SIMILARITY OR COMPLIMENTARITY BETWEEN PRODUCT DESIGN AND CONSUMER'S BODY AND ITS RELATIONSHIP WITH HIS/HER BEHAVIOR

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APPROVAL OF JURY AND INSTITUTE

This thesis titled "**Similarity or complementarity between product design and consumer's body and its relationship with his/her behavior"** has been prepared and submitted by **Mohamed Firas Hlioui** in partial fulfillment of the requirements in "Anadolu University Directive on Graduate Education and Examination" for the Degree of Master of Science in **Industrial Design** Department has been examined and approved on 16/05/2017.

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ABSTRACT

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The human being is made of three decisive elements, which they are known as spirit, soul and body. The individual, has two considerable aspects. The first one is the immaterial aspect (spiritual), and the second one is the material aspect (body). The consumer as a human being is the base of many marketing researches. This study addresses the consumer as a human being from a bodily perspective by reviewing the relationship between the body features of the consumer and the design features of the product. In other words, the relationship between the morphology of the body of the consumer and the shape of the product is investigated. For this study smartphone's shapes were selected as product examples and classified into three criteria, size criterion (large or small), width criterion (narrow or wide) and finally the criterion of roundness (angular or rounded). All these criteria have been distinguished to meet the possible consumer's body types ectomorph (linear or thin), mesomorph (not too thin and not too wide) and endomorph (transversal or wide) with considering the sex of the consumer, male or female. Through the development of a qualitative study, we have distinguished the presence of a "similarity" or "complementarity" between the consumer's body (based on the sex and the somatotype) and the preferred shape of the smartphone (based on size, width and roundness criterion).

Keywords: Product design, Body, Body congruity, Morphology, Consumer behavior

ÖZET

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Danışman: **Prof. Dr. Celal Hakan KAĞNICIOĞLU**

İnsan, maneviyat, ruh ve beden olarak bilinen üç belirleyici unsurdan oluşur. Bireyin iki önemli özelliği vardır. İlki maddi olmayan yönü (manevi) ve ikincisi, maddi (vücut) yönüdür. Bir insan olarak tüketici bir çok pazarlama araştırmasının temelini oluşturmaktadır. Bu çalışma, tüketicinin vücut özellikleri ile ürünün tasarım özellikleri arasındaki ilişkiyi gözden geçirerek, bir insanın bedensel perspektiften ele alınmasını amaçlamaktadır. Diğer bir deyişle, tüketici bedeninin morfolojisi ile ürünün şekli arasındaki ilişki araştırılmaktadır. Bu çalışmada akıllı telefon şekilleri örnek ürün olarak seçilmiş ve boyut ölçütü (büyük veya küçük), genişlik ölçütü (dar veya geniş) ve son olarak da yuvarlaklık (köşeli veya yuvarlak) ölçütüne göre üç sınıfa ayrılmıştır. Tüm bu kriterler, tüketicinin erkek ya da kadın olması göz önüne alınarak olası tüketici vücut tipleri olan ectomorph (doğrusal veya ince), mesomorph (çok ince olmayan ve çok geniş olmayan) ve endomorf (enli veya geniş) olarak ayrılmıştır. Niteliksel bir çalışma geliştirilerek tüketicinin bedeniyle (cinsiyete ve somatotipe dayalı olarak) akıllı telefonun tercih edilen şekli arasında bir "benzerlik" veya "tamamlayıcılık" (boyut, genişlik ve yuvarlaklık ölçütü) ortaya çıkarılmıştır.

Anahtar Kelimeler: Ürün tasarımı, Vücut, Vücuda uygunluğu, Morfoloji, Tüketici davranışı

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Mohamed Firas Hlioui

16/05/2017

DECLARATION OF CONFORMITY FOR ETHIC RULES AND PRINCIPLES

I hereby truthfully declare that this thesis is an original work prepared by me; that I have behaved in accordance with the scientific ethical principles and rules throughout the stages of preparation, data collection, analysis, and presentation of my work; that I have cited the sources of all the data and information that could be obtained within the scope of this study, and included these sources in the references section; and that this study has been scanned for plagiarism with "scientific plagiarism detection program" used by Anadolu University, and that "it does not have any plagiarism" whatsoever. I also declare that, if a case contrary to my declaration is detected in my work at any time, I hereby express my consent to all the ethical and legal consequences that are involved.

Mohamed Firas Hlioui

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1. INTRODUCTION

While today companies are looking for new ways to retain an increasingly clientele, the classic techniques of customer segmentation have reached their limits and the alternatives proposed by the approaches "life styles "could not provide satisfactory solutions. The research of new way of consumer's segmentation became an urgent need to better satisfy the consumer and build new horizons of competition.

No matter how different and varied the areas of research in the field of marketing, the base of any research in this field is the consumer. This human being, as a spirit, soul, body, culture, experiences, emotions and so more. All the previous philosophical studies and even religious texts affirmed that the human being is a combination of the three principle elements: Spirits, soul and body (Feyerabend 2016). By looking to the previous researches conducted on marketing fields, we can notice the absence and the ignorance of the body as a variable that can affect the consumer behavior.

This study addreses the body as a variable that exceptionally can affect the consumer's behavior. In other words, the body with all its variables: Sex of the body, shape of the body, morphology of the body. How the body can affect the consumer behavior and push him to prefer one shape than other. First of all, it is necessary to look at the body thought a historical and philosophical perspective. What are we talking about when we say "human body"? This question brings us back to an extreme diversity of scientific or common approaches and an infinite multiplicity of possible perspectives on the body (medical, religious, metaphysical, philosophical, anthropological, sociological, aesthetic, psychoanalytic, psychological, etc.). The first theories of the human body came from the philosophers of ancient Greece who developed the most extreme doctrines and solutions on the body, thus defending the most opposite arguments. Some philosophers (like Socrates, Plato) despised the body and did not take it into account, preferring the nobility of soul and thought to the baseness of body and flesh. on the other hand, others (like Epicurus and Lucretius), affirmed the preeminence of the body, especially in its sensual dimension, and situate the greatness of man in his corporeality (Greene and Goodrich-Dunn 2013). The theorists were quarreling without ceasing, and today the problematic of "soma" (body) and

“psyche” (spirit)” comes up again and again: How can a body think? How are thoughts in the body? (Feyerabend 2016).

According to Marzano, it is through the body that we experience the great knowledge of humanity, and where love takes place, contemplate, experience, is the privileged mediator of our passions, our joys as well as our sufferings (Marzano 2016).

This reflection seems to introduce the problematic of our thesis. The body is the means by which we apprehend the world because everything that appears to us from the point of view of our body (Chirpaz 1969). We can then rightly ask whether this body-object which is both a corps and object, visible from the outside (morphology, appearance) and a body-subject, experiences from inside (image of the body) could influence our behavior, and more precisely influence our perceptions and attitudes towards objects.

1.1 Problem of the Study

A larger understanding of the consumer’s behavior had been always the principle problem of marketing management however companies always fail to archive a good understanding of their consumer’s needs because of the lack of the knowledge of what influences them (Lake 2009). Nowadays consumers are dealing with a big amount of selections. Many criteria may influence the selection of the product or service by the consumer. This research aims to identify the existence of a similarity or a complementarity between the product design (shape of the product) and the somatotype (ectomorph, mesomorph or endomorph) of the consumer based on the theory of balance and the theory of self-enhancement.

