

THE ROLE OF PERCEPTION DESIGN IN GENDER ATTRIBUTION: GESTALT-BASED ANALYSIS OF SHOWER GEL PACKAGING IN THE ALGERIAN MARKET

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Abstract: The study examines the complex relationship between perception design and gender attribution in the context of the Algerian market, specifically within the shower gel industry, using the Gestalt theory as a guiding framework. The research involves a two-phase investigation: a first quantitative study to categorize shower gel bottles based on design similarity (s), and a second quantitative survey to explore gender perception based on design elements. The findings reveal a significant influence of perception design on gender attribution. Algerian consumers categorize shower gels based on visual aspects “form and colour”, consistently linking them to perceived gender. Male and female respondents demonstrate similar trends in design perception, although there are differences in the intensity of gender association.

Keywords: Perception design, visual design, gender attributes, gestalt theory, similarity principle.

JEL Classification Code : A12, J16.

Résumé : L'étude examine la relation compliquée entre la perception design et l'attribution de genre dans le contexte du marché algérien, particulièrement

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celui du gel douche, en utilisant la théorie Gestalt comme cadre directeur. La recherche se déroule en deux phases : une première enquête quantitative pour catégoriser les bouteilles de gel douche en fonction de leur (s) similarité (s) de design, et une deuxième aussi quantitative pour explorer la perception du genre en fonction des éléments de design. Les résultats révèlent une influence significative de la perception design sur l'attribution du genre. Les consommateurs algériens catégorisent les gels douche en fonction de leurs aspects visuels « forme et couleur », les associant systématiquement au genre perçu. Les répondants hommes et femmes présentent des tendances similaires dans la perception du design, bien que des différences soient observées dans l'intensité de l'association au genre.

Mots clés : Perception design, conception visuelle, attributs de genre, théorie gestalt, principe de similarité.

Code de classification JEL : A12, J16.

1- Introduction:

The field of perception design has long been an integral part of visual communication studies, with a growing interest in its interplay with gender and its impact on our understanding of the world. Various design elements (form, colour, and aesthetic lines...) communicate distinct messages to consumers. The effect of the shape of green brand logos on consumer perception (Meiting& Hua, 2020). The influence that perception design holds encouraged scholars to study it in order to understand consumers' thoughts and interpret their behaviours towards products and brands. (Lieven et al, 2015).

A significant area of research explores how different design elements relate to gender attributes. Scholars have investigated how different design aspects such as form and colour impact perceptions of product and brand gender. This intricate relationship between perception design and gender raises intriguing questions about the role visual elements play in shaping our understanding and attribution of gender in everyday products.

In modern society, product design carries substantial cultural and social implications, affecting how individuals perceive and interact with the world. This study aims to examine the complex relationship between perception design and gender through the lens of Gestalt theory. Gestalt theory offers a theoretical framework for analysing the visual

components that influence consumer perceptions and behaviour, providing insights into the broader implications of design choices.

In the context of the Algerian market, this research bridges a significant gap by investigating for the first time how Algerian consumers perceive gender in product design, particularly through the lens of Gestalt theory. Algeria's distinct cultural landscape serves as an intriguing setting for exploring the relationship between perception design and gender attribution. By examining Algerian consumer preferences, behaviours, and criteria in associating gender with products (particularly shower gels), this study seeks to contribute valuable insights to the broader discourse on gender, design, and consumer behaviour.

The main problem of our research is the following: "In what ways does perception design influence and contribute to the determination and attribution of gender to products, and how do consumers perceive and define the gender of a shower gel product based on its design? »

To answer the research problem, we propose the following hypotheses:

H1: Perception design significantly influences the determination and attribution of gender to products.

H2: Consumers perceive and define the gender of a shower gel based on the design of its bottle.

H3: The application of the Gestalt similarity principle in perception design significantly influences the perceived gender attributes of products.

The research objectives:

- ✓ Apply Gestalt Theory to investigate perception design: utilize the Gestalt theory as a framework to analyse perception design elements, exploring their role in shaping gender perceptions of products among Algerian consumers.
- ✓ Evaluate the influence of design on gender attribution: examine the impact of design elements on the determination and identification of gender attributes in products, aiming to uncover the specific design features that contribute to gender associations.
- ✓ Assess the significance of knowing product gender: explore the importance placed by Algerian consumers on knowing and attributing gender to products, aiming to uncover the factors that influence their perceptions and preferences in this regard.

