

THE IMPACT OF SENSORY MARKETING ON CONSUMERS' PURCHASING BEHAVIOUR (THE CASE OF GEORGIA)

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Abstract. This paper demonstrates that intense competition is a defining feature of the modern retail sector, encouraging companies to develop innovative marketing strategies aimed at enhancing consumer engagement. In this context, sensory marketing is considered an important strategic approach as it significantly influences consumers' perceptions, preferences and purchasing decisions. Despite the abundance of existing literature on sensory marketing, the influence of sensory stimuli on consumer behaviour in emerging markets, including Georgia, remains insufficiently explored. The present study examines the impact of sensory stimuli on consumer purchasing behaviour in the retail sector, based on the S-O-R (Stimulus-Organism-Response) model. The study is based on empirical data collected from 723 respondents and analysed using Partial Least Squares Structural Equation Modelling (PLS-SEM). The findings reveal that sensory stimuli significantly enhance consumer engagement, which exerts a substantial influence on purchase intention and ultimately shapes purchasing behaviour. The results further indicate that olfactory ($\beta=0.568$) and visual ($\beta=0.554$) stimuli have the strongest effect on consumer engagement. Additionally, consumer engagement has a significant impact on purchase intention ($\beta=0.770$), which in turn exerts a strong influence on purchasing behaviour ($\beta=0.765$). This study addresses important gaps in the existing literature related to emerging markets and offers practical recommendations for effectively implementing sensory strategies in the retail sector.

Keywords: sensory stimuli, S-O-R model, consumer engagement, purchase intention, purchase behaviour, retail sector, Georgia.

JEL Classification: M30, M31

1. Introduction

The modern retail sector operates in a rapidly changing and highly competitive environment where companies are striving harder than ever to attract and retain consumers' attention. In the digital age, consumer behaviour has changed significantly, rendering traditional marketing strategies less effective at engaging customers (Guimarães & Rodrigues, 2026). This is largely because today's consumers are no longer satisfied with products that only offer functional attributes. Instead, they are increasingly seeking products that can create memorable experiences (Belwal et al., 2025). These changes compel companies to supplement traditional marketing approaches with innovative strategies that foster deeper connections with consumers (Papanagnou et al., 2022).

In this context, sensory marketing has gained particular importance. As an innovative approach, it influences consumers' perceptions, emotions and behaviours by stimulating all five senses (sight, hearing, touch, smell and taste) (Krishna, 2012). Unlike traditional stimuli, sensory cues often operate at a subconscious level, bypassing rational processing and exerting a significant influence on consumers' decision-making processes (Goel et al., 2024). Previous studies have demonstrated that sensory stimuli evoke cognitive, emotional, and behavioural responses that play a crucial role in shaping the consumer experience (Jeong et al., 2022; Florea et al., 2025).

It is worth noting that combining sensory stimuli in a harmonious way significantly enhances their overall effect (Alshaer, 2025). Conversely, negative sensory experiences, such as unpleasant odours or

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uncomfortable environments, can have an adverse effect on consumers' perceptions and evaluations (Roschk & Hosseinpour, 2020). Furthermore, contextual factors such as environment, culture, and technology play a decisive role in the perception of sensory stimuli, necessitating the development of integrated and adaptive strategies (Spence, 2021). Sensory cues play a significant role in memory recall and the strengthening of brand associations, contributing to the formation of strong emotional connections (Zhao et al., 2025). Consequently, sensory marketing creates experiential value for consumers, evoking positive emotions and helping brands to build a strong image (Lyu & Huang, 2024).

Although contemporary scholars devote considerable attention to the influence of sensory stimuli on consumer behaviour, this issue remains under-explored in emerging markets, including Georgia. Most existing studies focus on developed economies, paying limited attention to the specific conditions of emerging markets, such as differences in cultural context, consumer behavioural patterns and retail environment structure. The issue is particularly relevant in the case of Georgia, where the retail sector has developed significantly in recent years, creating a need for a deeper understanding of consumer behaviour in this field due to intensified competition. Although scientific research on consumer behaviour in Georgia has been conducted intensively (Matin et al., 2022; Todua & Gogitidze, 2026), certain gaps remain. Notably, despite the growing academic interest in consumer behaviour, there is a dearth of empirical studies examining sensory stimuli within the local academic context. Existing studies do not permit an in-depth analysis of the impact of sensory stimuli on consumer behaviour. Research conducted in Georgia mainly focuses on general aspects of consumer behaviour and does not adequately examine the role of sensory stimuli in shaping consumer engagement and behavioural responses. These gaps create the need for comprehensive empirical research. The present study therefore aims to examine the influence of sensory stimuli on consumer behaviour in the retail sector in Georgia. Based on the research objective, the following research questions (RQ) are formulated:

RQ 1: How do sensory stimuli influence consumers' engagement during the purchasing process?

RQ 2: How does consumers' engagement during the purchasing process influence purchase intention?

RQ 3: How does purchase intention influence purchase behaviour?