This research aims to understand how the shape and sex of the body can affect the consumer’s behavior in different ways.

1.2 Objective of the Study

The object of this research is to show to what extent a consumer can psychologically response to a product design, and especially the shape element while considering the body as a support, as a reference and as an expression of self. This study will examine the relationships that may exist between the body of the consumer as an objective (morphology) and from an experienced perceive (image of the body) and perceptions and attitudes towards shapes of objects. This study aims to attempt to describe the nature of these relationships in terms of similarity (in relation to the actual corporeal self) or complementarity (in relation to the ideal corporeal self). This study will attempt to provide an explanation through the theory of balance and the theory of self-enhancement.

The contribution is both theoretical and managerial. The theoretical contribution concerns the involvement of the marketing theories and concepts elaborated in the psychology of the body. This makes it possible to enrich the principles of image congruence in consumer behavior, and to propose a frame of reflection that would allow the body to have its status among other variables, especially in the field of product design.

The managerial contribution is to lead the marketers and especially the designers to consider the body more as an integral variable of the psychology of the consumer. The identification of consumer groups based on certain bodily characteristics would lead to the development of a more successful product design and appropriate marketing for every group.

1.3 Research Questions

- To what extent some consumers may psychologically response to certain product designs, based on their actual corporeal self and ideal corporeal self.
- What is the nature of the relationship between the actual corporeal self and the Ideal corporeal self?

- What is the impact of the morphology, the image of the body of the consumer on his perceptions and attitudes towards the morphology and the "body image" of the product?
- Being large or small, ectomorphic (linear or thin) or endomorphic (transversal or wide) can that be a variable that influences the preference and evaluations of object's shapes?
- Would these questions concern women more than men?

1.4 Scope of the Study

The study on similarity or complementarity between design and consumer's body and its relationship with his/her behavior will be conducted only in Anadolu University. This study should have covered the whole country for a wider generalization but the conductors of studies on this nature consider always the time, proximity and validation of funds besides that the time frame available for conducting this study is between September 2016 and April 2017.

1.5 Justification of the Study

A good knowledge about consumer's behavior is the key to a successful marketing strategy, indeed any information about consumers may help the marketers to more understand and define the market in order to identify the available marketing opportunities. Also, creating an appropriate product design has an increasing competitive nature and is habitually correlated with high levels of marketing activities and strategies, by that offering some motivating visions into the study area. The body as an integral part of the self, as an explicit component of inner and personal experiences and determinant of the attractiveness for products or services, has finally attracted the attention of marketing researchers.

1.6 General Limitation of the Study

A marketing study is not an exact science and especially if it comes to the consumer's behavior which it is indefinable and very limited in revealing it, as well as analytical tools of marketing research are still limited, deficient and enable to attend a precise conclusion. This study may be a great recompense to a firm at the same time it must be aware of the limitations and accept them.

According to Fisher, the result of a social science research divided into three characteristics, true, generalizable and simple, the conclusion of the research can be only two of the three: simple and true, simple and generalizable or generalizable and true (Fisher 2010). In other words, it is not possible to attend a complete result anyway. Adding to that generally humans tend to act artificially when they feel that they are being observed and they may give a fake information (Murthy and Bhojanna 2009), at the same time people's tastes and preferences are not fixed under certain circumstances it might change anytime.

2. LITERATURE REVIEW

This chapter aims to look at the study from different perspectives to make it much more simple to build and analyze. In another word, it is an evaluative report of information found in the literature related to the subject of this study. Any marketing research is always addressing the study of consumer behavior in several circumstances and in relationship with different elements (Keller 2013). In the case of this study the consumer behavior was taken in relationship with the product design and the consumer's body. So this chapter is composed of tree general and main parts related to the "consumer behavior", "Product design" and the consumer's body.

2.1 General View on Consumer Behavior

In marketing, consumer behavior analysis is an important step. Indeed, it is through this last that we can adopt an effective marketing strategy, segment the customer according to specific criteria, etc. Among the psychological factors that influence the purchasing act of the consumer, the first thing is the "need". To understand the needs of the individual, it is necessary to look at Maslow's pyramid, which establishes a hierarchy of human needs. Thus, a human being will seek in the first place to satisfy physiological needs before taking an interest in his need for security, then the needs of belonging and esteem, and, finally, the need for self-actualization.

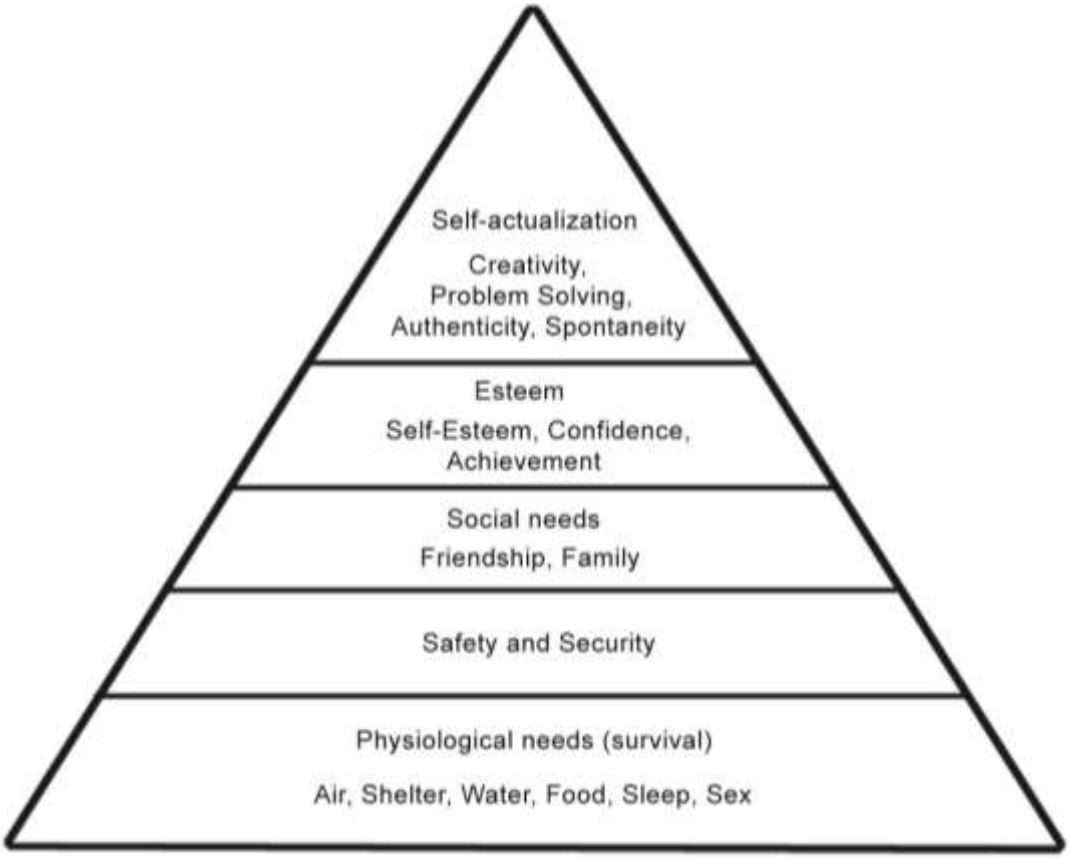

Figure 2.1: Maslow's pyramid

Source: Climbing Maslow's Pyramid (King 2009)

This pyramid shows the hierarchization of the needs of human being according to Maslow's theory. The satisfaction of a need cannot be realized only if the needs of lower levels have also been realized (King 2009).

