

Auditory Environments in Fashion Retail: Music's Impact on Consumer

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Abstract: Music is a key atmospheric element that significantly shapes the retail experience by enhancing emotional engagement, increasing dwell time, and improving overall customer satisfaction. In fashion retail, where sensory cues are central to brand identity, well-selected background music—considering genre, tempo, and familiarity—can influence consumer attitudes and behavior. This study explores the impact of auditory environments in fashion stores, focusing on how music affects consumer experience and emotional responses at the point of sale. The research was conducted across 90 fashion retail stores using mystery shopping, with data collected by an external agency. Observations were structured into three main components: evaluation of customer impressions, store managers' assessments, and in-store audio recordings from three spatial zones—entrance, main shopping area, and checkout zone. Findings reveal that background music has a measurable impact on consumer cognition, affect, and behavior—including time spent in-store, willingness to spend, and the overall perception of the store environment. A relationship between musical preferences and fashion sensibilities was observed, with specific genres evoking distinct emotional and behavioral responses. Fashion settings appear to reflect and amplify emotional atmospheres generated by music. Although the study relies on self-reported data, its results underscore the strategic value of music in retail marketing. Future research should explore these dynamics in controlled environments, using both explicit and implicit tools to assess emotional impact more precisely. These insights offer practical implications for fashion retailers, suggesting that tailored music strategies can enhance customer engagement, shape brand perception, and contribute to a more immersive shopping experience.

Keywords: Consumer behavior, Fashion stores, Managers, Music, Mystery shopping,

JEL Classification: M30, M31, M37

1 Introduction

The influence of background music on consumer behavior has been widely studied, yet findings remain fragmented—especially concerning how musical features such as tempo, intensity, and gender associations affect emotional and behavioral responses. Research suggests interactive and fast-paced music enhances engagement and purchase intention compared to silence (Hwang & Oh, 2020; Pantoja & Borges, 2021) emphasizing the need to investigate music placement in new retail formats like live-streaming commerce.

Based on Miller (2011) highlights the cultural and linguistic links between fashion and music, suggesting fashion can express music's symbolic qualities (Na & Agnhage, 2013). Previous studies have explored musical attributes such as tempo, familiarity, and congruence, and their effects on consumer outcomes (Hee, Kwan & Ok, 2014; Mas, Mas et al. 2020). Authors Pantoja & Borges (2021) examined how tempo influences affective, cognitive, and physiological responses. Based on Garlin & Owen (2006) meta-analysis categorized music's effects into affective, financial, attitudinal, temporal, and behavioral domains, finding music significantly shapes emotional states, stay duration, and perceived value. Oakes & North (2008) emphasized that musical congruity—alignment between music and brand or context—can enhance consumer responses. Manipulating genre, tempo, and volume allows marketers to influence mood, pace, waiting time, and spending. Similarly presented also Areni (2003), and states that ambient music can attract or repel customers, influence time perception, and shape social behavior.

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The COVID-19 pandemic highlighted music's psychological functions, showing that it reduces stress, increases life satisfaction, and supports emotional regulation (Hansen et al. 2021). However, deep engagement may also cause distress and rumination (Saarikallio, Gold & McFerran, 2015). Music affects both cognitive and emotional processing (Bennet & Bennet (2008), and its alignment with shopper profiles can evoke targeted psychological states. It also plays a vital role in retail identity (Beverland et al. 2006), and consumer perception adds Alpert, M., Alpert J., & Maltz, (2005). While studies have assessed music familiarity and coherence (Hee, Kwan & Ok, 2014), as well as interactivity (Hwang & Oh, 2020), few address spatial or temporal placement (Scott, Sheinin & Labrecque, 2022). This study addresses that gap in the context of fashion retail and live-streaming commerce. Unlike most prior research, we examine how music placement—at entrances, inside stores, and near checkouts—affects emotions, pace, and store experience.

Impact of music on consumers

Audio marketing, a form of sensory marketing, uses sound—particularly music—to influence consumer emotions and behaviors (Ksiazek, 2014). Music can shape purchasing decisions by creating emotional associations; however, music with negative or violent themes may lead to adverse effects (Olsen et al. 2020; Ter Bogt et al. 2019). In live-streaming commerce, optimizing background music is essential for capturing attention, enhancing enthusiasm, and increasing purchase rates (Loureiro et al. 2021). Effective audio marketing involves curating uplifting music combined with relevant commercial content, including product information and promotions (Deluga, 2018).