- ✓ Explore the relationship between consumer and product gender: investigate the correlation between the gender of Algerian consumers and their perceptions of the gender associated with products, aiming to identify potential patterns or differences based on consumer demographics.

The importance of the research: This research holds significant relevance in several key aspects:

- ✓ Advancing academic understanding: by applying the Gestalt theory to explore the relationship between perception design and gender in the context of Algerian consumers, this study contributes to the academic understanding of how design elements influence gender perceptions.
- ✓ Informing product design strategies: the findings of this research can provide valuable insights for designers, marketers, and businesses aiming to create products that resonate with Algerian consumers. Understanding the specific design features that influence gender attributions can inform strategic decision-making in product development.
- ✓ Gender dynamics in consumption: investigating the relationship between consumer and product gender sheds light on gender dynamics in consumption. Such insights have implications for marketing strategies, gender-sensitive product development, and addressing potential gender-based stereotypes in the marketplace.

Methodology: Our research covers two quantitative studies.

The first quantitative study:

We provided a sample of 36 Algerian participants with a written questionnaire (see appendix n°1) in which we asked them to categorize a variety of bottle designs “without any written information on the bottles”, to examine how consumers categorize shower gel bottles and what criteria they use (Gestalt theory).

The second quantitative study:

Leveraging findings from Phase 1, where 82.3% of participants categorized bottles based on visual aspects (Overall design, form, colour...), we conducted an online survey (see appendix n°2). Our sample is made of 120 respondents distributed across 30 wilayas, in which 70.4% were females, and 50% were aged between 21 and 30 years. We then carried out a univariate and bivariate (cross-sorting

gender with importance of visual design and the femininity/masculinity of the different bottles ...) analysis using an SPSS software, to understand the relationship between perception design and gender.

2- Literature review:

2- 1. Perception and design:

Perception design plays a pivotal role in shaping consumer interactions with products. Human perception integrates various factors, including physiological, psychological, and demographic influences, which subsequently affect how individuals interpret and engage with products. Studies suggest that individuals form judgments about people or products within as little as 90seconds, emphasizing the swift and selective nature of perception (ChangDa& Bhaumik, 2023). This underscores the importance of focusing on product perception and attributes, both visual and others, in research. Visual attention is limited in its ability to process information from the external environment, necessitating impactful and focused design to maximize its efficacy (Wanga& Yin, 2023). This places pressure on designers and marketers to carefully craft and communicate the product's visual attributes.

2- 2. Visual design as a communicative tool

Packaging design, especially its visual aspects, has a substantial impact on consumer behaviour. Numerous studies have investigated the influence of packaging and visual design on consumer perceptions, including aspects such as product quality and safety, particularly in the food industry, and consumer engagement (Bou-Mitriet al, 2021). Design elements like shapes, colours, and patterns on product packaging significantly influence consumers' purchasing decisions and perceptions of products (Zaripova et al ,2020)(Rettie &Brewer,2000) (Shen,2014). These elements function as communicative tools, conveying messages and influencing consumer behaviour and decisions at the point of purchase. (Vyas, 2015).

2-3. Perception Design

The role of perception design in shaping consumer responses and preferences is evident in research highlighting the association between brand masculinity or femininity and positive consumer reactions (Lieven et al, 2015). However, there remains a gap in understanding the visual

perception priority of different design elements in various application scenarios (Wanga & Yin, 2023). Product packaging, as a key aspect of perception design, combines visual and informational elements to influence consumer perceptions of product quality, brand, and gender (Garaszczuk, 2015).

2- 4. Role of gender in design

Marketers and designers have consistently strived to meet consumer needs based on demographics such as age, social category, and gender. Gender plays a crucial role in shaping consumer perceptions of products across different categories and choices. Visual cues in product design can convey gender and influence consumer preferences and behaviours (Moss, 1999) (Sekhar & Paghunadha Reddy, 2018). Studies on product and brand gender highlight that congruence between brand and product category gender positively influences consumer preferences (Lieven et al, 2015). High product gender evokes positive consumer perceptions and behaviour, with highly gendered products perceived as highly aesthetic (Tilburg et al, 2015), reinforcing the importance of defining and communicating a product's gender.

Demographic factors, including age, socioeconomic status, gender, and culture, strongly influence colour preferences, further demonstrating the intricate relationship between perception and gender (ChangDa & Bhaumik, 2023). Scholars have explored gender elements in design to meet the requirements of gender segmentation and visual perception effectiveness (Wanga & Yin, 2023). Physical features such as colour and shape influence perceptions of femininity and masculinity, contributing to judgments of attractiveness (Lieven et al, 2015).