2. Literature Review and Development of the Research Hypotheses

This study is based on the Stimulus-Organism-Response (S-O-R) model developed by Mehrabian and Russell (1974), which explains how environmental

stimuli are transformed into internal states and ultimately behavioural responses. This model is particularly well-suited to examining sensory stimuli, as it enables the analysis of the direct and indirect effects of sensory inputs on consumer behaviour (Wang et al., 2023). The model considers that exposure to stimuli (S) leads individuals to generate cognitive and emotional states (O), which in turn drive their responses (R). This implies that individuals' internal states have a mediating effect on their potential behavioural reactions, such as approach or avoidance behaviours (Cao et al., 2024). The S-O-R framework provides a robust structure for explaining behaviours shaped by perceptions and emotions triggered by external stimuli (Su et al., 2022). Its validity has been confirmed in various contexts, including consumer behaviour in the retail service sector (Saricam, 2023; Pereira et al., 2023; Erensoy et al., 2024).

Vision is the dominant human sense, accounting for around 80% of the perception of environmental stimuli, particularly in retail and online environments (Li et al., 2023; Silaban et al., 2023). The visual modality is the most frequently used and reliable sensory system, often overshadowing the others. Strong lighting is a key factor in creating feelings of pleasure for consumers, and store colour schemes in particular can enhance pleasure and arousal (Zha et al., 2024). Visual factors such as lighting and spatial layout have a significant influence on consumer satisfaction during dining experiences (Jang & Lee, 2019). Colour can also trigger physiological and emotional responses; for example, warm colours are often linked to a positive mood (Li et al., 2023). Sensory marketing plays a critical role in product merchandising (Lyu & Huang, 2024). Products with visual characteristics such as bold or symmetrical designs are perceived as more distinct and of higher quality (Krishna et al., 2017; Chen & Lin, 2018). Based on the above discussion, the following hypothesis can be formulated:

H1: Visual stimuli positively affect consumers' engagement in the purchasing process.

Background music and acoustic design are important components of the retail environment. They enhance consumers' pleasure and sense of dominance, as well as their overall positive evaluation of the environment (Li et al., 2023). Slow-tempo music tends to increase shopping time and revenue, whereas fast-tempo music leads to quicker purchasing decisions (Milliman, 1986). Playing classical music in luxury retail stores can enhance brand prestige and improve consumer evaluations (Spence, 2011). Auditory cues can strengthen brand recognition and help to establish emotional connections (Jang & Lee, 2019; Zha et al., 2024). Music can create a holistic auditory experience, reinforcing brand identity and image (Abdolmohamad Sagha et al., 2022). Accordingly, the following hypothesis can be proposed:

H2: Auditory stimuli positively affect consumers' engagement in the purchasing process.

Touch has a significant impact on human emotions (Jang & Lee, 2019). The perception of tactile stimuli, such as the material, temperature, texture, weight and density of a product, plays an important role in how consumers perceive it (Zha et al., 2024). As a fundamental human sense, touch has received considerable attention in consumer behaviour research (Krishna, 2012; Karangi & Lowe, 2021). Tactile stimuli have a particularly strong impact on consumers' evaluations and purchase intentions for high-involvement products, such as electronics or luxury goods, in retail contexts (Spence & Gallace, 2011). Tactile experience can influence consumers' product choices, emotions and evaluations (Li et al., 2023; Silaban et al., 2023). Based on the above discussion, the following hypothesis can be formulated:

H3: Tactile stimuli positively affect consumers' engagement in the purchasing process.

The sense of smell is closely associated with human emotions, memories and recollection, making it particularly important in retail environments (Krishna & Schwarz, 2014; Herz, 2016). Pleasant aromas create positive perceptions and evaluations among consumers, increasing the likelihood of product purchase (Silaban et al., 2023). Nowadays, many companies use signature scents to encourage brand recognition and loyalty by providing pleasant olfactory experiences (Petit et al., 2019). Research also shows that olfactory stimuli can trigger cravings for tasty food (Martins et al., 2022). In retail environments, it is also noteworthy that consumers tend to develop more favourable perceptions and evaluations of the products on offer when pleasant scents are used (Jang & Lee, 2019; Zha et al., 2024). Thus, the following hypothesis is proposed:

H4: Olfactory stimuli positively affect consumers' engagement in the purchasing process.

As part of a multisensory experience, taste plays an important role in consumers' sensory perception, satisfaction and emotional response (Martins et al., 2022; Zha et al., 2024). For example, the texture and temperature of food can directly influence consumers' positive emotions and satisfaction (Silaban et al., 2023; Jang & Lee, 2019). Sampling food increases purchase intention as direct experience enhances consumer trust, perceived authenticity and positive brand attitudes (Piqueras-Fiszman & Spence, 2015). A negative experience with a food product can lead to long-term avoidance, whereas a positive experience evokes strong, positive memories of consumption (Zha et al., 2024). In the food and beverage industry, taste is widely recognised as one of the most powerful sensory stimuli, significantly enhancing consumers' emotional engagement and loyalty (Piqueras-Fiszman & Spence, 2015). Accordingly, the following hypothesis is proposed:

H5: Gustatory stimuli positively affect consumers' engagement in the purchasing process.