While music can promote calmness and well-being (Joy et al. 2023) and support rational, sustainable decisions, it can also drive impulsive and hedonistic behaviors. In online settings, music may intensify fast consumption, leading to irrational spending and environmentally unsound choices. Thus, although music enhances engagement, its emotional and cognitive effects must be managed to align with responsible marketing and consumption goals (Nguyen & Huynh, 2023).

Music tempo, genre and intensity

Tempo, defined by beats per minute (BPM), is a core element of music alongside rhythm, mode, melody, harmony, duration, and loudness. Tempo significantly influences affective states, often enhancing positive emotional responses (Barnes, 2023). Its impact is observable in physiological measures such as breathing patterns (Mikutta et al. 2013), and skin conductivity (Dillman & Potter, 2007). Tempo, along with pitch and timbre, shapes the emotional meaning of music, with tempo considered the most expressive component (Juslin & Lindström 2010). Typically, 70–110 BPM is preferred, with 40–76 BPM categorized as slow, 77–107 BPM as moderate, and 108–208 BPM as fast.

Faster music increases behavioral tempo—listeners tend to eat, move, drive, and read more quickly (Su, He & Li (2023). Music also affects consumers' willingness to pay. Oxenham (2018) states that tone and contour are vital aspects of musical perception, with Western music favoring regular tonality (Huron, 2001). Based on Muchitsch & Werner, (2024) Genre influences both identity and consumption, even in algorithm-driven streaming, and can affect food choices—for example, classical or jazz promotes healthier selections (Motoki et al. 2022).

Emotions and music

The desire for rawness in music consumption is linked to authenticity, meaning-making, and emotional well-being, contributing to hope, self-esteem, and positive affect (Neff & Harter, 2002). Neuroimaging studies reveal how music evokes emotions, showing that pleasurable music activates brain regions tied to reward, including the ventral striatum, orbitofrontal cortex, anterior insula, and somatosensory areas (Koelsch, 2015). Zentner, Grandjean & Scherer, (2008) found that in contrast, sad music stimulates the hippocampus, amygdala, and medial temporal regions associated with anxiety and negative emotions.

Musical emotions range from joy and sadness to more music-specific states like wonder, nostalgia, and transcendence. Enjoyment—an aesthetic emotion—arises from assessing a piece's acoustic and structural features and is shaped by personal factors like mood, taste, and familiarity (Brattico & Pearce, 2013). Research on basic emotional responses to music includes self-reports, patient studies (Kiseol, HaeJung & Zimmerman (2020), and physiological measurements (Mitterschiffthaler et al. 2007). Music-induced emotions are central to rituals (Lonsdale & North, 2011), and therapy (MacDonald, Kreutz & Mitchell, 2012), yet the mechanisms remain only partially understood, with no consensus on which emotions are most relevant to musical experience.

2 Methods

Dual approach has been applied. A consumer survey measuring emotional and cognitive impressions and employee assessments of the same environment. Observations were conducted via mystery shopping in 90 fashion stores located in Shopping Malls and downtown at different times of day. Mystery shopping visits were arranged by a slovak research agency

using their internal database of mystery shoppers. These shoppers were of various ages and had to meet the requirement of shopping in fashion stores at least once a month. The criterion for store selection was determined by a single factor, i.e. the main subject of activity must be the sale of fashion products. No other factors influencing the selection were applied. In each store, we recorded auditory conditions at three locations. Most stores played pleasant pop or dance music (rated 3–5 on a 5-point scale). We explore how contextual factors influence the music–behavior relationship, how music shapes emotional responses, and how employees perceive its effects.

In the survey, it was explained the evaluation of impression from sale fashion environment and a perception of music impact by mystery shoppers and managers.. The research was divided into three parts:

- 1) A survey of shoppers' evaluation of their impressions of the sales environment.
- 2) Survey of managers' evaluation of their impressions of the sales environment.
- 3) In-shop audio recording.

