantile	3	2	1	2
Median	3	2	2	2
75% quantile	4	3	3	3
<b>Order of the factors</b>	<b>4</b>	<b>2-3</b>	<b>1</b>	<b>2-3</b>

Another important aspect was the possibility to influence the various attributes of the store sound system. In more than half of the stores (almost 55%) that participated in the questionnaire survey, store managers have the opportunity to set the intensity (volume) of music in sales areas and departments.

The store managers also had the opportunity to comment on whether they perceive the sound system of a particular store positively or negatively (on a scale from 1 to 4). From the values observed, we calculated the mean value with standard deviation ( $2.26 \pm 0.88$ ) and median (2). Based on these figures, we can state that the managers perceive the sound of their stores positively with fluctuations towards more negative feelings.

In order to verify knowledge regarding music and the store sound system as an important factor of visual merchandising in the sale of food, store managers were asked to arrange particular factors of the sound system according to their importance on a scale from 1 to 4 (1 as the most important factor and 4 as the least important one). The results of arranging the factors based on their importance are shown in Tab. 7.

According to managers, the most important factor was the music genre, while as the least important factor the frequency (height) of the sound was listed. This fact, however, is controversial because this is the factor that contributes significantly to the overall perception of music (low versus high tones), notes Žiaran (2013). Incorrectly chosen music genre, intensity and frequency of sound can have fatal consequences and ultimately discourage customers from purchasing, says Franěk (2007).

In addition to the assessment of the state, we also focused on hypotheses testing and analysis.

In the first hypothesis we assumed that there is a correlation between the size of the chain (large international versus small domestic) and the perception of music and sound as an important marketing tool. The summary of the respondents' answers regarding the importance of these elements in international and domestic chains is shown graphically in Fig. 2.

This dependence was verified using the chi-squared test of independence at a significance level of 0.05, while the hypothesis about the dependence of the mentioned attributes was not supported.

We also wanted to verify if the size of the sales format is related to the perception of music and sound system in the store. In this case, the hypothesis tested using the chi-squared test of independence was supported. The value of Cramer's correlation coefficient (0.24) indicates relatively weak dependence, which means that larger sales formats consider music and properly chosen sound as an important marketing tool. An exception in this case is the wholesale, which might be associated with an unwillingness to participate in the questionnaire survey (response "no" even if the store has sound system in the sales area).

Given that consumers do not perceive only sounds which are pleasant (harmonious) but also other sounds, which are often distractive (non-harmonic), it is necessary to point at the influence of the ambient noise at the point of sale, as the human brain perceives it during the purchase, although the consumers are not always fully aware of it. The fact is that higher exceeding of noise limits affects the physical condition of humans, while smaller exceeding influences more the psychological state, on which the overall emotional state of humans depends. About 10 to 20% of the population might be identified as highly sensitive, while this part of the population reacts sensitively even to a noise of mild intensity. About the same number, from 10 to 20% is a tolerant population that does not mind even loud noise. For the remaining 60 to 80% of the population the reaction approximately equals to the quality of the incentive. For this reason we have focused on measuring noise intensity in the particular chains in selected departments of the sale of food. We measured the intensity of noise, average noise value and noise ceiling.

Fig. 4 presents the comparison of all the departments of various surveyed stores, where the highest values were measured in COOP Jednota. Significant differences in noise levels between departments were monitored only in

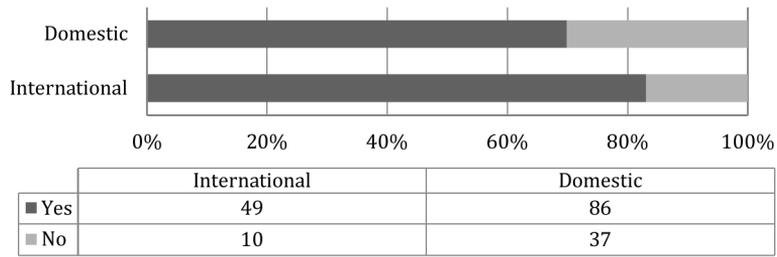


Fig. 2: Perception of music and sound system in the store according to the ownership of the chain

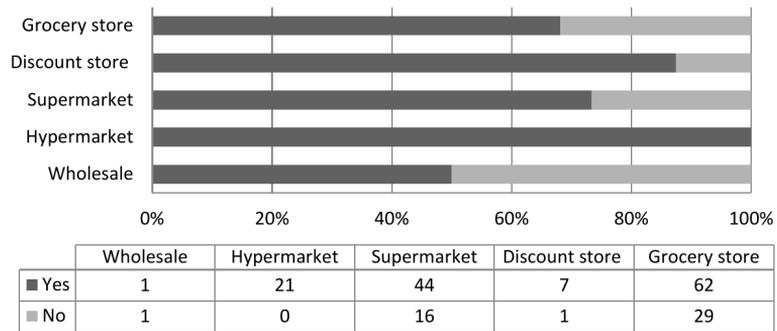


Fig. 3: Perception of music and sound system in the store according to the sales format

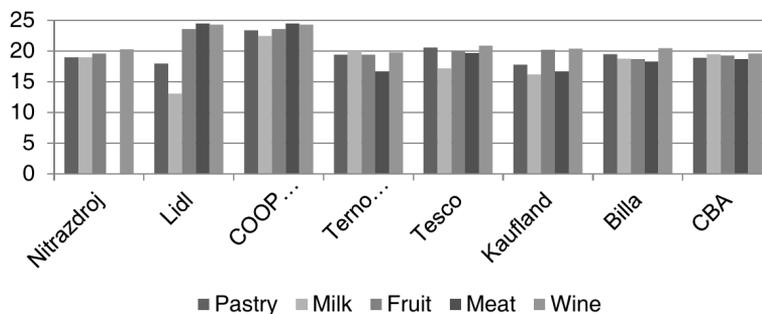


Fig. 4: Comparison of the intensity of noise in selected sales departments of particular stores

the case of Tesco, Kaufland, Lidl and Terno Slovakia. The assumption of higher noise levels in the fresh food departments compared to the ones offering durable goods has been demonstrated only in the case of Terno Slovakia and CBA. In the majority of cases in these departments of grocery stores a normal natural environment for people was present, with noise

levels up to 30 dB. Natural noise (above 30 dB) might cause negative psychological aspects (loss of concentration, irritability, stress) in some individuals, depending on their sensitivity, while also in the longer term the noise level should not exceed 40 dB, as it might have an adverse effect on the overall human health, note Kuzmová et al. (2013).

## 4 DISCUSSION AND CONCLUSIONS

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The measured values of noise and sound system intensity differ in both domestic and international stores, which reflects different approaches and strategies of these companies used when creating a pleasant and cultural shopping environment. Technical equipment and personnel maturity of particular stores depends on the sales format and area, but not on the ownership of these chains. These differences create a platform for a competitive struggle when not only the optimal price-quality ratio is important for the customer, but the shopping environment and experience

with the visual appearance of the shop is also crucial. Creating a pleasant atmosphere within the store requires to determine the optimal accompanying musical elements (genre, tempo and reproduction), which are consistent with the nature of the goods sold and the sales strategy of the company. For the stores, which lack basic sound system we recommend an investment that will bring to the company not only satisfied customers, but also revenues from commercial playback of advertising messages within the sales area.

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