Consumer engagement in the purchasing process acts as a mediator between sensory stimuli and behavioural outcomes. The emotional and perceived value created through sensory experience increases consumer engagement and consequently purchase intention (Haase et al., 2018; Wang et al., 2023). Pleasure and positive emotions have a direct influence on purchase intention, repeat purchases and brand loyalty (Jang & Lee, 2019). Brand awareness and emotional attachment strengthen consumer engagement further, leading to a higher intention to purchase (Abdolmohamad Sagha et al., 2022; Zha et al., 2024). These arguments allow one to propose the following hypothesis:

H6: Consumers' engagement in the purchase process has a positive effect on their purchase intention.

According to the Theory of Planned Behaviour, purchase intention is the immediate precursor to actual behaviour (Ajzen, 1991). In a retail context, purchase intention is a key determinant of consumers' actual purchasing behaviour (Abdolmohamad Sagha et al., 2022; Duarte et al., 2024). In the context of sensory marketing, environmental stimuli shape consumers' perceptions and emotional responses, influencing their purchase intention and subsequent behaviour (Mohammed et al., 2015; Damberg et al., 2024). Research shows that multisensory retail experiences enhance consumer engagement and the decision-making process, making it more likely that a purchase intention will turn into actual purchasing behaviour (Duarte et al., 2024; Ramadhanti et al., 2024). Therefore, the following hypothesis is proposed:

H7: Consumers' purchase intention has a positive impact on their purchasing behaviour.

A conceptual research model describing the influence of sensory stimuli on consumer behaviour in retail settings has been developed based on the literature reviewed above (Figure 1).

3. Research Methodology

The present study is based on a deductive approach involving the formulation of hypotheses grounded in existing theories, which are then tested empirically using statistical methods (Malhotra, 2020). Using this approach, the research hypotheses (H1–H7) were developed and tested using statistical techniques. A quantitative research method, specifically a consumer questionnaire survey, was employed for primary data collection. The quantitative approach was chosen because the study's primary objective is to test hypotheses based on numerical data and identify statistical relationships between variables (Malhotra, 2020). All items in the questionnaire were measured using a 5-point Likert scale, where 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree and 5 = strongly

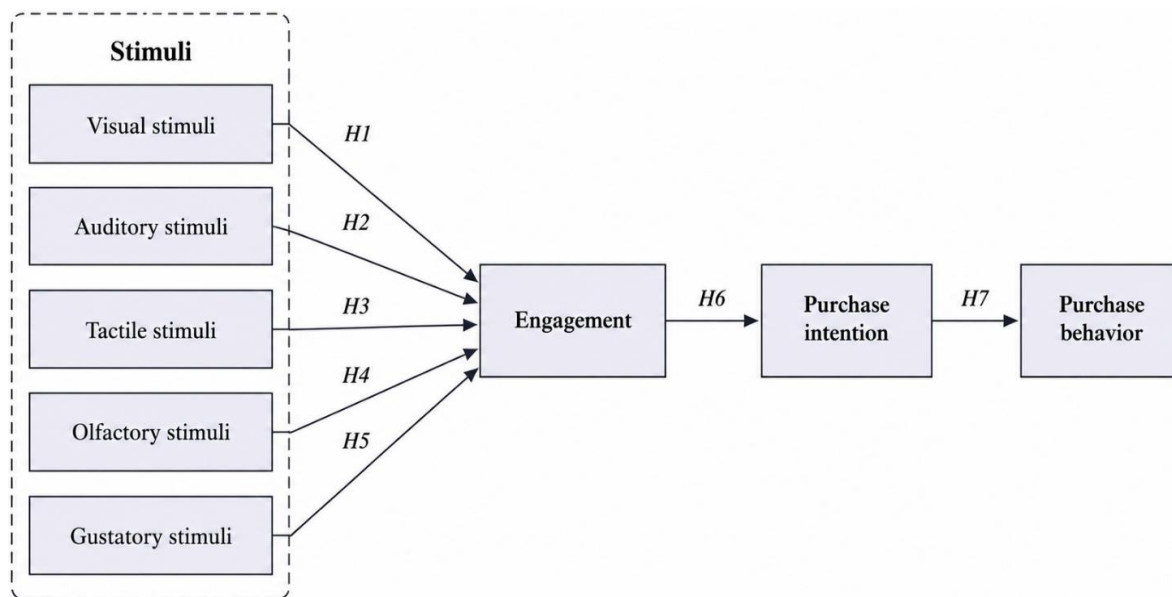


Figure 1. Conceptual model of the study

Source: compiled by the authors

agree. The sample size was determined using the Krejcie and Morgan (1970) formula. According to this formula, the minimum required sample size for the study was 601 respondents to ensure a 95% confidence level and a margin of error of $\pm 4\%$.