90 fashion stores were visited. While visiting the fashion stores, we evaluated the musical background through a questionnaire consisting of 7 questions. We then interviewed the managers of the outlets, who answered 11 questions. The survey was conducted exclusively with store managers or their representatives who were responsible for managing the store at the time of the survey. Store managers were predominantly women of various age groups. We measured the actual noise level in each store using a free mobile app called decibel meter (sound meter) in all 90 stores. The Decibel Meter mobile app for measuring sound volume is one of several freely available tools for measuring volume. This tool is available for mobile phones in the Google Store free of charge. The app uses the device's microphone to measure the volume of sound in the environment in which it is located and displays it in real time on the phone's display. The aim of the research was to find out whether music was playing in the fashion outlets, what genre of music was playing there and what emotions the music evoked in people. We then related these objectives to the opinion of the managers, who mostly know/can influence the background music in the establishment. Measuring the noise level gave us information about the current background music settings in the venues we visited and its impact on customers.

All the shops we visited had music playing and were half empty. The music was pleasant and marked only on a scale of 3 (neutral) to 5 (very pleasant). The genre was almost identical and labelled as pop, dance on selected radio. The music evoked positive emotions in mystery shoppers and was very pleasing to them with medium to low intensity. All indicated that the music should be played throughout the space. Observed fashion stores can be characterised as fashion stores located in shopping malls (83.3%) with estimated size of the store area more than 80m² (73%) and rectangular shape of store establishment (80%). Mostly it was a rectangular store plan.

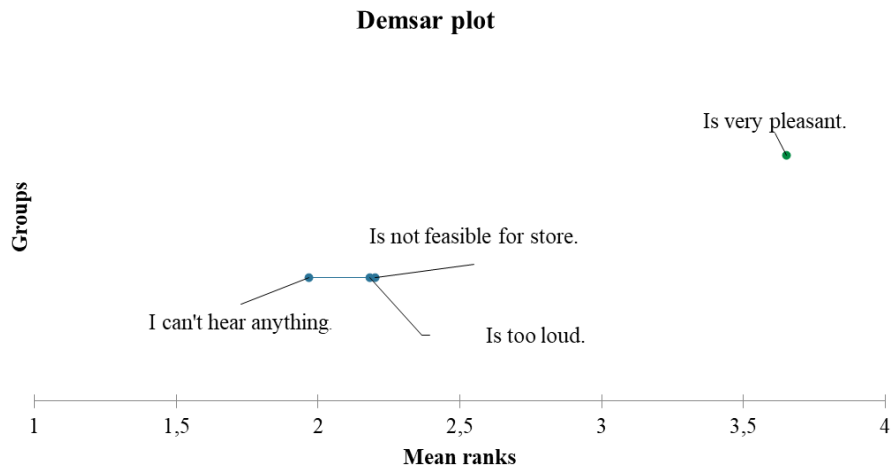
Acquired data were processed and analysed using XLstat. Descriptive statistics, inferential statistics, or multivariate analysis were applied. Non-parametric tests such as the Friedman test and Nemenyi's procedure was applied to study differences in evaluations of musical genres, store factors, level of agreement/ disagreement with statements regarding the real-time in-store music, and factors evoking positive emotion when listening to the music. Furthermore, Principal Component Analysis (PCA) was executed to reduce the number of variables and to identify patterns and relationships in data. Kaiser-Meyer-Olkin Test for Sampling Adequacy and Bartlett's Test of Sphericity were used to assess the suitability of data for PCA. Using these methods, the main goal of this research was find the answer on research question: What is the identification of music background in fashion store and its impact on customer decision, mood and buying behaviour.

3 Research results

Analysis of shoppers' survey evaluations on the sales environment.

The evaluation of in-store music from the consumer's point of view showed that most respondents perceived it as very pleasant or pleasant. Approximately 70% considered the intensity of the music in the store to be moderate. On average, respondents agreed that the real-time in-store music was very pleasant and disagreed with the following statements: "It is not feasible for the store," "It is too loud," or "I can't hear anything" see in Figure 1.

Figure 1 Level of agreement/ disagreement with statements regarding the real-time in-store music



Source: Author' s own processing

Based on respondents' perceptions of music, several genres of real-time in-store music were identified: pop, hip-hop, dance, jazz and blues, radio music (various genres), and relaxing music. Additionally, respondents were asked which music genres they would prefer to hear in retail stores. The results revealed a diversity of opinions regarding the suggested genres. A Friedman test indicated statistically significant differences (p-value = 0.001). According to Nemenyi's post-hoc procedure presented in Table 1 respondents expressed a strong preference for pop music in fashion stores, followed by dance, soul, disco, and hip-hop music. The least preferred genres were church music, folk music, and children's music.