2.1.1 Consumer's decision-making

Making a decision seems simple, but in fact, we are carrying out a whole process of decision making. Here is the path of our thought. We will first realize a problem (my smartphone is old), we will then look for information (magazines, sellers, etc.). With all this information in our possession, we will evaluate the different available proposals (Android, IOS or windows phone). And then choose the product that best suits us. It is a

rational approach; The individual seeks to adequately study all the available opportunities to avoid disappointment in the near future.

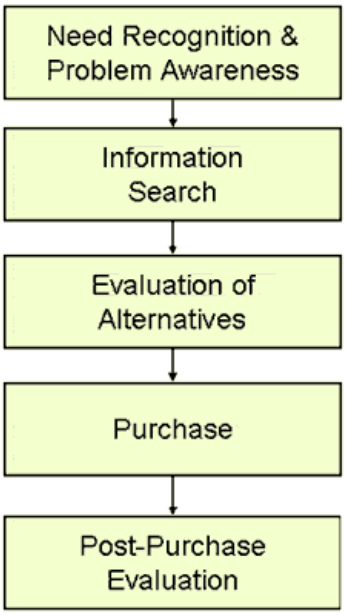

Figure 2.2: Stages in the Consumer's Purchasing Process

Source: Consumer Behaviour (Tyagi and Kumar 2004)

Our decision-making is often influenced by our environment and the context in which we must make that decision. For example: if someone gives you a concert place, the day your car breaks down: will you try to go to this concert? Now let's change the context, you bought this concert place very expensive, don't you try everything to go? These two scenarios emphasize the principle of mental accounting. Our decisions are influenced by the way in which the problem is posed (framing) and which we interpret in terms of gain or loss" (Belsky and Gilovich 2000). People are therefore prepared to take risks if the gains are greater than the losses, in any decision, the consumer tries to assess the risk.

There are five types of risks:

- Monetary risk: Mainly affects valuable and high-cost items.

- Functional risk: Occurs when the use of the product requires the exclusive involvement of the buyer.
- Physical risk: All products that may affect the health of the consumer, such as medicines.
- The social risk: It affects mainly the people who are not having a direct relationship with them. These are socially visible or symbolic goods such as automobile.
- Psychological risk: Occurs when the purchase can give rise to guilt or where the use of the product requires sacrifice.

Each person is different so the perceived risk will be different. In the decision-making process, there are many factors that come into consideration. Experiences influences a great part, it is by making mistakes that the individual learns, and he will try not to reproduce the previous disappointment. Most often we do not have all the necessary information for our choices, either because it is unavailable or because every human being has a lazy side and will not look further. Taking this into account, every decision we make is the best acceptable choice in terms of value for money given by the information in our possession.

2.1.2 Factors influencing the consumer in his environment

A consumer can be influenced by many variables. This section will study the main influential groups that are opinion leaders, family and culture.

Aristotle already told us that “Man is by nature a social animal,” that is, we try to be accepted in our society by observing what surrounds us and learning to please others. We want to get into social conformity (Skinner 1978).

Each of us has a person who is able to inform him about a sharp subject in which he does not know much about, this person is a leader of opinion, who will influence us in our decision because we refer to him on a subject and trust him. A leader of opinion embodies the expert in our eyes. There are therefore opinion leaders for each category of products.

Besides, opinion leaders are not necessarily consumers of the products on which it makes a judgment, it knows the product by having learned the characteristics by absorbing all the information that the various media have provided. Of course, we do not systematically use an opinion leader. Word of mouth works very well and we are more likely to trust a person whose point of view does not win him anything. This person does not gain anything by giving his opinion and therefore provides an objective point of view, unlike a seller who receives a commission on purchases. But companies must be very careful because word of mouth can go in a positive but also in negative sense. It is very long to gain the trust of a consumer but it is enough once for the link to be broken for a long time. The Internet has become a great weapon for businesses. A company will facilitate the transmission of information and will use viral marketing[1] by using adware scripts and software and leaving them on the social medias and internet pages (Koch and Benlian 2015).

The family is important to every human being; It allows to belong to a clan and to be recognized socially. A family can be considered as a microenterprise and the decisions are similar to a work meeting. Two main types of decisions can be found in the family's circle: a consensual purchase decision and a compromise purchase decision. The first is characterized by that all members of the family agree on the purchase but only the way to achieve it diverge. As for the second, each member has priority over a purchase and they don't arrive to concede together, then that may cause a conflict (Lake 2009). In recent years we have observed a member of the family who becomes the prescriber which it is the child. Many studies have shown that children influence parents enormously for certain purchases such as food or leisure. This is called "Influencer marketing". The brands were very well understood, and we saw on our screens a multitude of advertisements referring to the desires of children (Nintendo, coco pops ...). Working on children allows a double result: in the short term, they influence the parents and in the long term, they influence child when will be adults, this strategy of loyalty sins a young age, will allow the brand to host more consumers (Brée 2012).

[1] Viral marketing is a form of promotion of a commercial offer where it is the recipients of the offer who make the recommendation of the brand, product or service to those around them and which thus allow the message to be disseminated.

Finally, our behavior is also influenced by our culture. Culture includes abstracts ideas, such as ethical values, material objects, services, art and sport. A culture is, therefore, the accumulation of meanings, rituals, norms and traditions common to members of an organization or society. Each civilization develops its own culture. Marketers must, therefore, be very careful to not offend the population, but on the other hand, the marketers have many ideas to include their products in this real or fictitious environment created by the consumer, new products are born under the influence of culture. At all times the culture stands out, a way of life that everyone wants to adopt.

2.1.3 Learning and memorizing

Learning is an inscribed function in the human nature. It allows us to evolve. It is a permanent evolution of behavior induced by experience. It is an ongoing process. The behavior of an individual evolves as new variables, including its own experience. "TVFtasthe learning process is crucial, it influences all the variables involved in consumer behavior: belief, choice criteria, product and brand evaluations ..." Several theories coexist on the subject of consumer behavior: the behaviorism theories and the cognitive theories (Filser 1993).

At the same time during his life, man learns continually, sometimes even unconsciously. The memory recovers all the information received by the various sensors and stores them for a possible future uses. There are three memory systems: sensory memory, short-term memory and long-term memory.