A pilot test of the questionnaire was conducted with a small group of respondents. The identified issues were then corrected before the final version was distributed on a larger scale. Of the 764 responses collected, those with a standard deviation (SD) of ≤ 0.2 were excluded during initial processing in Microsoft Excel. Ultimately, 723 valid questionnaires remained for further analysis. The final database was analysed using SPSS 31 and the research model was constructed using SmartPLS. Correlation and regression analysis methods were employed to examine the relationships between the variables and test the hypotheses. Table 1 provides a detailed description of the variables, measurement items, and their sources.

4. Results and Discussion

Table 2 presents descriptive statistics of the respondents' answers for each measurement item, including mean values, variance and standard deviation (SD). The dataset is complete for all variables and there are no missing responses. Analysis of the mean values indicates that item scores range from 3.13 to 4.30, suggesting that respondents have a moderately positive attitude towards the use of sensory stimuli in retail environments. On a 5-point Likert scale, mean values above 3 are generally interpreted as indicating a positive tendency. The highest mean values are observed for gustatory and visual stimuli,

while comparatively lower values are recorded for behavioural and auditory stimuli.

Variance analysis shows that values generally range from 1.06 to 1.48, which indicates a sufficient level of data dispersion. The variance levels presented in Table 2 suggest that the responses are not concentrated around a single value. Furthermore, the differences in variance across the individual items suggest that the respondents' answers are not homogeneous and reflect diverse evaluations. The standard deviation values for all items range from 1.05 to 1.13, which is within the commonly accepted range for the social sciences. Specifically, SD is considered acceptable when it falls within the range of 0.8 to 1.5 (Malhotra, 2020). The results indicate sufficient variability in the dataset, showing that the responses are not overly homogeneous. Accordingly, there is no significant clustering at the highest or lowest values. These findings support the reliability of subsequent regression and structural analyses.

Table 3 shows the reliability and validity indicators for the research constructs, such as factor loadings, Average Variance Extracted (AVE), Cronbach's alpha (α) and Composite Reliability (CR). The factor loadings range from 0.536 to 0.945 across all items. The vast majority exceed the recommended threshold of 0.70, with all being above the minimum acceptable level of 0.50 (Malhotra, 2020). This suggests that the measurement items effectively represent their respective constructs.

Relatively lower factor loadings were observed for AUD3 (0.536) and GUS3 (0.545). However, the AVE values of the constructs remained within acceptable thresholds. Reliability was assessed using both Cronbach's alpha and composite reliability.

Table 1

Research constructs

Variables	Code	Measurement Items	Adopted from source(s)
Visual Stimuli (VIS)	VIS1	The colour palette used in the store creates a pleasant environment.	Zha et al. (2024); Chen & Lin (2018)
	VIS2	The store lighting makes the products look more attractive.	
	VIS3	The way products are arranged in a store is important.	
Auditory Stimuli (AUD)	AUD1	The music playing in the store is pleasant.	Jang & Lee (2019); Abdolmohamad Sagha et al., (2022)
	AUD2	The music in the shop lifts the mood.	
	AUD2	The volume of music in the store affects behaviour.	
Tactile Stimuli (TAC)	TAC1	The sensation I get from touching a product affects my evaluation of it.	Karangi & Lowe (2021); Silaban et al. (2023)
	TAC2	I prefer to be able to touch products before purchasing them.	
	TAC3	I trust products more when I can see and touch them before buying.	
Olfactory Stimuli (OLF)	OLF1	The scent in the store complements the overall environment.	Jang & Lee (2019); Zha et al. (2024)
	OLF2	The scent in the store leaves a pleasant impression on me.	
	OLF3	I find stores attractive when the aromas of food are noticeable.	
Gustatory Stimuli (GUS)	GUS1	For me, it's important that the product I buy in-store tastes good.	Jang & Lee (2019); Zha et al. (2024)
	GUS2	I like it when the store offers a variety of products based on different tastes.	
	GUS3	I find stores attractive where you can sample food before you buy it.	
Engagement (ENG)	ENG1	In a store full of sensory stimuli, time seems to pass quickly.	Jang & Lee (2019); Abdolmohamad Sagha et al. (2022)
	ENG2	I find a sensory-rich store environment creates a memorable experience.	
	ENG3	Sensory stimuli in the store create high levels of engagement and positive moods.	
Purchase Intention (PI)	PI1	I am more likely to purchase products in a sensory-rich store environment.	Abdolmohamad Sagha et al., (2022); Duarte et al. (2024)
	PI2	The sensory stimuli in the store positively affect my purchase intentions.	
	PI3	The sensory experience in the store influences my decision to make a purchase.	
Purchase Behaviour (PB)	PB1	I often buy products on the spot after a pleasant sensory experience in the store.	Ramadhanti et al. (2024); Damberg et al. (2024); Mohammed Shaed et al. (2015)
	PB2	I am more likely to make an impulse purchase if I like the sensory atmosphere of a store.	
	PB3	I often buy products from shops that use sensory stimuli.	
	PB4	I am willing to spend more than planned in sensory-stimulating stores.	
	PB5	I am willing to spend more than I had planned to in sensory-stimulating stores.	
	PB6	Shopping in a sensory-rich store makes me feel good.	