Table 1 Pairwise comparisons of musical genres

Sample	Mean	Mean of ranks	Groups
church music	1.033	4.117	A
folk	1.267	5.067	A B
kids music	1.300	5.250	A B
heavy-metal	1.467	5.400	A B
rock-n-roll	1.967	7.367	A B C
piano	1.967	8.067	A B C D
reggae	2.100	8.067	A B C D
rock	2.267	8.283	A B C D
blues	2.467	9.150	B C D
jazz	2.667	9.683	C D
hip-hop	2.900	10.817	C D E
disco	2.933	11.000	C D E
soul	3.000	11.300	C D E
dance	3.467	12.250	D E
pop	4.667	15.050	E

Source: Author' s own processing

Items with different letters were found to differ significantly. Furthermore, the principal component analysis revealed three latent components of the suggested music genres for fashion stores. The component extraction reduced 11 items into three components, explaining a cumulative variance of 70.03 %. Table 2 provides a summary of the loadings, with loadings below 0.360 excluded from consideration. Bartlett's Test of Sphericity yielded a p-value below 0.001, and the overall Kaiser-Meyer-Olkin (KMO) Test for Sampling Adequacy produced a value of 0.701, indicating a middling degree of common variance (Blbas & Kadir, 2019).

Based on individual KMO values, five items pop music, folk music, church music, children's music, and folk were removed from further analysis. The first latent component includes music genres such as jazz, blues, and soul, all of which have roots in African-American musical traditions. The second latent component primarily comprises harder music genres, including rock, rock and roll, heavy metal, and reggae. The third component consists of dance music, hip-hop, and disco. Notably, pop music is associated with both the second and third latent components.

Table 2 Component Loadings – music genres

	Component			Uniqueness
	1	2	3	
jazz	0.933			0.113
blues	0.910			0.151
soul	0.830			0.238
rock		0.881		0.213
rock-n-roll		0.777		0.268
heavy metal		0.764		0.312
reggae		0.639		0.588
pop		0.433	0.370	0.645
dance			0.907	0.176
hip-hop			0.856	0.221
disco			0.756	0.340

Source: Author' s own processing

Moreover, respondents evaluated the importance of various factors when selecting a fashion store using a 5-point scale (1 = least important, 5 = most important). The Friedman test revealed significant differences among the factors (p-value = 0.001). According to Nemenyi's post-hoc procedure (Table 3), the most important factor is the variety of products and services offered, followed by the price of products and services, staff, interior design, location, and in-store fragrance. The least important factor is communication on social media. Interestingly, while music is not among the most important factors, it was, on average, rated as slightly important.

Table 3 Pairwise comparisons of store factors

Sample	Mean	Mean of ranks	Groups
communication on soc. media	2.633	2.533	A
music	3.167	3.950	A B
recommendation	3.333	4.167	A B C
popularity / familiarity	3.567	5.067	B C D
instore fragrance	4.033	5.933	B C D E
location	4.067	5.967	B C D E
interior	4.067	6.133	B C D E
staff	4.233	6.600	C D E
price of products / services	4.400	7.000	D E
offer of products / services	4.633	7.650	E

Source: Author' s own processing

In addition, principal component analysis was applied to extract latent factors. Items with different letters were found to differ significantly. In total, two components were identified, explaining a cumulative variance of 57%. Table 4 provides a summary of the loadings, with loadings below 0.360 excluded from consideration. Bartlett's Test of Sphericity yielded a p-value below 0.001, and the overall Kaiser-Meyer-Olkin (KMO) Test for Sampling Adequacy returned a value of 0.611, indicating a mediocre degree of common variance (Blbas & Kadir, 2019). Based on individual KMO values, two items (location and the offer of products/services) were removed from further analysis. The first latent component, titled "In-Store Customer Experience," includes factors such as in-store fragrance, interior design, staff, music, and the price of products/services. The second latent component, titled "Online Engagement and Store Popularity," involves factors such as popularity/familiarity, communication on social media, and recommendations.

Table 4 Component Loadings – store factors

	Component		
	1	2	Uniqueness
instore fragrance	0.790		0.324
interior	0.757		0.427
staff	0.628		0.567
music	0.550		0.617
price of products / services	-0.524		0.630
popularity / familiarity		0.833	0.305
recommendation		0.831	0.277
communication on social media		0.776	0.289

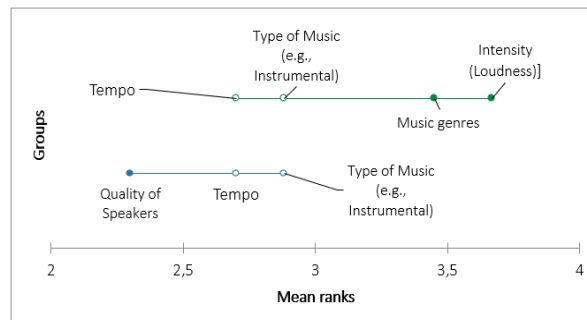
Source: Author' s own processing

Survey of managers' impression of the sales environment.