1. Sensory memory stores information that our five senses communicate to us. Very often the odor is stored without even realizing it. It is a very powerful tool that can reminisce perceived odors.
2. Short-term memory helps us in everyday life, for example, to keep a shopping list. It allows to store a small amount of information for a very short period and it is characterized as insignificant in the long term.
3. The long-term memory allows unlimited storage of information for a long time. In this issue, the most complicated thing is to get to pick the hidden information into

the memory. Every human being is able to trace the deepest memories but that needs a lot of practice, it is quite difficult to achieve.

Memory has a big effect on marketing. Indeed, the memory will create links between a product and a lasting memory so to design long-term fidelity. Nevertheless, this strategy has some negative points: a brand using this style of strategy cannot change its way of thinking and behaving because the consumers may feel lost and seek to regain stability by seeking its competitor's products.

It is a long-term job for every company to be permanently existing in the memory of the consumer. This is why companies always trying to reach out consumers at an early age, according to certain theories if the child is affected very early by a brand, will unconsciously buy the same brands when adults (Brée 2012).

Memory is, therefore, the most essential element from both a scientific and a commercial point of view.

2.1.4 The behaviorism theory

Learning is a modification of the behavior resulting from an external event. There are two main approaches in the behaviorism theory: classical conditioning and instrumental conditioning.

The classical conditioning approach was demonstrated by Pavlov and his experience with his dog. He associated the sound of a bell with a food reward. After conditioning for several weeks, as soon as the bell rang the dog salivated as he waited for his food. In marketing, this study has been put into practice. For example, by showing a photograph to an individual symbolizing a party, this photograph will reveal a happy feeling in the individual, all that remains is to add a mark on the photography and condition by practicing the effect of repetition that will trigger in the individual a favorable response to that mark. One of the limitations of this kind of practice lies in the weariness that a consumer may have when viewing the image, and therefore he may not show any reaction (W.Staats 1996).

The instrumental conditioning approach has for its part been demonstrated by Skinner by teaching animals to dance by rewarding them after each executed action. In this case, the induced responses are voluntary, the animal will perform the dance because he knows that he will have a reward in the end. This theory can be seen in vouchers. A reduction on a product's price is the reward of the consumer to its purchase and therefore shows him that he has adopted the right behavior.

2.1.5 The cognitive theories

As we saw before "learning is a process of acquiring information leading to a lasting change in attitudes and/or behaviors based on experience" (Vanheems, Guichard, and Raimbourg 2004). It is by making mistakes that the individual learns, of course, it also works the other way, the individual may learn to make more mistakes. It is a dynamic process between the environment and the individual. The behavior of the consumer will evolve at the same time as these positive or negative experiences. In marketing, this theory is easily partible by using known personalities to the general public. The individual tries to represent himself through this personality and then reproduce his behavior by remaining as faithful as possible. So, if this star uses a product X, the individual will also want to use the same product X because his observation has shown him that since a known symbol used it. This is called the modeling process, and consumer learn by procuration (Vanheems, Guichard, and Raimbourg 2004).

2.1.6 The consumer's behavior at the point of sale

A point of sale is the main point of contact between the consumer and the product. It must meet the expectations of customers and thus increase the conversion rate[2] of the store. It is, therefore, normal to look at the behavior of the consumer at the place of sale. At first, it is necessary to understand the mechanisms of the selection process of the store and then study the behavior inside.

[2] A conversion rate is equal to the number of buyers on the number of visitors. This ratio tells us the capacity of a store to transform all these visitors into buyers.

- The choice and motivation to attend a point of sale

A store can be characterized from a consumer point of view as having six attributes:

1. Proximity: A consumer will be more satisfied if his trade is next door.
2. The assortment: It is simply the variety of products offered by the place of sale. The more references and varieties, the higher the satisfaction is occurred.
3. The price: The price is an important attribute. Consider also the extent of the price range, the frequency of promotions, loss leader price[3] practices.
4. Services: Everything that surrounds the product. The consumer will be more satisfied if he can return his purchase to after-sales service, or find a listening ear to his problems.
5. Time: If the consumer has to spend too much time in the store, his choice could be in another store.
6. The atmosphere: The atmosphere of the store must be pleasant: light, setting, musical atmosphere and olfactory atmosphere.

These criteria will serve as a comparison with other points of sale. Each consumer attributes a more or less importance to each of them.

After choosing the place of sale, the consumer must have a certain motivation to go there. Certainly, the notion of need appears in the first place. We will do our shopping because it is a necessity, but besides this necessity, Tauber tells us two sets of the reason that pushes to the shopping. First of all, there are personal motivations (breaking the routine, keeping up to date with news, simply walking around), the consumer does not want to be disconnected from the world. The second reason is social, as we saw earlier, each person is eager to belong to a group, and to show that he exists. Shopping makes it possible to look for social contacts and to be pampered according to certain signs like "the customer is a king" (Foxall, Goldsmith, and Brown 1998).

[3] Loss leader price is a promotional technique consisting in fixing the price of certain products at a particularly attractive level in order to generate traffic and demand that could increase sales of other, more profitable products.

The choice of a store, therefore, depends on the intrinsic variables of the consumer as we have seen previously such as proximity. But the distributor is also developing a strategy to attract consumers, we will insist on three strategic variables of the distributor that are the role of the product and the sign, the role of the price and the image of the store. The distributor will have to wonder about the brands and products capable of developing a high fidelity, so that the customer is interested in the sign that gives him the property he desires. The price is an extremely important variable for the consumer, but the consumer does not really know the real price of his product. This is due to the phenomenon of information overload[4]: the brands regularly modify the price either to compete or to promotional offers, so the consumer does not have a real memory of the basic price. Finally, the image of the store results from all the knowledge acquired by the consumer. The latter wants to make the shopping experience as pleasant and entertaining as possible.

2.1.7 Consumer's behavior inside the store

We are all influenced unconsciously in everyday life. Brands influence us to cause impulse of buying. In order to realize that, stores do not hesitate to innovate in merchandising. According to Keppner, there are five rules in a merchandising strategy (Bodenmüller 2014):

1. The right product
2. At a good place
3. At the right time
4. At the right price
5. Good quantity

A strategy is thus developed by reflecting on the good implantation of the brand, by targeting its customers with clear and complete characteristics. Once the choice is made, the step of the store interior design arrive, how will the customers go around? How to arrange the shelves? The atmosphere of a store assumes its importance in this part, we will

[4] Information overload is a term circulated by Alvin Toffler which mean the difficulty of understanding a person and take appropriate decisions because of the lot of information.

stage the point of sale: " the theatricalization[5] of consumption ", we will stimulate the five senses to influence consumer's behavior in the store. So trying to recreate an intimate atmosphere to enhance a close relationship of the product with its customers. Finally, the last point of a good strategy is the presentation and the management of the products, that is to say the question of the width of the products (numbers of different types of products), the depth (number of varieties in each type of product) and finally the height (difference between the highest price and the lowest price of the assortment). The products should be highlighted on the shelves or sometimes even be at the top of the shelves.

After describing the different characteristics of the interior of a point of sale, it is necessary to study the consumer's behavior inside it. How will he make a purchase decision? We all go shopping with a list of products in our minds, but we always come out with a not foreseen product: this is called impulse buying. Everything is done in the store to stimulate its purchases, such as the presence of a demonstrator, or the positioning of a product at eye level. In the left, we are used to entering the store and to move in the same way without realizing it: from the left to the right. That is why until today the main entrance of the stores are always on the right side, everything is done to incite us to stay the longer in the store (Foxall, Goldsmith, and Brown 1998).