Source: compiled by the authors

A construct is considered reliable when Cronbach's alpha exceeds 0.60 (Malhotra, 2020). The results show that all constructs have Cronbach's alpha and CR values above 0.80, indicating a high level of reliability for the measurement scales used in the study.

The interpretation of Pearson correlation coefficients was conducted in accordance with established guidelines, where a value of 0.10 is considered weak, 0.30 moderate, and 0.50 or above strong relationships (Malhotra, 2020). The results obtained from the study indicate that the relationships between the variables range from weak to strong, thereby suggesting meaningful associations among them. As illustrated in Table 4, an investigation was conducted into the correlation between sensory stimuli (i.e., visual, auditory, tactile, olfactory and gustatory) and engagement, purchase intention and purchasing behaviour (N=723). All correlations are statistically significant at the $p < 0.01$ level. The strongest relationships were observed between engagement and purchase intention ($r = 0.770$), purchase intention and purchasing behaviour ($r = 0.765$), olfaction and gustation ($r = 0.662$), vision

and olfaction ($r = 0.639$), and gustation and vision ($r = 0.604$). These high correlations indicate a degree of multisensory congruence. Overall, the strong correlation coefficients support the logic of the S-O-R model: sensory stimuli are significantly associated with engagement; engagement is strongly related to purchase intention; and purchase intention is, in turn, strongly associated with purchasing behaviour.

This study focuses on examining the relationship between sensory stimuli and consumer engagement to determine the influence of the sensory environment on consumer engagement. Linear regression analysis was conducted to test the impact of sensory stimuli on engagement and to validate the proposed hypotheses (see Table 5). Table 5 shows that all developed models (1–5) are statistically significant and reliable [$P < 0.001$, $F(319.962) > F_{cr}(3.84)$; $P < 0.001$, $F(183.443) > F_{cr}(3.84)$; $P < 0.001$, $F(175.913) > F_{cr}(3.84)$; $P < 0.001$, $F(343.967) > F_{cr}(3.84)$; $P < 0.001$, $F(295.065) > F_{cr}(3.84)$]. Accordingly, hypotheses H1, H2, H3, H4 and H5 are supported. The results suggest that visual stimuli have a positive influence on consumer engagement in the purchasing

Table 2
Descriptive Statistics

	N	Mean	Std. deviation	Variance
VIS 1	723	4.02	1.076	1.158
VIS 2	723	3.88	1.097	1.204
VIS 3	723	3.97	1.128	1.272
AUD 1	723	3.47	1.068	1.141
AUD 2	723	3.54	1.077	1.16
AUD 3	723	3.32	1.216	1.479
TAC 1	723	3.72	1.123	1.262
TAC 2	723	3.61	1.114	1.241
TAC 3	723	3.68	1.158	1.341
OLF 1	723	3.75	1.06	1.124
OLF 2	723	3.86	1.055	1.112
OLF 3	723	3.93	1.087	1.182
GUS 1	723	4.3	1.08	1.165
GUS 2	722	4.27	1.028	1.057
GUS 3	723	3.63	1.216	1.479
ENG 1	723	3.46	1.082	1.172
ENG 2	723	3.6	1.061	1.127
ENG 3	723	3.53	1.054	1.111
PI 1	723	3.42	1.077	1.161
PI 2	723	3.51	1.028	1.056
PI 3	723	3.44	1.051	1.105
PB 1	723	3.44	1.056	1.116
PB 2	723	3.39	1.092	1.191
PB 3	723	3.33	1.064	1.132
PB 4	723	3.13	1.126	1.269
PB 5	723	3.47	1.086	1.18
PB 6	723	3.49	1.096	1.2

Source: compiled by the authors

process ($R^2 = 0.307$), indicating that 30.7% of the variance in consumer engagement can be explained by visual stimuli, with the remaining variance being attributable to other factors. Similarly, auditory stimuli have a positive effect on consumer engagement during the purchasing process. However, their impact is weaker than that of visual stimuli ($R^2 = 0.203$), meaning that auditory stimuli explain 20.3% of the variance in consumer engagement, while other factors influence the remainder. Tactile stimuli have a relatively lower impact on consumer engagement ($R^2 = 0.196$), indicating that 19.6% of the variance in consumer engagement is explained by tactile stimuli, while the remaining variance is associated with other factors. Notably, olfactory stimuli emerged as the strongest predictive factor of consumer engagement ($R^2 = 0.323$), implying that olfactory stimuli explain 32.3% of the variance in engagement, while other variables account for the remainder. Gustatory stimuli were also found to have a statistically significant effect on consumer engagement ($R^2 = 0.29$), indicating that gustatory stimuli account for 29% of the variance in consumer engagement, with other factors accounting for the remainder.