Results collected from store managers and staff indicated that 73.3% of them can influence the music intensity in their stores. Approximately 40% of stores use streaming platforms such as Spotify, Apple Music, YouTube, online radio, or central systems. In general, managers perceived in-store music as positive (33.3%), very positive (26.6%), or neutral (30%). The majority of stores use ceiling speakers distributed throughout the store, while only 23% rely on small speakers placed at specific points, such as the checkout area, entrance, and fitting rooms. Additionally, 76.6% of store managers and staff consider in-store music to be an important marketing tool for influencing customers. Music influences almost all managers, with 70% perceiving it very positively or neutrally. Ceiling speakers are typically installed in various locations throughout the store to provide consistent sound coverage.

The results also showed that respondents believe the most important factor eliciting positive emotions in consumers when listening to in-store music is the intensity (volume), followed by the music genre and type of music. The least important factor is the quality of the speakers (see Figure 2).

Figure 2 Demsar plot – Factors evoking positive emotion when listening to the music



Source: Author' s own processing

Sound recording in operation.

Using a free mobile app called Decibel Meter (Sound Meter), mystery shoppers recorded one minute of sound in each establishment. They then used the free Audioalter BPM Detector software to calculate the beats-per-minute (BPM) value of the background music. In addition, the minimum, maximum, and average noise levels were measured at the entrance, in the main area, and at the checkout counters. On average, the stores were half-empty at the time of the recordings. The data collected using the Decibel Meter app are presented in Table 5.

The results revealed that the average sound level at the entrance was 61.2 dB, with a maximum value of 75.8 dB and a minimum value of 48.6 dB. The highest sound levels were measured in the middle of the store, with an average of 76.7 dB, a maximum of 60.1 dB, and a minimum of 48.1 dB. The lowest values were recorded at the checkout area, where the sound meter showed an average of 48.8 dB, a maximum of 76.5 dB, and a minimum of 60.7 dB.

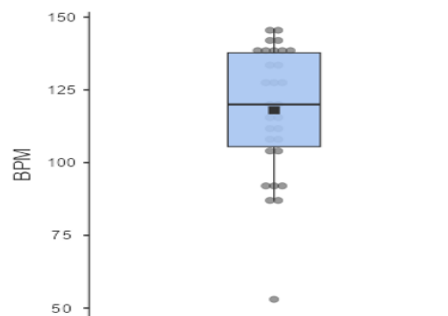
Table 5 Recording the measured sound levels in the fashion stores via mobile application - Decibel Meter (Sound Meter)

	Entrance			At store - middle			Checkout		
	MIN	MAX	AVG	MIN	MAX	AVG	MIN	MAX	AVG
Mean	48.6	75.8	61.2	48.1	60.1	76.7	60.7	76.5	48.8
Standard deviation	16.7	17.2	16.0	21.8	20.7	20.5	17.3	16.4	19.5
Minimum	20.2	38.0	32.0	15.8	30.0	37.0	30.7	47.0	16.9
Maximum	106	122	118	140	146	151	128	131	124

Source: Author' s own processing

In addition, the beats per minute (BPM) of the music were measured in each fashion store. The results showed an average of 118 BPM with a standard deviation of 22.4. The maximum recorded value was 146 BPM, while the average minimum value was 53 BPM (Figure 3).

Figure 3 Box plot – Beats per minute (BPM)



Source: Author' s own processing

Research shows that music strongly influences consumers' knowledge, emotions, and behavior, particularly their attitudes, feelings, the time and money they are willing to spend, and their overall shopping experience. These effects of music are measurable at the point of sale, time of purchase, and in relation to other environmental factors.

Preferences for music styles and fashion can interact, with the correlation varying across different music genres and being influenced by individuals' interest in music and fashion. Our study found that fashion can transfer sensitivity from music, identifying similar sensitivities between music and its influence on shoppers.