To conclude on this part, it is important to remember that we are all consumers and therefore a prey for companies. Certainly, we no longer consume as in the last century, our habits evolve at the same time as our environment, but the main theories remain of actuality. We have observed in recent years' new disciplines in the marketing world such as experiential marketing (Boulaire et al. 2006), of which Patrick Hetzel proposes the experiential wheel (see next scheme).

[5] to put into dramatic or theatrical form; dramatize.

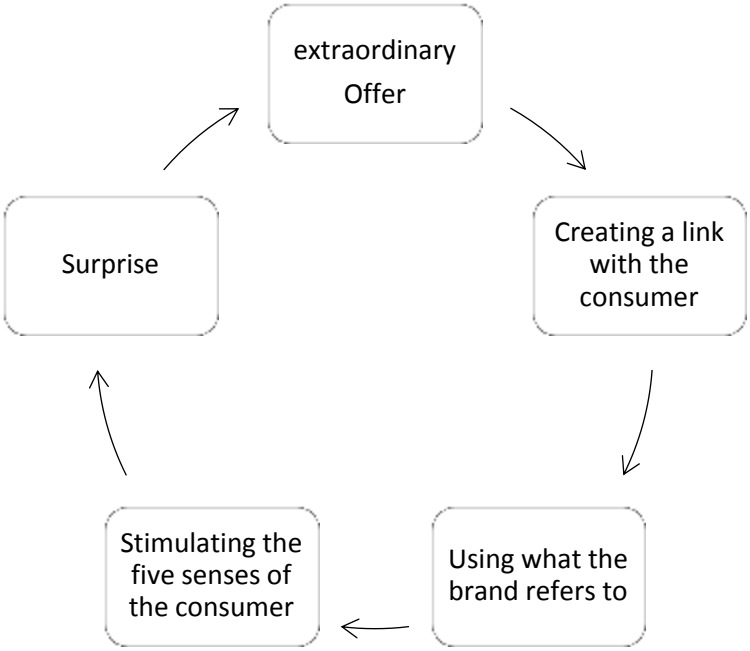

Figure 2.3: The Experiential Wheel of Patrick Hetzel

Source: Physiologically Based Pharmacokinetic Modeling: Science and Applications (Filser 1993)

2.1.8 Sensorial marketing

The economic analysis of the buyer's decision-making processes confronts only the price of the good with its functional utility whereas the marketing tries to capture the complexity of the characteristics of the product and to propose to the practitioner's methods of analysis of the suitability of their supply on demand taking into account the competitive environment. According to Carù and Cova the product becomes a source of meaning for a consumer in search of meaning (Carù and Cova 2007). Sensory marketing, therefore, has to offer a combination of the characteristics of the product that is most relevant to the target of buyers. But how does a traditional marketing based on price and brand have switched to an experiential, emotional and sensory marketing?

Traditionally, the consumer is seen as a rational being who thinks logically and follows a thoughtful process of decision-making. In this context of market saturation and hyper-segmentation, supply is increasingly similar and a new approach to consumer behavior has to be found to drive innovation, and this is why new researches has been

conducted in marketing. Experiential marketing takes into account the interaction with products, sellers, places of sale, signs and other customers (Giboreau et al. 2012). “Positive experiences” must be provoked in the consumer. Sensory marketing, therefore, integrates the understanding of human perceptions and their subjectivity so that the client is guided by his impulses and emotions only by a reason. It is necessary to create an atmosphere around the product by soliciting all the senses.

-Sense of sight: it is one of the most solicited senses in our environment. The sense of sight was the first meaning used in marketing to create a differentiation being products with color codes and shapes. Maslow already told us that the search for aesthetics is an existential need which expresses itself once the first needs have been realized (King 2009). Vision is prominent in all other senses. In general, the human being trusts this sight more than his other senses. It guides him through his displacements, his food choices or even the possible dangers that can occur etc. The human being can count several visual stimuli such as the light. From the technical point of view, it consists of a complex set of wavelengths that can be characterized and reproduced. Objects interact with light and get analyzed by the human eye. But an analysis will not have the same conclusion, it is depending on the level of the views (for example, a different angle of view). These stimuli have visual properties such as volume, light (intensity, brightness, transparency ...), color and texture.

-Sense of hearing: the use of music in shopping centers is not a recent issue. It creates a brand identity but also influences consumer perception of time. The slower the music, the longer the buyer will stay in the store, he will unconsciously follow the rhythm of the music. Sound marketing also exerts in the characteristics of the product. We also associate the styles of the music with the positioning of the store, indeed if the musical atmosphere is a classic, we will immediately assume that the sign is chic and expensive. The different studies have shown that music influences the consumer's entire behavior, the time spent in the store, the speed of consumption, the amount of expenditure, the composition of the basket but also on the psychological level: The music acts on the mood and the pleasure.

-Sense of touch: touch is a fundamental meaning, it will create an intimacy between the object and the person. To touch an object is to some extent allow it to come closer to

our intimacy, to make it enter our life. Marketing is beginning to understand more and more the touch impact of the product and to develop new packaging that incorporates this new strategy. Familiarity must be created in order to develop consumer loyalty. Several variables are taken into account. The weight, texture, shape, size, volume, materials.

-Sense of taste: It is not uncommon that when you walk into a supermarket they make you taste the products. The art of marketing lies to make the client tasting the product to create a purchase. It is necessary to make him discover new tastes and new sensations which proves the desire of consumers to test and escape from their diet routine. In the field of perception, taste is often synonymous with perception. This sense is closely related to smell because often the consumer identifies with a taste a specific odor.

-Sense of smell: smell is a sense that can be strongly developed in some individuals. Indeed, man has millions of olfactory receptors and nature disperses an infinite number of olfactory combinations. The sense of smell has enormous power over human behavior, it can elicit remembrance of deep memories, so it carries a strong emotional value. The management of odors remains delicate because each individual is different with some different memories.

Multi-sensory marketing, therefore, must combine the five senses in order to create congruence for the product. Nevertheless, as Agnès Giboreau says in his book Sensory Marketing, sight takes precedence over all other senses and must be taken into account when developing new touch, gustatory and olfactory strategies. The human being analyzes his environment through his five senses, so for a product to be the most appreciated must integrate into his development of the mix of the five senses (Giboreau et al. 2012).

2.1.9 Emotions and nostalgia

In view of the numerous definitions given by a multitude of researchers, the concept of emotion has several meanings. It is, indeed, difficult to give a clear and unambiguous definition of the term. There is no consensus among researchers. According to Chebat and Michon, emotion generates biological, sensory and cognitive behaviors (Chebat and

Michon 2003). Indeed, it is particularly through the limbic system[6] that the biological sensory and cognitive aspects are involved in olfaction, emotions, learning and memory (Paul MacLean 1952).

