The Role of Sensory Stimuli on Perceived Quality of Cosmetic Products: An Empirical Examination of the Buying Process of Pharmaceutical Face Creams

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Abstract: The purpose of this study is to explore how sensory stimuli influence emotions associated, perceived quality, satisfaction and loyalty towards a face cream brand. Nowadays consumers believe that the functional attributes of products are granted and look for an emotional attachment with each product. The aim of sensory marketing is to reinforce the attachment between a product and its consumers, through the involvement of human senses. Sensory marketing is yet a new practice, thus the number of studies concerning its effect on brand perception are limited. Two conceptual frameworks, the stimulus-organism-response (S.O.R.) behavioral framework (Mehrabian and Russell, 1974) and the conceptual framework of sensory marketing, (Krishna, 2011), were merged and elaborated to construct the research model of this study. The use of sensory marketing at this study was explored by administrating an anonymous self-completed questionnaire, which was distributed to 154 face cream buyers, within 9 pharmacy stores across Thessaloniki, Greece. For the purposes of the study, an exploratory principal component analysis was conducted. The factor solution identified 11 factors. All factors were labeled, interpreted and discussed in the light of existing knowledge in order to understand better the consumer behavior in relation to sensory stimuli. The findings indicate that sensory stimuli influence brand perception positively leading to a stronger (rational and emotional) bond between the brand and the consumer.

Keywords: sensory marketing, perceived quality, sensory stimuli, cosmetic products, face creams

1. INTRODUCTION

Marketing is changing rapidly. Since entering the 21st century all the tested ideas and marketing practices are being reviewed. The conventional mass markets are slowly fading away and are being replaced by individualized or "niche" markets. This swift from the mass to the individual and more relationship marketing, gives the opportunity for sensory marketing to flourish. The five human senses are crucial for an individual, not only in her/his daily life, but also during her/his experience of different buying processes. The significance of sensory marketing is recognized by Krishna (2011), who defines it "…marketing that engages the consumers' senses and affects their perception, judgment and behaviour".

According to the US Food and Drug Administration (FDA), cosmetics as "articles intended to be rubbed, poured, sprinkled, or sprayed on, introduced into, or otherwise applied to the human body...for cleansing, beautifying, promoting attractiveness, or altering the appearance. Cosmetic products are considered to appeal to the five senses, through their intrinsic cues/characteristics (for instance the shape and colours of product/packaging, the fragrances, haptic qualities of the product e.g. the smoothness of a face cream, the "click" sound when closing the package of a cosmetic product or even, in some rare cases of cosmetics. If one or more senses are positively stimulated during the examination of a cosmetic product, this could probably result to a positive evaluation of the perceived quality of the product and lead to an approach behavior due to the emotional attachment with the product. This study, attempts to examine whether sensory marketing and the use of human's four senses (for this research the sense of taste is not examined, due to the fact that taste is irrelevant for the face cream buyer) affect consumers' emotions, perceived quality, satisfaction and loyalty towards a face cream brand.

2. SELECTIVE LITERATURE REVIEW – RESEARCH MODEL

Understanding the consumer behavior is one of the most difficult tasks in marketing. Consumer's mind is considered as the black box, because no one can accurately figure out the processes that take place in it. Numerous models try to explain consumer behavior, with the majority of them dealing with stimuli, the decision making process and its results. For the purpose of this study two conceptual frameworks were applied in order to construct the research model that is the basis of this study: (a) the stimulus-organism-response (S.O.R.) behavioral framework (Mehrabian and Russell, 1974) and (b) the conceptual framework of sensory marketing (Krishna, 2011). The S.O.R framework describes how

environmental stimuli influence individuals' internal states and consequently their behaviors and responses. The S.O.R framework is best described in figure 1.



Figure 1: Modified Mehrabian-Russell S-O-R Model Source: Donovan R., Rossiter J., Marcoolyn G., Nesdale A., (1994), p.284.

According to Krishna (2011) "sensory marketing is an application of the understanding of sensation and perception to the field of marketing — to consumer perception, cognition, emotion, learning, preference, choice, or evaluation". The following figure provides the conceptual framework of sensory marketing.

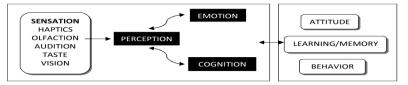


Figure 2: A conceptual framework of sensory marketing Source: Krishna, A., (2011), p.4.