Table 3
Reliability and Validity Statistics of the Research Constructs

Items	Factor loading	Ave	Cronbach's α	CR
VIS 1	0.885	0.70015	0.872	0.87456
VIS 2	0.866			
VIS 3	0.754			
AUD 1	0.894	0.65999	0.817	0.84689
AUD 2	0.945			
AUD 3	0.536			
TAC 1	0.786	0.78462	0.913	0.91569
TAC 2	0.942			
TAC 3	0.921			
OLF 1	0.881	0.80953	0.927	0.92722
OLF 2	0.935			
OLF 3	0.882			
GUS 1	0.908	0.67133	0.822	0.85359
GUS 2	0.945			
GUS 3	0.545			
ENG 1	0.835	0.79827	0.921	0.92216
ENG 2	0.913			
ENG 3	0.929			
PI 1	0.912	0.85072	0.945	0.94474
PI 2	0.926			
PI 3	0.929			
PB 1	0.814	0.70737	0.935	0.93544
PB 2	0.851			
PB 3	0.850			
PB 4	0.799			
PB 5	0.875			
PB 6	0.855			

Source: compiled by the authors

Further regression analysis demonstrates that a one-unit increase in visual stimuli leads to a 0.559-unit increase in consumer engagement. Similarly, a one-unit increase in auditory stimuli results in a 0.465-unit increase in consumer engagement. As shown in Table 5, an increase of one unit in tactile stimuli leads to an increase of 0.420 units in consumer engagement. Furthermore, a one-unit increase in olfactory stimuli increases consumer engagement by 0.565 units. The findings also reveal that a one-unit increase in gustatory stimuli leads to a 0.560-unit increase in consumer engagement.

The obtained findings clearly show that sensory stimuli are a fundamental factor in shaping consumer engagement. A multisensory environment fosters a strong emotional connection, subsequently enhancing consumer engagement. This conclusion is fully consistent with the study's conceptual framework ($SEN \rightarrow ENG \rightarrow PI \rightarrow PB$) and confirms that consumer engagement mediates the relationship between sensory influence and consumer behaviour (see Table 5).

Table 6 shows that consumer engagement has a significant positive effect on purchase intention. Accordingly, Model 6 is statistically reliable ($P < 0.001$); $F(1048.597) > F_{cr}(3.84)$ and hypothesis

Table 4

Correlation between the variables included in the questionnaire

		VIS	AUD	TAC	OLF	GUS	ENG	PI	PB
VIS	Pearson Correlation	1	.485***	.484***	.639***	.604***	.554***	.539***	.498***
	Sig. (2-tailed)		<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	723	723	723	723	723	723	723	723
AUD	Pearson Correlation	.485***	1	.367***	.510***	.355***	.450***	.447***	.398***
	Sig. (2-tailed)	<.001		<.001	<.001	<.001	<.001	<.001	<.001
	N	723	723	723	723	723	723	723	723
TAC	Pearson Correlation	.484***	.367***	1	.511***	.516***	.443***	.408***	.372***
	Sig. (2-tailed)	<.001	<.001		<.001	<.001	<.001	<.001	<.001
	N	723	723	723	723	723	723	723	723
OLF	Pearson Correlation	.639***	.510***	.511***	1	.662***	.568***	.552***	.502***
	Sig. (2-tailed)	<.001	<.001	<.001		<.001	<.001	<.001	<.001
	N	723	723	723	723	723	723	723	723
GUS	Pearson Correlation	.604***	.355***	.516***	.662***	1	.539***	.505***	.444***
	Sig. (2-tailed)	<.001	<.001	<.001	<.001		<.001	<.001	<.001
	N	723	723	723	723	723	723	723	723
ENG	Pearson Correlation	.554***	.450***	.443***	.568***	.539***	1	.770***	.667***
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001		<.001	<.001
	N	723	723	723	723	723	723	723	723
PI	Pearson Correlation	.539***	.447***	.408***	.552***	.505***	.770***	1	.765***
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001		<.001
	N	723	723	723	723	723	723	723	723
PB	Pearson Correlation	.498***	.398***	.372***	.502***	.444***	.667***	.765***	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001	
	N	723	723	723	723	723	723	723	723

Source: compiled by the authors

H6 is supported. The coefficient of determination is $R^2 = 0.593$, indicating that 59.3% of the variance in purchase intention is explained by consumer engagement, while the remaining variation is attributed to other factors not included in the model. The unstandardised coefficient of consumer engagement is 0.776 ($P < 0.001$), while the standardised beta coefficient ($\beta = 0.77$) indicates a strong effect size. This means that a one-unit increase in consumer engagement leads to a 0.776-unit increase in purchase intention (see Table 6).

The regression analysis further demonstrates that purchase intention has significant positive effect on purchase behaviour, confirming that Model 7 is statistically reliable ($P < 0.001$); $F(1017.97) > F_{cr}(3.84)$ and hypothesis H7 is supported. The coefficient of determination is $R^2 = 0.585$, indicating that 58.5% of the variance in purchase behaviour is explained by purchase intention, while the remaining variation is due to other unobserved factors. The unstandardised coefficient of purchase intention is 0.809 ($P < 0.001$), while the standardised beta coefficient ($\beta = 0.765$) indicates a strong effect size. This means that a one-unit increase in purchase intention leads to a 0.809-unit increase in purchase behaviour (see Table 7).