2-5. Application of Gestalt Theory

Perception is a complex process influenced by many factors, yet studying it is essential for understanding consumer behaviour. Gestalt principles offer a valuable framework for understanding how humans perceive visual stimuli. According to Gestalt theory, individuals perceive elements as cohesive wholes rather than in isolation (Chou, 2011). The Law of Similarity, a key principle of Gestalt theory, asserts that elements with shared superficial characteristics tend to form perceptual groups (Kinight, 2018). Applying Gestalt principles enables designers to create coherent and compelling designs that enhance consumer comprehension

and appeal, helping them understand the major visual similarities consumers detect in products and the associations they make with them.

2-6. Synthesis and research gap:

While existing literature highlights the importance of visual design and gender in consumer products, there is limited research on the interaction of these factors within specific cultural contexts, such as Algeria. This research addresses this gap by exploring gender perceptions in the Algerian market for shower gels through the lens of Gestalt theory. This study contributes to a broader understanding of gender-specific and gender attributes in non-western contexts; being the first in north Africa; providing both theoretical and practical insights for design and marketing professionals.

3- Results and discussions:

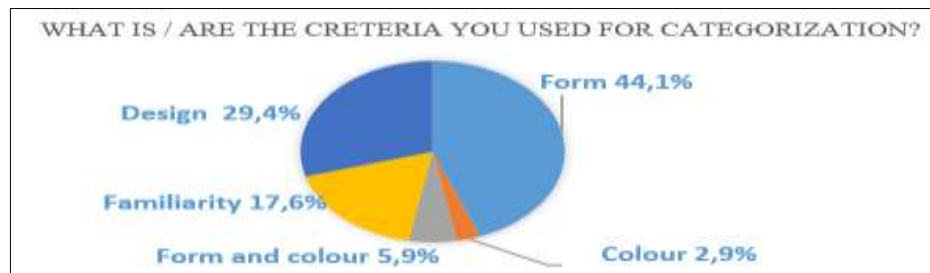
This study is organised in two primary phases to explore the relationship between design perception and gender, as interpreted through the Gestalt principles of similarity, within the context of local shower gel products among Algerian consumers.

3- 1. The first quantitative study:

This step was crucial for understanding the categorization criteria used by Algerian consumers and for selecting the most suitable designs for further analysis.

After discarding ambiguous designs, five categories emerged based on form, colour, overall design, and familiarity with the shower gel bottles. A significant 44.1% of participants based their categorization on bottle form, grouping bottles with similar shapes together (see figure n°1). Twenty nine point four percent of respondents used overall design as their criteria. Familiarity also played a role, indicating a tendency to categorize based on known or previously used products.

Figure N°1: The sample distribution according to the categorization criteria



Source: Elaborated by the researchers using an excel software.

The findings of this step regarding categorization based on similarities, and the clarity of the design femininity/ masculinity were essential for the second phase of the research.

3-2. The second quantitative study (Gender Perception Based on Design):

This phase aimed to uncover how design influences gender perception and the extent to which visual design elements are associated with gender.

To explore further the relationship between perception design and gender, we presented participants with different shower gel bottles categorized in five main categories (based on the first quantitative study). We then asked them to assess the categorized shower gel bottles' degree of femininity and masculinity to investigate the categorization influence (categories that were based on form), colour influence, gender differences influence in order to reveal the relation between perception design and gender. We conducted a univariate and bivariate (where we tried cross-sorting gender with importance of visual design and the femininity/masculinity of the different bottles ...) analysis using an SPSS software.

3-2-1. Categorization influence.

Each category, determined by similar or identical form, showed consistency in gender attribution.

Table° 1: Sample distribution according to the perception of bottle's femininity/masculinity