When acquiring knowledge, emotions act at different levels on the human mind. Studies to analyze the relationship between emotions and cognition have always failed. The studies that combined both emotions and cognition have showed that there is no relationship between the two variables but rather to associate the change of mood with the cognition. However, Sins the recent studies of Zajonc-Marcus (1984) and Lazarus (1991), have shown that emotions and cognition are intimately related to each other (Doane 2008). This is why it is difficult to approach the aspect of cognition without referring to emotions.

According to psychologists like P. Ekman, nostalgia is part of the secondary emotions, to distinguish elementary emotions such as anger, fear, sadness or even disgust and happiness. Marketing practitioners have used the concept of nostalgia for a few years now as an element of positioning, but nostalgia was first studied in the medical field and then in sociology (Ekman 2015).

The term nostalgia was forged by Johannes Hofer of Mulhouse in 1688. In Greek “nostos” (back) and “algos” (pain), nostalgia is, therefore, the result of the desire to return to the homeland. Symptoms associated with this disease are described by "patients go astray in sadness" and suffer from insomnia, fever, hunger and thirst (Hofer and Harder 1688).

With the development of psychology, new definitions are added to the concept of nostalgia. Researchers interpret nostalgia as "the desire of men to return to the fetal stage". Nostalgia is "the reaction of an individual to a maladjustment to his environment" (Advances in Experimental Social Psychology 2015). In 1979, work was carried out to understand nostalgia more sociologically than medically. According to Davis nostalgia is a mechanism whose main purpose is to help the human being to maintain his identity in the

[6] The limbic system corresponds to all the areas of the brain, located at the base of the nervous system, which handle emotions and survival reactions.

face of the major transitions that mark the changes of stages in his life cycle" (Advances in Experimental Social Psychology 2015).

Although there are definitions that differ according to the authors, we can find in each one nostalgia as emotion or feeling comprising two characteristics: on one side, pleasant and on the other side, unpleasant. It is a subtle mix of sadness and happiness.

Baker and Kennedy distinguish three types of nostalgia (Martin 2012):

- The nostalgia of experience: It refers to an experience that has been experienced by the individual.
- Simulated nostalgia: It refers to experiences told by relatives who have experienced this event.
- Collective nostalgia: It is nostalgia for the representative or symbolic dimensions of a culture, a generation or a nation.

Now, nostalgia as a secondary emotion is widely exploited in marketing. Several authors gave definitions that complement each other more or less. The use of nostalgia is becoming more and more common in today's marketing practices because the individual is sensitive to this emotion. However, Gaëlle Boulbry states that advertisers can use good nostalgia, but they must pay attention of the bad usage too. We, therefore, understand that this emotion can lead to a feeling of frustration which in this case would have the opposite effect of that desired action (Boulbry 2003).

Nostalgia directly permeates the marketing mix. Opting for a nostalgic positioning has several consequences on the marketing mix (Laura Martin 2012). As far as product policy is concerned, we must avoid any change, otherwise, the property of nostalgia will be completely destroyed. (for example: what would customers react if Nutella changed its taste?). For the price policy, the nostalgic consumer is very little sensitive to the selling price. In distribution policy, the purchasing environment can integrate the notion of nostalgia. Finally, in terms of communication, it is important to show consumers that the product has remained the same since its creation.

Many types of research have been conducted to determine the influence of nostalgia on consumer behavior. Nostalgia is different for each individual who develops their own meanings. In this sense, each responds differently depending on the nature of the stimulus. Nevertheless, we can distinguish five great stimuli.

- The "person" stimulus: The family holds an important place in the life of every human being. We often think of our missing grandparents.
- The stimulus "objects": It represents tangible elements reminding us of buried memories such as antiques, clothes, jewelry, toys, books or food.
- "Intangible" and "representative" stimuli: Such as music and films.
- The stimulus "place": A place, a square, a street, the place of vacation.
- The "event" stimulus such as birthdays, family reunions, parties.

Images such as old photographs are highly evocative of memories and therefore propitious to nostalgia. Voice and smell also play a significant role. Baumgartner's research has shown the relationships between emotions experienced in the initial experience and those that are caused by hearing a piece of music. As for the smell, researchers agree that it is the meaning that has the greatest impact on emotions (Bearden, Netemeyer, and Haws 2010).

In conclusion, each individual is different and other factors are considered. Although nostalgia can be experienced by everyone, it is necessary to consider it as an intimate and subjective emotion.

2.2 Product Design

The consumer experience has recently become a major area of reflection (Carù and Cova 2006). From a managerial point of view, experiential marketing has led marketing managers to "build experiential contexts of the product", intended to promote immersion of the consumer in a product experience (Carù and Cova 2006). In the situation of experiential consumption, the functional, hedonistic, aesthetic and emotional characteristics of the

products and services offered by the product will be an important determinant in defining a memorable, relevant and valuable consumer experience. In this perspective, the design appears as one of the fundamental vectors of the product's experience to be developed by practitioners.

In management sciences, the numerous academic works concerned with design have confirmed that this function plays a decisive role in the innovation process (Verganti 2003). And as such, it is a major source of competitive advantage for the firm (Steinbock 2005). In the field of marketing research, recent works have demonstrated the key role of design as a source of differentiation of the experiential product (Mozota 2003).

In the first place, the design makes it possible to develop aesthetically and emotionally pleasing products and services that are more attractive to the consumer. When the company adopts a Brand design management approach, the design also appears as a crucial factor in structuring the different elements constituting the brand experience, by its cohesive role, brand-oriented design facilitates and optimizes, consumer understanding the proposed brand experience.

The synthesis of the literature helps to note that many authors have advocated for an increased integration of the marketing and design functions (Beverland 2005); (Mozota 2003). However, it also points out that research on design contributions to the construction and management of the brand experience, relatively sparse (Mozota 2003).

2.2.1 The role of design in the application of a successful marketing strategy

The consideration of the potential contributions of design is relatively recent in management sciences and marketing research. The developed work on this theme confirmed the decisive roles of the function of the design and the design management process in the innovation and the success of the launch of new products. The design and its implementation process in the company can, therefore, be considered as a major source of competitive advantages for the firm and its brands (Berkowitz 1987). Researchers have also demonstrated the value of using the design for the proper revitalization of existing brands

(Leonhardt and Faust 2001). However, the analysis of the literature allowed us to notice that the study of the contributions of a design-oriented approach, for the implementation of a relevant brand strategy, remains much more sparse (Mozota 2003).

Design can be defined as the industrial creation of aesthetic and functional objects. From an etymological point of view, the design finds its origin in the latin words “designare” and “signum”. The function of the design intersects, in its managerial sense, industrial design (function and material shape) and commercial design (intangible shape). In a company, there are three main fields of design that can be distinguished (Benoit 1997).

1. Graphic design (visual identity, packaging and publishing).
2. Environmental design (commercial spaces, workplaces, exhibition spaces and signage).
3. Product design (goods, industrial products and packaging).

According to Borja de Mozota, the integration of the design can enrich the marketing management of the brand at different levels: strategic, tactical and operational (Mozota 2003).