The results of the present study were analysed using Structural Equation Modeling (SEM), as illustrated in Figure 2.

5. Conclusion and Recommendations

The present study demonstrated that sensory stimuli have a significant impact on consumer behaviour in the retail sector in Georgia. The findings confirm that sensory stimuli play a significant role in shaping consumer behaviour. Specifically, the results revealed that visual, auditory, tactile, olfactory and gustatory stimuli were positively associated with consumer engagement, which influences purchase intention. In turn, purchase intention affects purchasing behaviour.

At the same time, one of the study's key findings is that not all sensory stimuli have the same level of influence. Particularly strong effects were observed for olfactory and visual stimuli, suggesting that these two factors are the most effective at fostering emotional engagement among consumers in retail environments. This finding further supports the idea that consumer behavioural responses are shaped by both rational evaluation and subconscious perception of the environment.

The analysis revealed statistically significant relationships between sensory stimuli and consumer engagement, and between engagement and purchase intention. The latter has a strong effect on purchasing behaviour. Regression analysis also confirmed that using sensory stimuli in retail environments strongly enhances consumer engagement. All of the hypotheses formulated within the study were supported, which is fully consistent with the S-O-R theoretical framework.

Table 5

Regression analysis of the impact of sensory stimuli on consumers' engagement in the purchasing process

Model Summary						
Model	R	R ²	Adjusted R ²	Std. error of the estimate		
1 VIS	.554	0.307	0.306	0.82502		
2 AUD	.450	0.203	0.202	0.8851		
3 TAC	.443	0.196	0.195	0.8888		
4 OLF	.568	0.323	0.322	0.81567		
5 GUS	.539	0.29	0.289	0.83506		
ANOVA						
	Model	Sum of squares	df	Mean square	F	Sig.
1	Regression	217.783	1	217.783	319.962	<.001
	Residual	490.752	722	0.681		
	Total	708.535	723			
2	Regression	143.708	1	143.708	183.443	<.001
	Residual	564.827	722	0.783		
	Total	708.535	723			
3	Regression	138.966	1	138.966	175.913	<.001
	Residual	569.569	722	0.79		
	Total	708.535	723			
4	Regression	228.845	1	228.845	343.967	<.001
	Residual	479.69	722	0.665		
	Total	708.535	723			
5	Regression	205.758	1	205.758	295.065	<.001b
	Residual	502.777	722	0.697		
	Total	708.535	723			
Coefficients						
Model		Unstandardised Coefficients		Standardised coefficients	t	Sig.
		B	Std. error	β		
1	(Constant)	1.317	0.127		10.335	<.001
	VIS	0.559	0.031	0.554	17.887	<.001
2	(Constant)	1.931	0.123		15.751	<.001
	AUD	0.465	0.034	0.45	13.544	<.001
3	(Constant)	1.99	0.121		16.478	<.001
	TAC	0.42	0.032	0.443	13.263	<.001
4	(Constant)	1.358	0.121		11.229	<.001
	OLF	0.565	0.03	0.568	18.546	<.001
5	(Constant)	1.254	0.136		9.219	<.001
	GUS	0.56	0.033	0.539	17.177	<.001
Dependent Variable: ENG (Engagement). Predictors (Constant): VIS (Visual Stimuli), SOU (Auditory Stimuli), TAC (Tactile Stimuli), OLF (Olfactory Stimuli), GUS (Gustatory Stimuli)						

Dependent Variable: ENG (Engagement). Predictors (Constant): VIS (Visual Stimuli), SOU (Auditory Stimuli), TAC (Tactile Stimuli), OLF (Olfactory Stimuli), GUS (Gustatory Stimuli)

Source: compiled by the authors

Table 6

Regression analysis of the impact of consumers' engagement on purchase intention

Regression analysis of the impact of consumers' engagement on purchase intention						
Model Summary						
Model	R	R ²	Adjusted R ²	Std. error of the estimate		
6	.770	0.593	0.592	0.63776		
ANOVA						
	Model	Sum of squares	Df	Mean square	F	Sig.
6	Regression	426.505	1	426.505	1048.6	<.001
	Residual	293.259	722	0.407		
	Total	719.763	723			
Coefficients						
Model		Unstandardised coefficients		Standardised coefficients	t	Sig.
		B	Std. error	β		
6	(Constant)	0.717	0.088		8.157	<.001
	ENG	0.776	0.024	0.77	32.382	<.001
Dependent Variable: PI (Purchase Intention); Predictors (Constant); ENG (Engagement)						

Dependent Variable: PI (Purchase Intention); Predictors (Constant): ENG (Engagement)