	Design	Percentage		
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	N°		VF%	MF%	SF %	N%	SM %	MM %	VM %	Ranges	Brand
Category 1	1		11,7	11,7	17,5	29,1	15	8,3	6,7	Range 1	Brand Venus
	2		71,7	19,2	3,3	3,3	1,7	0,8	0		
	3		25	28,3	16,7	25,8	3,4	0	0,8		
	4		6,7	12,5	21,7	31,6	14,2	10,8	2,5		
	5		33,3	32,5	15,8	13,4	2,5	2,5	0		
	6		13,3	20,8	16,7	31,7	7,5	5,8	4,2		
Category 2	7		10,8	13,3	20	43,3	5,9	5	1,7	Range 2	
	8		13,3	13,3	20,8	34,2	11,8	5,8	0,8		
	9		54,2	18,3	21,7	4,2	0,8	0	0,8		
	10		33,3	25	20,8	15	1,7	2,5	1,7		
Category 3	11		1,7	6,7	17,5	15,8	17,5	12,5	28,3	Range 3	
	12		1,7	5,8	15,8	22,5	14,2	10	30		
	13		0,8	0	22,5	5	5,8	11,7	54,2		
	14		0	3,3	20	5,8	2,5	14,2	54,2		
Category 4	15		71,7	16,7	4,2	3,3	2,5	0,8	0,8	Range 1	Brand Flux
	16		34,2	36,7	11,7	13,3	3,3	0,8	0		
	17		13,3	21,7	17,5	32,5	8,4	3,3	3,3		
	18		10	9,2	25	25,8	15,8	9,2	5		
	19		18,3	19,2	19,2	32,5	3,3	4,2	3,3		

Category 5	20		16,7	14,2	22,5	35,8	8,3	1,7	0,8	Range 1	Brand Swalis
	21		30	21,7	25,8	15,8	4,2	1,7	0,8		
	22		18,3	17,5	21,7	20,8	15,8	4,2	1,7		
	23		35	34,2	20	10,8	0	0	0		
	24		67,5	13,3	12,5	5,9	0	0,8	0		
	25		55	22,5	16,7	3,3	1,7	0,8	0	Range 1	Brand Novex
	26		34,4	23,6	18,6	12,6	8,3	1,7	0,8		
	27		25,8	18,3	23,3	22,6	8,3	1,7	0		
	29		35	33,3	17,6	10,8	0,8	2,5	0		
	30		16,7	12,5	16,7	20	20	8,3	5,8		

Source: Elaborated by the researchers using SPSS data.

“sf= Slightly feminine, mf= moderately feminine, vf=very feminine, N=neutral, sm=slightly masculine, mm=moderately masculine, vm=very masculine”

The first category “same form and different colours has six shower gel bottle designs. More than 40.7% of the participants described all of them as feminine. Which allows us to say that this category of designs is classified as feminine with a variety in the femininity degree among its designs; since three out of the five bottle designs “ N°1, 3 and 4” were rated more than 70% of the participants feminine. More than 71% of the participants considered design n° 2 to be very feminine.

The second category contains four bottles, identical in form but differing by colour. All bottles were considered feminine by more than 44,2% of the participants More than 79% of the participants considered two out of the four designs, “N° 9 and N° 10”, feminine.

The third category has four bottles, identical in form but different in colour. All were seen masculine by more than 54, 2% of the research population. Two of the four designs “N°13 and N°14” were rated by more than 70 % of the population masculine ; 54,2% of them thought they were even very masculine.

The fourth category contains five bottle designs; identical in form and different in colour. The majority of the respondents saw all five designs feminine. More than 82% of the participants considered designs N° 15 and N° 16 while more than 70% considered the other three “N° 17, N°18 and N° 19” whether feminine or neutral.

The fifth category contains ten bottle designs; similar in colour (the bottle cup) and differ in colour which were found feminine by the majority of participants. Seventy-six point six percent of the participants considered six of the designs in this category purely feminine; designs N° 21, 23,24,25,26 and 28.

We noticed a homogeneity in the bottles of each category, which participants categorized by similar or identical design forms according to the gestalt principle of similarity. The majority of the respondents found all bottles in each category either feminine or masculine with differences in the degree of femininity and masculinity given to each design of the same category. The majority of the respondents attribute all bottle designs of the same category to the same gender, which confirms H1: “Perception design significantly influences the determination and attribution of gender to products.”

3-2-2. Colour influence

Distinct colour patterns also noticeably influenced gender perception. Participants overwhelmingly perceived pink and purple hues as feminine:

The bottle designs coloured pink were all considered feminine by at least 92, 5% of the respondents. Two designs “N°2, N°15”were particularly considered by 71, 7% of the respondents very feminine. The bottle designs coloured purple “different shades” were all considered feminine by at least 81, 7%.

At least 70% of the respondents consider all the designs coloured red feminine, when 50, 8 % of the respondents found the bottle designs coloured orange feminine.

Between 40,8% and 57,5% found three out of the five bottles coloured blue “different shades” feminine “N° 1, N°8 and N°22” while 58,3% considered the fourth bottle “N°11” masculine and the bottle coloured navy blue “N°13” was considered masculine by 71,7% of the respondents “54,2% found it very masculine”.