Smell transfers directly to the limbic system, the part of the brain where the emotions are handled (Fox, 2006). In 1932 Laird found a positive link between the perceived quality and the use of scent (Bone and Jantrania, 1992). Adding taste to the brand increases the value for the customers, and the perceived benefits of a symbolic gesture such as offering a cup of coffee in a store, will differentiate the brand positively in the minds of the consumers (Gobé, 2001). Touch enhances the brand experience for a customer by adding sensory information of a brand (Gobé, 2001). Sight is the most seductive sense. Vision plays a significant role in the perception of a brand and studies have shown that a person who has been exposed to a product will prefer it over similar choices, even in cases when the person cannot actually remember seeing the product (Bornstein, 1987). Sound has "an immediate and, to a large extent, cognitively unmediated effect on recall and emotions" (Gobé, 2001) and can thus be used as a trigger for creating desired reactions when building an emotional attachment to a brand. This study examines the effect of sensory stimuli on the perceived quality of a face cream. Boothe (2002) defined *perception* as "the act of using only one's own sense organs to gain knowledge about, interact with, and experience the environment". Perceptions are not permanent, but continually shifting (Buchholz and Wördemann, 2000). Perception is subjective, thus it differs among customers depending on their personal preferences, personality, former experiences, motives, attitudes, intelligence etc. Understanding customers' perceptions of a brand is important in order to forecast their responses to different types of stimuli (Fioroni and Titterton, 2009). Perceived quality is the customer's judgment about a product's overall excellence, which is different from objective quality (Zeithaml 1988). Boulding et al. (1993) argued that quality is directly influenced by perceptions. Zeithaml (1988) and Steenkamp (1997) classify the concept of perceived quality in two groups of factors; the intrinsic attributes [related to the physical aspects of a product (e.g. colour, form and smell)] and the extrinsic attributes [related to the product, (e.g. brand name, price, packaging (Bernue's et al.2003)]. Aaker (1991) defines brand loyalty as the attachment that a customer has to a brand. A brand should be able to become the respondents' first choice and is therefore purchased repeatedly (Keller, 1998).

Merging and elaborating the two previously mentioned theoretical frameworks and utilizing a more holistic approach in terms of identifying marketing stimuli, we present the research model of the study (Table 1).

Stimuli		Organism		Response	
(A)		(B)		(C)	
Corporate	Corporate Non-corporate		Consumer's Black box		
generated	generated			behavior	
marketing stimuli	marketing stimuli				
(i)	(ii)	(iii)		(iv)	
Promotion mix	Experts' opinion	Consumer's	Perception via Senses	Emotions	
1. TV ads	15. Pharmacist's	Demographic data	20. Importance of 5	25. Self confidence	
2. Magazine ads	opinion	18. Age	senses in general	26. Beauty	
3. Product Samples	16. Dermatologist's	19. Gender	21. Use of touch	27. Refreshment	
4. Offers	opinion		22. Use of smell	28. Prestige	
			23. Use of sight		
Product stimuli	Word of mouth		24. Use of sound	Perceived quality	
5. Package closure	17. Friends' opinion			29. Absorption	
('click' sound)				30. Adiposity texture	
6. Pleasant smell				31. Hydrating	
7. Velvety texture				32. Sense of luminosity	
8. Colorful packaging				33. Clinical tested	
9. Modern packaging				34. Healing properties	
10. Price					
11. Brand name				Satisfaction	
12. User information				35. Satisfaction from	
Atmospherics				previous purchase	
13. Pharmacy store					
atmosphere				Loyalty	
14. Product's self				36. Change the brand	
position				choosing another with	
				more positive sensory	
				stimuli	

Table 1: Research model examining the effect of sensory stimuli
on the perceived quality of a face cream

The research model includes 3 phases (A, B and C). Phase A includes the environmental stimuli the consumer is exposed to. Those stimuli can be divided into two broad categories: (i) corporate generated marketing stimuli (promotion mix, product stimuli and store atmospherics), which are created, controlled and disseminated by companies who sell face creams and (ii) non corporate generated marketing stimuli, which are stimuli not created/controlled/disseminated by the companies who sell face creams and refer to the opinions of the pharmacist, the dermatologist and word of mouth. Phase B describes the usage of consumers' senses to attend/receive, analyze, interpret (and probably memorize) the messages coded within the corporate and non corporate stimuli (this process is filtered by consumer demographics). Finally, phase C includes consumers' emotional and cognitive responses (responses towards customers physiology were not examined) towards the stimuli/messages received/interpreted at phase B, which can alter their emotions about the brand, the perceived quality of the brand, the satisfaction associated with the brand and the loyalty towards the brand.