Source: compiled by the authors

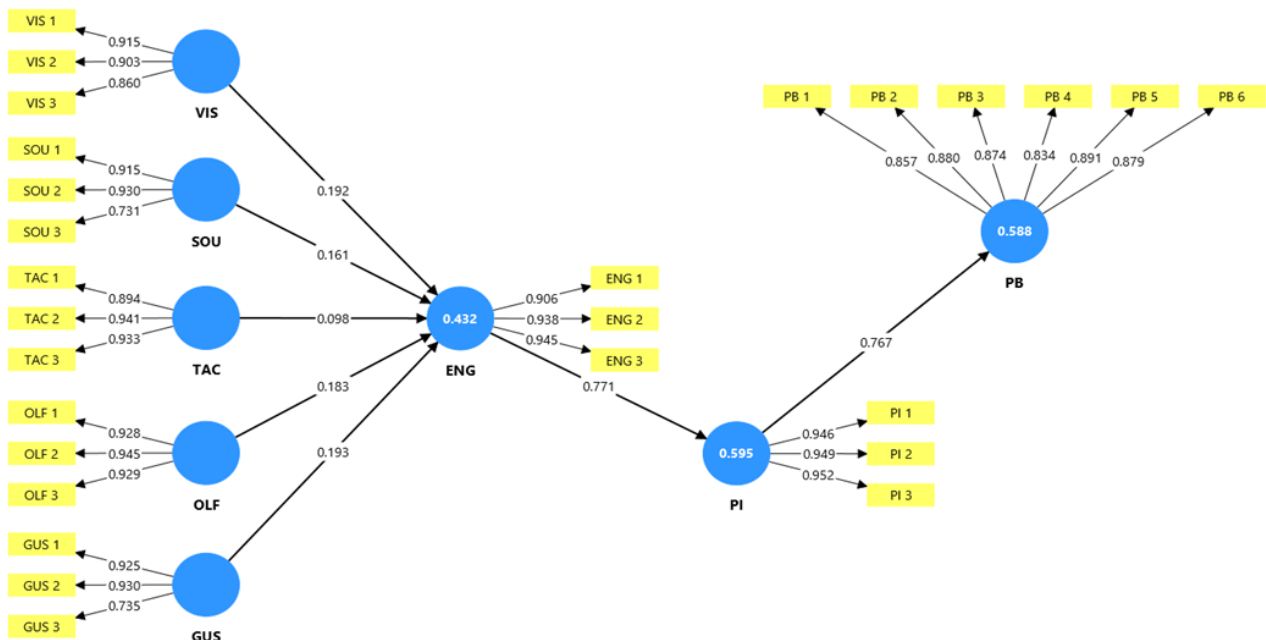
Table 7

Regression analysis of the impact of purchase intention on purchasing behaviour

Model Summary						
Model	R	R ²	Adjusted R ²	Std. error of the estimate		
7	.765	0.585	0.585	0.64335		
ANOVA						
Model		Sum of squares	Df	Mean square	F	Sig.
7	Regression	421.341	1	421.341	1017.98	<.001
	Residual	298.422	722	0.414		
	Total	719.763	723			
Coefficients						
Model		Unstandardised coefficients		Standardised coefficients	t	Sig.
		B	Std. error	β		
7	(Constant)	0.726	0.089		8.168	<.001
	ENG	0.809	0.025	0.765	31.906	<.001
Dependent Variable: PB (Purchase Behaviour); Predictors (Constant): PI (Purchase Intention)						

Dependent Variable: PB (Purchase Behaviour); Predictors (Constant): PI (Purchase Intention)

Source: compiled by the authors

**Figure 2. Structural equation model (based on research results)**

Source: compiled by the authors

From a theoretical perspective, this study makes several contributions to existing literature. One of its main contributions is confirming the role of consumer engagement as a mechanism that mediates between sensory stimuli and behavioural outcomes. Within the S-O-R framework, it was demonstrated that sensory stimuli influence consumer engagement, which then determines behavioural responses. These findings extend the sensory marketing literature in the context of emerging markets and further confirm the effectiveness of sensory marketing.

From a practical perspective, the results have important implications for retail companies. In order to enhance the consumer experience, marketers should implement integrated multisensory strategies.

The use of olfactory and visual stimuli appears to be particularly effective. If resources are limited, it is especially important to prioritise pleasant in-store scents, optimised lighting and carefully designed colour schemes, in order to create an environment that enhances consumer comfort and increases the time they spend in the store.

Despite its contributions, the study has several limitations. Primarily, it is based on a cross-sectional design, which restricts the ability to establish fully causal relationships. The data rely on self-reported responses, increasing the risk of common method bias. Furthermore, the findings may be specific to the Georgian retail market, limiting their generalisability to other contexts.

Future research could examine the impact of sensory marketing on different sectors and demographic groups, as well as its long-term effect on consumer behaviour. Employing experimental designs and cross-country comparative studies would also strengthen the validity of the findings.

Overall, the study confirms the effectiveness of sensory marketing in Georgia's retail sector and provides a valuable theoretical and practical basis for a better understanding of consumer behaviour and for supporting strategic business development.

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