Between 40,8% and 53,3% of the respondents found four “designs : 4, 18, 20 and 29” out of the five bottles coloured green “different shades” feminine while 54,2% of them considered the fifth masculine “ design 12”.

Seventy point nine percent of the respondents considered the brown-coloured bottle masculine, and 54, 2% of them considered it very masculine.

Interestingly, the exception found in all colour shades was the design coloured yellow which 43, 3% of the respondents found neutral, or suitable for both genders.

We noticed that four of the eight presented colours were considered feminine; with pink and purple considered by most very feminine. Then comes red and orange as little less feminine compared to the first two. The respondents associated brown and navy blue with masculinity. Blue and green’s data were overlapping; feminine in some designs and masculine in others.

The colour results’ did not contradict with the form results analysed earlier, on the contrary colour actually reinforced the clarity of the gender according to the Algerian consumer that links some colours easily and quickly to a specific gender if the form is already oriented towards that gender. These results confirm H2: “Consumers perceive and define the gender of a shower gel based on the design of its bottle”.

3-2-3. Gender differences in perception

Both male and female respondents showed similar trends in linking design forms and basic colours to product gender. However, there were notable differences in the intensity of gender association, particularly with varied shades within the same colour category. Males and females differed in their perception of the degree of masculinity or femininity attributed to the same products, highlighting subtle but significant gender-based differences in design perception. (See table N° 2)

Table N°2: Cross-sorting of “Sample distribution according to the bottle’s choice of femininity/masculinity” and “respondents gender”.

		The percentage % in the male gender							The percentage % in the female gender							
		VF	MF	SF	N	SM	MM	VM	VF	MF	SF	N	SM	M M	VM	
	%	12,9	19,4	6,5	25,8	16,1	9,7	9,6	11,2	9	21,4	30,3	14,6	7,9	5,6	Category 1
	Total %	38,8			25,8	35,4			41,6			30,3	28,1			
	VF → VM%	71	19,4	0	6,5	3,1	0	0	71,9	19,1	4,6	2,2	1,1	1,1	0	
	Total %	90,4			6,5	3,1			95,6			2,2	2,2			
		29	29	12,9	19,4	9,7	0	0	23,6	28,2	18	28,1	1,1	0	0	
	Total %	70,9			19,4	9,7			69,8			28,1	1,1			
		16,1	12,9	9,8	25,8	16,1	16,1	3,2	3,4	12,4	25,8	33,8	13,5	9	2,2	
	Total %	38,8			25,8	35,4			41,6			33,8	24,7			
		35,5	19,4	19,4	19,4	3,2	3,1	0	32,6	37,1	14,6	11,2	2,2	2,2	0	
	Total %	74,3			19,4	6,3			84,3			11,3	4,4			
		22,6	6,5	22,6	22,6	12,9	9,7	3,1	10,1	25,8	14,7	34,8	5,6	4,5	4,5	
	Total %	51,7			22,6	25,7			50,6			34,8	14,6			
		12,9	12,9	12,9	38,7	12,9	9,7	0	10,1	13,5	22,5	44,9	3,4	3,4	2,2	Category 2
	Total %	38,7			38,7	22,6			46,1			44,9	9			
		9,7	12,9	19,4	22,6	16,1	16,1	3,2	14,6	13,5	21,3	38,3	10,1	2,2	0	
	Total %	42			22,6	35,4			49,4			38,3	12,3			

The role of perception design in gender attribution: Gestalt-based analysis of shower gel packaging in the Algerian market.

9 		48,4	12,9	22,6	12,9	3,2	0	0	56,2	20,3	21,3	1,1	0	0	1,1	
	Total %	83,9			12,9	3,2			97,8			1,1	1,1			
10 		29	16,1	22,6	16,1	6,5	6,5	3,2	34,8	28,1	20,3	14,6	0	1,1	1,1	
	Total %	67,7			16,1	16,2			83,2			14,6	2,2			
11 		3,2	6,5	9,7	6,4	29	9,7	35,5	1,1	6,7	20,2	19,2	13,5	13,5	25,8	Category 3
	Total %	19,4			6,4	74,2			28			19,2	52,8			
12 		3,2	9,5	6,5	22,6	19,4	6,5	32,3	1,1	4,5	19,1	22,5	12,4	11,2	29,2	
	Total %	19,2			22,6	58,2			24,7			22,5	52,8			
13 		0	0	12,9	0	9,7	16,1	61,3	1,1	0	25,8	6,8	4,5	10,1	51,7	
	Total %	12,9			0	87,1			26,9			6,8	66,3			
13 		0	6,5	9,7	3,2	0	25,8	54,8	0	2,2	23,6	6,8	3,4	10,1	53,9	
	Total %	16,2			3,2	80,6			25,8			6,8	67,4			
15 		64,5	22,6	0	6,5	3,2	0	3,2	74,2	14,6	5,6	2,3	2,2	1,1	0	Category 4
	Total %	87,1			6,5	6,4			94,4			2,3	3,3			
16 		35,5	25,8	6,5	25,8	3,2	3,2	0	33,7	40,4	13,5	9	3,4	0	0	
	Total %	67,8			25,8	6,4			87,6			9	3,4			
17 		22,6	22,6	12,9	16,1	19,4	0	6,4	10,1	21,3	19,1	38,3	4,5	4,5	2,2	
	Total %	58,1			16,1	25,8			50,5			38,3	11,2			
18 		19,4	12,9	12,9	19,3	22,6	9,7	3,2	6,7	7,9	29,2	28,1	13,5	9	5,6	