Strategic brand design (Brand creation and brand equity building): Strategically, brand creation involves the development of a concept that creates an appropriately strong rupture in a given market. The design approach of concept generation, through the search for information and methods of observation, can encourage the emergence of innovative concepts, especially by the creation of mixed teams (designers and marketers). The developed shape by the designers will sign the creative act of the brand and its view on the product category. This created shape will also make the promise proposed by the brand tangible and thus build its marketing position.

The strategic design of the brand, as defined by Mozota, allows to concretize the mental representation of the offered brand universe through the proposal of aesthetic codes specific to the brand: by establishing the codes and invariants of the brand, designers participate in the construction of brand equity and the development of brand identity (Mozota 2003). At this stage, the used design elements are particularly those of product design (shape, aesthetics) and graphic design (logo, symbol, graphics), in order to stimulate

the consumer's curiosity, emotional reactions and build brand awareness. By working on all the points of communication of the brand, designers will at the same time contribute to the emergence of an individualized relationship between the consumer and the brand, by gradually passing from a brand emotion design to a deep relationship with the design codes. In order to realize that several levels of brand management have to be considered.

Tactical brand design (Designing brand identity): At this level of brand management, the designer will translate the values of the brand into aesthetic attitudes, which makes the promise stemming from the vision of the brand visible and sensitive the promise stemming from the vision of the brand. These aesthetic attitudes are the basis of the brand's identity, its unique and lasting source of differentiation.

The function of design is then to interpret visually the marketing tool through a work on the shape on three levels (Mozota 2003):

- According to a cognitive[7] logic specific to the object" (The shape, its beauty, elegance, coherence and physic).
- According to an "emotional logic belonging to the user" (Shape in relation to the consumer's body, personality and image of the target).
- According to a "logic of use relevant to the relationship with others" (Shape to establish a relationship and social link).

The role of the design is also to develop all the supports to translate the identity of the brand (spaces, product and communication) and to reveal all its benefits (aesthetic, functional, experiential) to target audiences. The designer must also ensure that the signs emitted by the brand evolve consistently in the time, in order to guarantee the permanence of the brand identity while maintaining the necessary innovations to get the attention of the consumer.

Operational Brand Design (Brand Management): The brand management implies the coherence of long-term marketing actions over the time, in order to create a powerful brand

[7] In psychology, cognitivism is a theoretical framework for understanding the mind that gained credence in the 1950s. The movement was a response to behaviorism, which cognitivists said neglected to explain cognition.

equity, especially through the repetition of successful brand experiences. The role of design is then mainly focused on the coherent evolution of the different supports of the brand in time and space and the protection of the fundamental codes of the brand.

2.2.2 Conditions for a successful marketing strategy implementation

According to Montaña and al (2007), which call for a brand design management approach, certain organizational conditions are crucial for the creation and management of successful brand experiences (Montaña, Guzmán, and Moll 2007).

The process of generating innovative concepts: in a design-oriented approach, the starting point of the process is to analyze how the design can be associated with the generation stage of innovative product or service, as well as marketing and other organizational functions. The role of designers is decisive, for the relevant translation of ideas into concepts.

Adoption of a design strategy: it involves analyzing the role of designers in organizing, developing new products and brand strategies. The design function can be involved in the managerial strategy at three different levels (Perks, Cooper, and Jones 2005): Development of the visual identity, aesthetic and supply techniques. Design can also play a more central role in the innovation process: design is involved throughout the development process of new products and designers play a crucial role in helping to establish and facilitate the relationship between the involved actors in the process. Finally, design can take the leadership of the process, it is then considered as a major source of innovation and designers guide the entire development process of the stream.

Design resources management: this dimension refers to how the design teams are managed (internal, external or mixed teams), the innovation process and knowledge is promoted internally, used and protected in the company.

Implementation: this dimension refers to the execution and finalization of the design process. It allows measuring the degree of innovation of the design in the company, to understand how the design processes are coordinated and to evaluate the design and its

results for the firm. When these conditions are met, the increased integration of the design in the organization makes it possible to have a tool that is particularly relevant for the construction of a differentiated brand (Montaña, Guzmán, and Moll 2007).

2.3 Consumer's body and product design

A shape or morphology, is a set of characteristic traits that allow a concrete or abstract reality to be recognized. The quality of an object, resulting from its internal organization, its structure, concretized by the lines and surfaces that delimit it, capable of being apprehended by sight and touch, and making it possible to distinguish it from other objects independently of its nature and color (Gramm 1962). Any physical object has a shape, it may be an inanimate object (a product like a smartphone, camera…) and it may be a living creature such as human being or animal.

2.3.1 Image of the body of the consumer

The distinction between external and internal views of the body allowed to divide the psychological work devoted to the body per three approaches defined by a particular object of study: the body on itself, the body for others and the body for itself.

Schilder (1950, 1968) is one of the first researchers that have highlighted the general importance of bodily attitudes and feelings in the explanation of behavior. His studies on body image have shown that the body image concepts can be applied not only to the mysterious distortions associated with the organic pathology of the brain but also to everyday life. We can thus attribute to the image of the body a mediating role in everything, ranging from clothing choices to aesthetic preferences, the ability to accentuate or strengthen relationships with others, even to compensate perceived bodily deficiencies and contribute to a positive self-image(Schilder 1999).

The application of a scientific study on the psychology of the body to the analysis of consumer behavior has attracted unequal attention. Indeed, most research in marketing approaches on the notion of the body in a psychosocial perspective focused on physical attractiveness corresponding to what we have called the body for others.

The "pursuit of physical beauty" by the consumer has attracted increasing interest from marketing researchers and professionals (Bloch and Richins 1992). Research on advertising persuasion has shown the impact of the physical attractiveness of models on consumer behavior (Kanungo and Pang 1973). It appears generally that attractive models are always preferred by every one; They have a positive impact on the products with which they are related to. However, very few marketing studies were addressed to the body in a morphological approach (the body on itself) or psychological (the body for itself). Why the body has been so rarely considered as one of the various individual psychological characteristics of the consumer likely to influence its behavior? The status of the body, however, lies in the set of psychic phenomena that have been called personality (Greene and Goodrich-Dunn 2013).

Among the different definitions of personality that exist in the literature, we can retain the one that values the external, manifest aspects (the "persona[8]" which represents the directly observable behavioral aspects) or, on the contrary, the internal, subjective aspects of human behavior ("Anima[9]" which emphasizes the individual consciousness and the subjective identity of the personality). Warren's definition of personality in 1934 corresponds fairly well to this approach. Personality is "the integrated organization of all the cognitive, affective, conative and physical peculiarities that distinguish one individual from the other" (Eysenck 1950). The author emphasizes the inseparable unity of the various components of the psyche, encompassing both aspects of the personality: external and internal. These two conceptions are complementary and seem to fit well with the various psychic processes involving the body. Indeed, the physical appearance and any other expression of the body are manifest and are therefore part of the visible part of the personality (Eysenck 1950). The inner and subjective aspects of the body experience are undeniable components of psychic life and serve as a fundamental reference to self-consciousness and feelings of identity. The notion of self-concept, close to that of personality, is occupying a central place in the analysis of consumer behavior which defined as an organized structure of self-perceptions, that is to say, the perceptions of the

[8] The persona, for Swiss psychiatrist Carl Jung, was the social face the individual presented to the world
[9] Anima, In Carl Jung's school of analytical psychology, it is the primary anthropomorphic archetypes of the unconscious mind.

competencies and characteristics in relation to the environment. The individual adopts a behavior that allows him to preserve the coherence of the image he has of himself. He is always seek to maximize the adequacy or existing congruence between his concept of self and the use of objects. The concept of self is multidimensional (Brinthaupt and Lipka 1992) and can integrate not only the real self-concept (the way the subject sees himself), the ideal self-concept (the way the subject wants to be), the concept (the way in which the subject thinks others perceive him), but also the concept of the bodily or physical self that is substantially equivalent to the concept of the somatic self (Brinthaupt and Lipka 1992). The concept of the body and self-encompasses is everything pertaining to the body's perception and evaluation, especially physical abilities (or condition, physical agility) and physical appearance (or physical traits).