3. METHODOLOGY AND SAMPLE

The research took place at Thessaloniki, which is the second largest city of Greece, sited in Central Macedonia with about 1 million citizens (2011 census). Nine pharmacy stores of Thessaloniki (three from southern, three from western and three from central Thessaloniki – non probability sampling) were chosen for the data collection process from 1/9/2011 until 31/9/2011. The participants were face cream consumers, who had (at least one) previous buying experience with a face cream. Potential respondents were intercepted by interviewers immediately when entering the pharmacy store and asked if they wanted to participate in a research about their buying behavior regarding face creams. After accepting to participate they completed an anonymous questionnaire (of Likert type questions with a scale: 1-5 and demographic questions) under the supervision and assistance of the personal interviewer. The interviews were conducted from Monday to Friday during the morning/noon hours (9am-2pm) and between afternoon and early evening hours (5pm-9pm).

The final sample consists of 154 participants over the age of 18, with the majority of them being women consumers (125 women) and the rest 29 men (face creams are consumed more by women than men). Young consumers (age 18-34) dominate the sample (63.7% of the sample), then follow consumers with age 35-51 (22.7% of the sample) and, finally, consumers with age 52+ (13.6% of the sample). Moreover, 35.2% of the sample is private employees, 29.2% is university postgraduate students and a 10.4% is self employed. The unemployed account for the 7.1% of the sample, while the 6.5% answered housekeeping. The public employees account for the 6% of the sample, and 5.8% of the participants stated "other". 70.8% of the sample have a monthly income from 0-1.000€, the 26.6% of the sample have a monthly income from 1.001-2.000€ and only a 2.6% have an income over 2.000€ per month.

Exploratory factor analysis was used to group together the variables of the research model that are highly correlated. The aim of factor analysis in this study is to explore and detect patterns of variables with a view to the discovery of new

concepts regarding the marketing stimuli, consumer's demographics, consumer's senses and consumer's responses (emotions, perceived quality, satisfaction and loyalty).

4. DATA ANALYSIS - EMPIRICAL RESULTS

The processing of the data was conducted through a principal component analysis, where eigenvalues greater than one ("Kaizer criterion", Kaizer, 1958) were used to extract factors and varimax rotation was used to facilitate interpretation of the factor matrix (Marinov, Cox, Avlonitis, Kouremenos, 1993). The Bartlett Test of Sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy were used to validate the use of factor analysis. Due to the very high KMO's value (0.709) and the statistical significance of the Bartlett's test of sphericity, the analysis is considered appropriate.

According to Hair et al (2010) in a sample of 150 respondents (our study has a sample size of 154), factor loadings of 0.45 and above are significant. However, the same authors state that this is a quite conservative guideline, can be used as a starting point in factor loading interpretation and lower loadings can be considered significant based on other considerations such as the number of variables used in the analysis (the larger the number of variables being analyzed the smaller the loading to be considered significant) and the number of factors extracted. Taking into consideration the above and for better factor interpretation, plus the fact that we used in the analysis a quite large number of variables (36 variables), we adjust the initial factor loading significance threshold from 0.45 to 0.4 and conclude that factor loadings of 0.4 and above are significant. Moreover, in order to confirm that the amount of variance of the 36 original variables used is adequately accounted for by the factor solution, each variable's communality is examined. All 36 variables have communalities more than 0.5 therefore having sufficient explanation within the factor solution. The analysis resulted to 11 factors that are depicted at the following table.