	Total %	45,2			19,3	35,5			43,8			28,1	28,1			
19 		22,6	9,7	22,6	6,5	6,4	9,7	6,4	16,9	22,5	18	36	2,2	2,2	2,2	
	Total %	54,9			6,5	22,5			57,4			36	6,6			
20 		20,1	20,5	26,9	22,7	9,8	0	0	15,7	12,4	21,3	40,4	7,9	2,2	0	Category 5
	Total %	67,5			22,7	9,8			49,4			40,5	10,1			
21 		26,8	23,6	26,8	13	9,8	0	0	31,5	21,3	25,8	17	2,2	0	2,2	
	Total %	77,2			13	9,8			78,6			17	4,4			
22 		29	19,4	19,4	16,1	12,9	3,2	0	14,6	16,9	22,5	22,4	16,9	4,5	2,2	
	Total %	67,8			16,1	16,1			54			22,4	23,6			
23 		38,7	19,4	25,8	16,1	0	0	0	33,7	39,3	18	9	0	0	0	
	Total %	83,9			16,1	0			91			9	0			
24 		61,3	12,9	16,1	9,7	0	0	0	69,7	13,5	11,2	4,5	0	1,1	0	
	Total %	90,3			9,7	0			94,4			4,5	1,1			
25 		41,9	25,9	22,6	3,2	3,2	3,2	0	59,6	21,3	14,6	3,4	1,1	0	0	
	Total %	90,4			3,2	6,4			95,5			3,4	1,1			
26 		25,8	25,8	12,9	19,4	12,9	3,2	0	38,1	22,5	20,2	10,3	6,7	1,1	1,1	
	Total %	64,5			19,4	16,1			80,8			10,3	8,9			
27 		29	16,1	16,1	25,9	12,9	0	0	24,7	19,1	25,9	21,4	6,7	2,2	0	
	Total %	61,2			25,9	12,9			69,7			21,4	8,9			

28		29	35,5	12,9	16,1	0	6,5	0	37,1	32,6	19,1	9	1,1	1,1	0
	Total %	77,4			16,1	6,5			88,8			9	2,2		
29		25,8	16,1	16,1	22,6	6,5	12,9	0	13,5	11,2	16,9	19,1	24,7	6,7	7,9
	Total %	58			22,6	19,4			41,6			19,1	39,3		

Source: Elaborated by the researchers using SPSS data.

The data shows that the designs found most feminine by male “ $\geq 83,9\%$ ” respondents were all pink from the different categories. 71% of male respondents found design N° 2 coloured pink very feminine. More than 94, 4% Female respondents also found the most feminine bottle designs those coloured pink. 74, 2% of the female respondents found design N°15, also coloured pink very feminine. The second most feminine shower gel bottles are the ones coloured purple. None of the male or female participants found design N° 23 “coloured purple” even slightly masculine, same thing for the pink design N°24.

Both genders considered all third category bottle designs the most masculine. At least 74,2% of male respondents found design N°11, 13 and 14 masculine, yet only 58,2% of them found design N°12 “the green one” masculine. 61,3% out of the 87,1% that found design N°13 “coloured navy blue” very masculine. Between 52,8 and 67,4% of the female respondents found all the third category’s designs masculine with N°14 “coloured brown” considered the most masculine design in the category (53,9% found it very masculine).

The bottle design N°7 coloured yellow is considered the most neutral by both males and females, however when 38, 7% found it neutral another 38, 7% of them found it feminine. In addition, when 44, 9% of female found it neutral another 46, 1% found it feminine.