The stores observed in the study were predominantly fashion stores located in shopping malls, characterized by a store size of more than 80 m² (73%) and a rectangular layout (80%). The results suggest that a significant proportion of managers have the ability to influence the intensity of music in their stores and use various music platforms. Approximately 40% of stores use streaming services such as Spotify, Apple Music, YouTube, online radio, or centralized systems.

In general, managers perceived in-store music positively, with 33.3% rating it as positive, 26.6% as very positive, and 30% as neutral. The majority of stores utilize ceiling speakers distributed throughout the premises, while only 23% use small speakers positioned at specific points, such as the checkout, entrance, and fitting rooms. Additionally, 76.6% of store managers and staff consider in-store music to be an important marketing tool for influencing customers.

4 Conclusions

This study provides important insights into the impact of music on consumer behavior in fashion retail and highlights its significance as a marketing tool. The positive economic findings of this study suggest that managers are aware of the importance of music in retail, although they often lack detailed information about its direct effects and rely on subjective judgment when making decisions. The creation of playlists using consumer neuroscience tools could lead to future improvements, not only in the economic performance of stores but also in the overall perception of the shopping environment.

Here we summarize the implications of our research into three parts:

Research Implications: This study advances research on the impact of background music in retail environments, particularly within fashion stores. By exploring the relationship between music intensity, genre, and consumer emotions, this work contributes to understanding how these factors influence consumer behavior. Future research can expand on these findings by exploring other retail environments (e.g., grocery stores, technological shops or services) and online shopping platforms like live-streaming commerce, which has become increasingly important.

Practical Implications: For retail managers and brand marketers, the findings offer valuable insights into how to strategically use music as a tool to enhance the shopping experience. The research also shows that factors like the volume of music and its appropriateness to the store's atmosphere are essential considerations. In practice, retailers can optimize their music strategy to improve customer mood and shopping experience, potentially increasing sales.

Social Implications: This research highlights how background music in retail settings not only influences consumer behavior but also contributes to shaping the emotional atmosphere of public spaces. The study also draws attention to the varying preferences for different music genres, suggesting a need for more personalized and culturally sensitive approaches in retail settings to ensure that music is inclusive and resonates with diverse consumer groups.

Research Limitations: The study's limitations stem from its focus on the declarative component of mystery shopping and questionnaires. One of the shortcomings of this study is the inaccuracy of noise level measurements in the establishments surveyed. The decibel meter used is not certified for sound measurement and depends on the quality of the mobile phone and its microphone. Since these devices are not calibrated, the measurement results may vary significantly. These and other factors could have affected the accuracy of the measurements, which could have led to inaccurate findings and subsequent recommendations for improvement. In the future, we plan to conduct research under laboratory conditions, utilizing both explicit and implicit tools to better understand the targeted impact of audio stimulation on human emotions.

Using this research in practice:

- By adopting these practices, retailers can use the research to optimize customer engagement, enhance in-store experiences, and ultimately drive sales and brand loyalty.
- Retailers can use the insights into music genre/ intensity preferences (e.g., pop, dance, and soul music being preferred in fashion stores) to curate playlists that align with their target customers' tastes.
- The study found differences in sound levels at various areas within the store, such as the entrance, the main store area, and the checkout area. Retailers can use this information to place music strategically, such as using softer music at checkout counters to reduce stress and create a relaxed atmosphere, while more upbeat music can be played in the main shopping area to energize customers and encourage them to explore the store further.
- Store managers who recognize music as a valuable marketing tool can leverage it in promotional campaigns or sales events to trigger specific emotional responses.
- The research indicates that music influences the emotional climate not only for customers but also for employees. Managers can consider creating a more employee-friendly music environment by adjusting the intensity or type of music played to ensure it doesn't negatively affect their mood or productivity.

Acknowledgement

This research was funded by the research grant no 1. APVV-23-0244 „The Use of Consumer Neuroscience and Innovative Research Solutions in the Sensory Perception of Audio Stimuli and Its Application in Production, Commerce and Services“, no 2. VEGA 1/0624/22 „Neurogastronomy: Application of Implicit and Explicit Approaches in Modern Experience Gastronomy and their Influence on Consumer Behavior“ and no 3. The research was financially supported by the Grant Agency of Slovak University of Agriculture in Nitra, project No 09-GA-SPU-2024 and by the Slovakia's recovery and resilience plan, project No 09I03-03-V05-00018 – Early Stage Grants at SUA in Nitra.

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