Table 2: Factor analysis					
Factor	Percent of	Variable	Factor		
	variance		loading		
1. Sensory consumer	9.267%	Importance of 5 senses in general	0.914		
		Use of touch	0.855		
		Use of smell	0.850		
		Use of sight	0.638		
2. Modern colorful packaging with velvety	8.416%	Colorful packaging	0.802		
cream and pleasurable smell		Modern packaging	0.791		
		Pleasant smell	0.788		
		Velvety texture	0.620		
3. Functionality focused and sentimental	7.939%	Absorption	0.803		
consumer		Adiposity texture	0.664		
consumer		Hydrating	0.655		
		Sense of luminosity	0.603		
		Feeling of refreshment	0.457		
		Feeling of beauty	0.445		
		Brand name	0.442		
4. Young consumers influenced by fashion	6.889%	Fashion magazines' ads	0.764		
magazines, TV ads and word of mouth		TV ads	0.730		
		Word of mouth	0.602		
		Age 18-34	0.415		
		Age 52+	-0.452		
5. Middle-aged and elderly consumer who is	6.636%	Pharmacy store atmospherics,	0.689		
influenced by atmospherics, shelf position,		Product's shelf position	0.686		
simplicity of user instructions and offers-		Simplicity of user information	0.561		
presents		Age 52+	0.421		
-		Presents-Offers	0.405		
6. Emotional consumer	6.289%	Feeling of self confidence	0.835		
		Feeling of prestige	0.835		
		Feeling of beauty	0.582		
7. Economic oriented consumer	5.463%	Offers	0.676		
		Samples	0.622		
		Price	0.593		
8. Young consumer	4.906%	Age 18-34	0.553		
0		Age 35-51	-0.971		
9. Consumer influenced by experts' opinion	4.859%	Dermatologist's opinion	0.804		
		Pharmacist's opinion	0.801		
10. Woman looking for refreshment	4.426%	Gender	0.684		
		Feeling of refreshment	0.417		
11. Secure package closure ('click' sound) leads	4.035%	'Click' sound	0.779		
to consumer satisfaction		Satisfaction from previous purchase	0.664		

Kaiser-Meyer-Olkin Measure of Sampling Adequacy = 0.709Bartlett Test of Sphericity = 2562.339, Significance = 0.000

"Sensory consumer" (Factor 1) accounts for 9.267% of the total variance in the data. Factor 1 consists of four variables with significant positive factor loadings: importance of 5 senses in general (0.914), use of touch (0.855), use of smell (0.850) and use of sight (0.638). "Modern colorful packaging with velvety cream and pleasurable smell" (Factor 2) accounts for 8.416% of the total variance and includes four variables with significant positive factor loadings: colorful packaging (0.802), modern packaging (0.791), pleasant smell (0.788) and velvety texture (0.620). The third factor is "characteristics of a quality cream: absorption, adiposity texture, hydrating, sense of luminosity, feeling of refreshment, feeling of beauty and brand name" (Factor 3) and accounts for 7.939% of the total variance. Factor 3 consists of seven variables with positive factor loadings: absorption (0.803), adiposity texture (0.664), hydrating (0.655), sense of luminosity (0.603), feeling of refreshment (0.457), feeling of beauty (0.445) and brand name (0.442). "Young consumers influenced by fashion magazines, TV ads and word of mouth" (Factor 4) accounts for the 6.889% of the total variance. Factor 4 consists of: (a) four variables with significant positive factor loadings: fashion magazines' ads (0.764), TV ads (0.730), word of mouth (0.602), age 18-34 (0.415), and, (b) one variable with significant negative factor loading: age 52+ (-0.452). "Middle-aged and elderly consumer who is influenced by atmospherics, product shelf position, simplicity of user information and offers-presents" (Factor 5), accounts for 6.636% of the total variance and consists of five variables with positive factor loadings: pharmacy store atmospherics (0.689), product's shelf position (0.686), simplicity of user information (0.561), age 52+ (0.421), presents-offers (0.405). "Emotional consumer" (Factor 6) accounts for 6.289% of the total variance in the data and consists of three variables with significant positive factor loadings: the feeling of self confidence (0.835), the feeling of prestige (0.835) and the feeling of beauty (0.582). The seventh factor is the "economic oriented consumer" (Factor 7) which accounts for 5.463% of the total variance and includes three variables with significant positive factor loadings: offers (0.676), samples (0.622) and price (0.593). The "young consumer" (Factor 8) accounts for 4.906% of the total variance and consists of: (a) one variable with significant positive factor loading: age 18-34 (0.553) and (b) one variable with significant negative factor loading: age 35-51 (-0.971). "Consumer influenced by experts' opinion" (Factor 9) accounts for the 4.859% of the total variance and consists of two variables with significant positive factor loadings: dermatologist's opinion (0.804) and pharmacist's opinion (0.801). "Woman looking for refreshment" (Factor 10) accounts for 4.426% of the total variance and consists of two variables with positive factor loadings: gender (0.684) and feeling of refreshment (0.417). Finally, the last factor is "secure package closure ('click' sound) leads to consumer satisfaction" (Factor 11) that accounts for 4.035% of the total variance. Factor 11 consists of two variables with significant positive factor loadings: "click" sound (0.779) and satisfaction from previous purchase (0.664). The cumulative percentage of total variance extracted by the eleven successive factors (presented above) is 69.125%, indicating that the component analysis factor model is satisfactory.