The bottle designs coloured green were close in percentage between feminine and masculine or feminine and neutral.

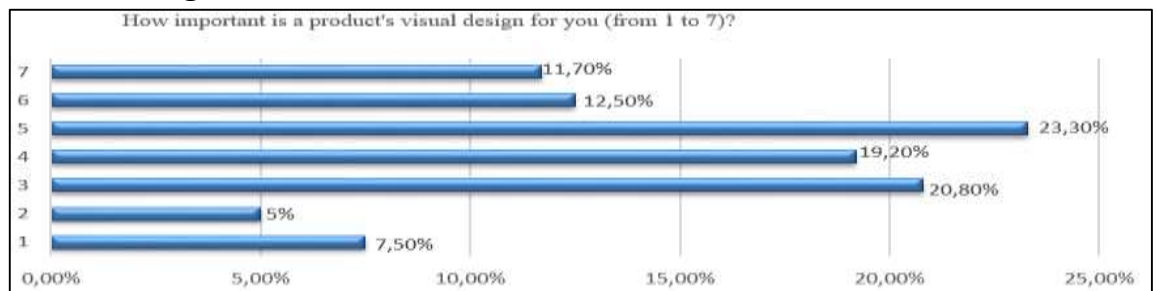
Algerian consumers generally perceive design elements such as form and colour and their association with a product's femininity or masculinity in a similar manner. However, the perceived degree of femininity and masculinity attributed to shower gel products differs significantly between male and female respondents. While both genders

identify the same forms and primary colours with product gender consistently, there is notable variation in the intensity of femininity or masculinity attributed to the products, particularly when considering different shades of colour.

3-2-4. Visual design and gender association in the Algerian shower gel market.

Based on the collected data, we sought to examine the relationship between the perceived importance of shower gel visual design for Algerian consumers, their preference for selecting a shower gel corresponding to their own gender, and their ability to discern a product's gender based solely on its design, without relying on written information.

Figure N°2: The sample distribution according to the importance of visual design.



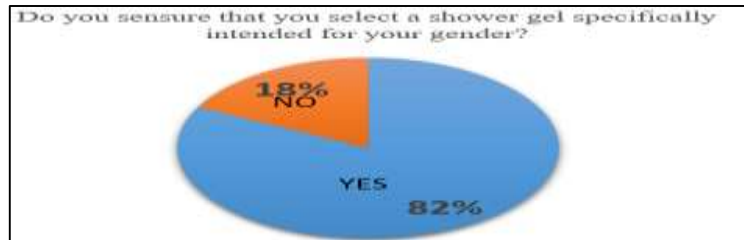
Source: Elaborated by the researchers using an excel software.

We calculated the average importance assigned to visual design to be 4.3 on a scale where the maximum possible value was seven. We then explored the significance that Algerian consumers attach to selecting a shower gel tailored to their own gender. 82.5% of participants (71% of men and 86.5% of women) emphasized that they deliberately choose products intended for their respective gender, with women demonstrating a stronger inclination toward this preference compared to men.

Next, we compared the importance of choosing a gender-specific shower gel with participants' ability to determine a product's gender based on its design (figure N°3 and figure N°4). The data revealed comparable figures for both variables. Most respondents attributed high importance to visual design, assigning it an average importance of 4.3 out of 7. Furthermore, 83.3% (80.6% of men and 84.5% of women) of

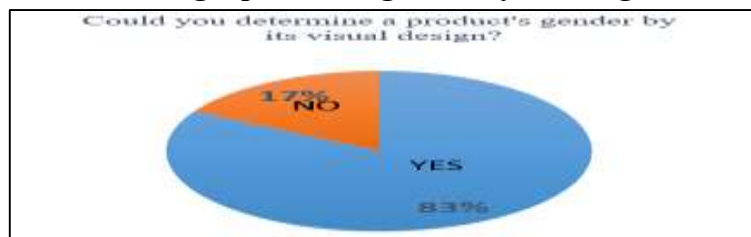
participants confirmed that they use product's visual design to identify a product's gender.

FigureN°3: The sample distribution according to the importance of choosing a shower gel of one's own gender



Source: Elaborated by the researchers using SPSS.

Figure 4: Sample distribution according to the respondents' ability of determining a product's gender by its design.



Source: Elaborated by the researchers using SPSS.

The ability to discern a product's gender is of considerable importance, as 82.5% of respondents (71% of men and 86.5% of women) emphasized that they exclusively select shower gels aimed at their own gender. This finding underlines the significance of visual design for Algerian consumers, as the majority use it to determine the product's gender, which aligns with their personal preference.

These findings suggest that Algerian consumers, both males and females, prioritize identifying a product's gender before making a purchase. This observation implies that Algerian consumers associate certain design attributes or elements with specific genders.

3-2-5. Consumer perceptions of shower gel design and gender alignment in the Algerian market.

The findings demonstrate that Algerian consumers can accurately discern the gender of a product based solely on its design. A significant majority of male and female respondents categorized four out of five

groups of shower gel bottles as feminine, with variations in the degree of femininity across different designs. Conversely, both male and female respondents classified the remaining group as masculine, with variations in the degree of perceived masculinity for each design within the group. (Table N°1 and tableN°2)

We compared these perceptions to the original gender categorizations established by the brands, revealing a high degree of alignment between the consumer-assigned genders based on visual design and the intended gender ascribed to the products by their respective brands. However, this categorization was not entirely consistent, as some respondents grouped together bottles from different brands, considering them visually similar. (Bottles in category 5), which confirms the third hypothesis “The application of the Gestalt similarity principle in perception design significantly influences the perceived gender attributes of products.”

4- Conclusion:

This study underscores the significant relationship between perception design and gender attribution in the shower gel market in Algeria, guided by the Gestalt principle of similarity. It offers valuable insights into how Algerian consumers interpret visual design as a critical communicative element, influencing their understanding of a product's gender without relying on textual information.

The findings indicate that most consumers rely on visual aspects of shower gel packaging to determine the gender of the product, thereby aligning their purchasing choices with gender congruence. The application of the Gestalt principle of similarity emphasizes the primacy of form as the dominant categorization standard, with form being instrumental in associating a particular gender with each product. Additionally, colour reinforces the gender associations established by form, affecting the perceived intensity of femininity or masculinity and supporting the proposed hypotheses.

To maximize market acceptance and success, we recommend marketers and designers to prioritize creating and communicating clear and targeted designs that align with the gender preferences of their audience. This approach can reduce ambiguity in product design and improve consumer satisfaction by closely considering the homogeneity of form and colour in relation to the intended audience.

While this study provides a clear understanding of gender perception in shower gel design, its scope is limited to local products and

a relatively young sample population (50% of whom were aged 21–30). Future research could expand its focus to include a broader age range and other product categories, providing more in-depth insights into gender attribution across diverse markets in Algeria. This could lead to a deeper understanding of consumer stereotypes and behaviour regarding gender association.

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Appendices:

Bothe appendices (questionnaires) were distributed in the French language to maximize the understanding and the responding rate.

Appendix n°1 : Questionnaire 1

1-Vous êtes : femme /homme ?

2 - Vous trouvez dessous un ensemble des designs (flacons gel douche), essayez de les arranger en catégorie (une ou plusieurs catégorie « s »)

*Une catégorie contient des éléments qui ont des points communs, des similitudes.



3 -Sur quel (s) critère (s) avez-vous basé votre catégorisation ?

4 -Trouvez-vous la masculinité/ féminité de chacun des flacons évidente ? (1= pas du tout évidente, 5= très évidente)

Appendix n°2 : Questionnaire 2 :

1.1 Vous êtes : femme / homme ?

1.2 Veuillez indiquer votre tranche d'âge :

A-Moins de 20 ans. B- De 20 à 30 ans. C- De 31 à 40 ans. D- De 41 à 50 ans. E- Plus que 50 ans.

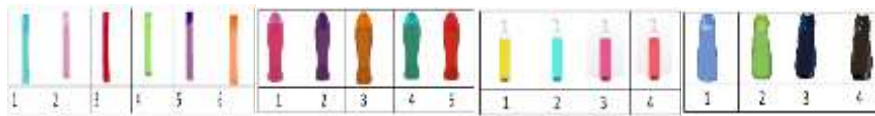
1.3 Vous êtes de quelle wilaya ?

2.1. Quel importance a un design visuel d'un gel douche pour vous ?

2.2.Pouvez-vous déterminer le sexe du produit uniquement par son design ou devez-vous lire les informations écrites ?

2.3.Assurez-vous de choisir un gel douche destiné à votre sexe ?

3.1. Comment trouvez-vous chacun de ces flacons ? « Très féminin, modérément féminin, légèrement féminin, neutre, légèrement masculin, modérément masculin, très masculin ».



Catégorie 1

Catégorie 2

Catégorie 3

Catégorie 4



Catégorie 5