5. DISCUSSION

Eleven factors were extracted, retained and interpreted to illustrate how sensory stimuli influence the emotions, the perceived quality, satisfaction and the loyalty towards a face cream brand.

The first, and most important for our research, factor is the *consumer who buys based on his senses*. Our research verifies that consumers are highly utilizing their 5 senses during every buying process (variable: importance of five senses in general). Regarding the face cream buying context, touch, smell and sight play a determinant role, which is a very reasonable result because the consumer wants to touch the package and the cream, smell the scent of the cream and visually check the packaging and the face cream, before he/she proceeds buying it (taste is irrelevant for the face cream buyer and sound found to be relevant only in the last factor through the "click" closing sound of the package, see below: factor 11). According to the significance of the factor loadings, the sense with the greater impact on the perceived quality of a face cream is touch. As Lindström (2005) argues, "the feeling of brand is closely linked to the perception of product quality". Smell also affects consumers when considering a cream (according to our analysis smell is the second sense after touch which affects the perceived quality of the cream). This finding is supported by Laird (1932) who found a positive link between the perceived quality and the use of scent. Finally, sight plays an important role in perceiving positively the quality of a cream. Lindström (2005), underlines that the fundamental concept of sensory marketing is "to establish a connection between the consumer and the brand on an emotional level, through the interaction of the five human senses (sight, smell, touch, taste, sound) in the buying process."

The second factor describes the *consumer who wants a velvety face cream with pleasurable smell and a modern colorful packaging.* The consumer desires to feel the texture, scent and color of the face cream. Based on these stimuli she/he evaluates positively the quality of the cream, because as Schmitt and Simonson (1997) stated "the texture of a material influences our emotions hence our perception" and as stated by Lorig and Schwartz (1988): "smell can be used to persuade and influence the unconscious thinking in order to influence the behavior and mood of customers". Moreover, colors are fundamental in the perception of a brand, and are used to 'set the mood of a brand through logos and packaging' (Gobé, 2001). These findings are verified by Lindström (2005), who claims that by using all five senses "a total sensory experience would at least double, if not triple, the consumer's ability to memorize the brand and keep brand unique in the consumers' minds".

The third factor is the *functionality focused and sentimental consumer*. The consumer requests certain functional characteristics from a face cream, in order to evaluate it as a quality cream. These characteristics are how easily the cream is absorbed, its adiposity texture, whether it is hydrating and if it gives a sense of luminosity. Moreover, the consumer expects from the face cream a feeling of refreshment and beauty and, finally, takes under consideration the recognition of the cream's brand name (if it is well-known or not). This consumer is both a rational and emotional consumer. This finding is partially supported by Hulten et al (2009), who state that "the road to success goes to a great

extent via emotion, when many consumers turn away from appreciating only functional product attributes and features and instead want to see the product as an experience".

The fourth factor is the *young consumer influenced by fashion magazines, tv ads and word of mouth.* According to the findings young consumers (age 18-34) when considering a face cream are mostly influenced by advertisements in fashion magazines, TV ads and by their friends' opinion (word of mouth). According to an ICAP (2009) study, fashion magazines comprise the major promotion mean for cosmetic products (59%-63% of the total commercial expenditures), followed by TV ads (33%-38% of the total commercial expenditures).

The fifth factor is the *middle-aged and elderly consumer who is influenced by atmospherics, shelf position, simplicity of user instructions and offers-presents.* For this consumer the atmospherics of the pharmacy store play a significant role in the buying process of a face cream. According to Kotler (1973), atmospherics try to produce specific emotional effects in the buyer that enhance his purchase probability. Moreover, the product's position on the shelf (if it is somewhere easy to reach), the simplicity of the user information (if they are easily understood) and the offers or presents associated with the cream, reinforce the consumer's approach behavior.

The sixth factor is the *emotional consumer*. This consumer is seeking to experience the feelings of self confidence, prestige and beauty when buying a face cream. These findings are supported by Robinette et al (2000), who claim that emotions strongly influence consumers' perception of a brand. Researches have shown that an emotional connection drives loyalty and in fact, loyalty is often made up by emotional relations to a brand (Haig, 2005).

The seventh factor is the *economic oriented consumer*. The behavior of face cream consumers is significantly affected by economic variables, such as offers or presents that come with the cream, product samples and finally the cream's price. These findings are consistent with the current bad financial condition of Greek consumers due to the Greek economic crises. It is obvious that apart from the contemporary sensory marketing practices, economic factors still play a significant role in the buying process.

The eighth factor is the *young consumer (age 18-34)*. Recall that 63.7% of the sample is young consumers aged 18-34. According to Gregan-Paxton and Roedder (1995), young consumers play an important part in the market place as they exert enormous influence over the allocation of spending power across a growing number of product categories. A brand will not succeed unless young people connect with the brand emotionally, allowing them to trust it. To develop an emotional connection, a brand must allow young people to interact with it (Hogg, Bruce and Hill, 1998). Face creams and generally the cosmetic products provide to the consumer the opportunity both to interact and emotionally connect with them.

The ninth factor is the *consumer influenced by experts' opinion*. These consumers are influenced by their dermatologist's and pharmacist's opinion. This finding is supported by Park and Lessig (1977), who claim that the individual seeks information about various brands of the product from an independent group of experts, or from those who work with the product as a profession. Both dermatologists and pharmacists are experts who work with the face creams as a profession.

The tenth factor is the *women looking for refreshment*. This finding is reinforced by Ellwood and Shekar (2008), who indicate that women have a strong psychological need to fulfill their sense of confidence and self-esteem. Women need to experience as many as possible positive feelings (such as refreshment) from their face cream. Women's emotional and symbolic needs have expanded over the years, therefore. women greatly appreciate brands that help strengthen and maintain self-esteem through confidence and strong status (Ellwood and Shekar, 2008).

Finally, the eleventh factor is: *secure package closure ('click' sound) leads to consumer satisfaction.* As Gobé (2001) stated, sound has "an immediate and, to a large extent, cognitively unmediated effect on recall and emotions" and can thus be used as a trigger for creating desired reactions when building an emotional attachment to a brand. When the consumer hears the click sound, she/he interprets it as a safety signal that the package is securely closed. This is a cognitive process, where the consumer receives the sensory stimuli ("click" sound), interprets it (package securely closed), feels satisfaction about it (emotional state) which may lead to product loyalty.

6. CONCLUSIONS

The purpose of this study is to explore how sensory stimuli influence emotions associated, perceived quality, satisfaction and loyalty towards a face cream brand. In order to fulfill the purpose of the study, an exploratory principal components analysis of factor modeling was executed on the measures of marketing stimuli, consumer demographics, consumer senses, emotions associated with a face cream, perceived quality of the face cream satisfaction and loyalty towards the face cream. Empirical findings indicate that consumers are heavily using their senses in order to perceive the quality of the product and associate it with positive emotions. The perception of different marketing stimuli consists of emotional and cognitive processes, which take place within the consumer. According to study's findings, sensory stimuli deriving mainly from the product and the packaging such as colors, modern style, pleasant smell, velvety texture and closure packaging sound, influence brand perception positively leading to a stronger (rational and emotional) bond between the brand and the consumer. Marketers, when trying to promote cosmetic products, need to pay attention, apart from the "traditional means" of the marketing mix (advertising, public relations, personal selling, sales promotion), to other very important "sensory means", such as product scent and texture, store atmosphere (including store music), sounds deriving by their products (such as the "click" closure sound of the package), etc. Sensory marketing is a relative new concept, which involves the creative synergy between marketing, psychology, neuroscience and neuropsychology. If marketers clearly understand this new concept and try to utilize the knowledge of similar to this study researches,

then they can offer a unique buying experience to their consumers, significantly increasing the probability of selling their products.

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