From all these reflections, a fundamental question has arisen: What is the impact of the morphology, the image of the body and the personality of the consumer on his perceptions and attitudes towards the morphology and the "body image" of the product?

2.3.2 Morphology and "body image" of the product

What do we mean by morphology and "body image" of the product? This question is part of the design research whose importance has often been emphasized as a strategic tool for the company (Mozota 2003). Product Design focuses on the shapes and materials of the product, aesthetics and ease of use.

However, a review of the current researches, particularly in the areas of design processes and practices, reflects a lack of understanding of the subtle elements such as perception, emotion, feelings, preferences of the consumer in relationship to the various visual elements (such as lines, space, shape, light, color, ...) of product design (Bloch and Richins 1992). Consumers' reactions to the aesthetic aspects of the products are increasingly recognized as determining factors in their behavior (Berkowitz 1987). The explanation of aesthetic responses to particular shapes, colors and proportions were approached by a variety of psychological approaches (behaviorism, Gestalt theory, psychoanalysis, information theory, cognitive psychology, experimental aesthetics). The

distinct contributions of these approaches reflect the completeness of the aesthetic phenomenon.

Our research focuses on form, which is an essential aspect of the product and plays an important role in its success (Morvan et al. 1990). It is in the first faze on its external appearance. We consider the form as “an ensemble whose properties are invariant under the transformations of color, light, volume, space, material, orientation”(Attneave and Arnoult 1956). More simply, the shape can be defined as any visual element with a contour.

Each shape emits a specific message which, apart from its functional value, expresses secondary symbolic values that address directly to the unconscious. The physical structure of objects is endowed with psychological charges such as calm, serenity, grace, goodness or aggressiveness (Thompson and Ling Chen 1998). This aspect corresponds to what we mean by “image of the body of the product. We may believe in the existence of personality characteristics through the physical appearance of objects, or in other words, to a certain “morph psychology” of the object.

2.3.3 Synthesis of literature on the human body

If a multitude of corporeal themes were first developed in disparate explanatory contexts (neurology, psychiatry, psychoanalysis, anthropology, etc.), a certain psychology devoted to the body begins to constitute itself as a specific domain (Bruchon-Schweitzer 1990).

A thorough review of the psychological work devoted to the body reveals three essential approaches (Bruchon-Schweitzer 1990):

1. the "body on itself
2. the "body for others"
3. the "body for itself"

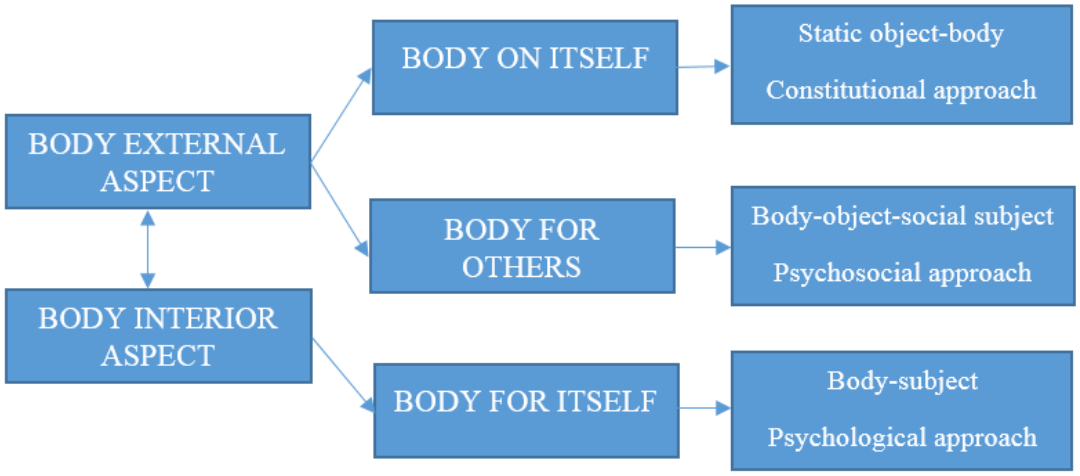

Figure 2.4: The three psychological aspects of the body.

Source: Phycology of the body (Bruchon-Schweitzer 1990)

2.3.4 The body on itself, the physical structure (external view)

By grasping the body on itself, studied in an "external" way, as an "objective" reality. Anthropologists [10] have sought to identify individuals by their basis of physical characteristics (structure, shape, weight). To grasp the body on itself, studied externally as an objective reality and physical constitution (sizes, diameters, lengths, widths of various parts of the body, etc.). Psychologists was trying to identify the extent of how much these physical characteristics predict the psychological characteristics (character, temperament, personality, self-concept, etc.). Classical typologies of human morphology, essentially based on intuitive approaches (Bruchon-Schweitzer 1990).

Some researchers have confirmed the possibility of classification of human morphologies according to two major dimensions:

1. A dimension identified as "body shape", which distinguishes ectomorphic (linear, lean) subjects from endomorphic (transverse, broad, large) subjects.

[10] Anthropology is the branch of science that studies the human being in all its aspects, both physical (anatomical, morphological, physiological, evolutionary, etc.) and cultural (socio-religious, psychological, geographical, etc.).

2. A dimension identified as "body growth", and allows to differentiate globally large sized (macrosomatic)[11] subjects from small (microsomatic)[12] subjects.

2.3.4.1 The body for others, the appearance of the body in a socio-cultural perspective

The body for others is no longer as it is on the reality but as perceived by the external views of others, it is apprehended as a social reality. Researchers have focused on the role of an individual's physical appearance (or body configuration) in social interactions and the effects of these interactions on the process of personality development (especially the self-concept).

Both the men and the women seem to agree perfectly on the bodily characteristics judged as the most contributing to masculine and feminine beauty: general appearance, body structure, weight distribution, face, complexion and teeth (Lerner and Korn 1972). A such consensus would be due to the current standardization of aesthetic canons of western cultures, and their use in advertising (youth, sports, health, fashion, make-up) (Veale and Neziroglu 2010).

Morphology seems to give rise to common stereotypes (Lerner and Korn 1972). Preferences for the moderate mesomorphic[13] male body (musculature and strength of the upper trunk), is considered the most beautiful by both sexes. This morphology reflects the traditional patterns of virility (athletes, warrior heroes, superman) where beauty and prowess are associated. We attribute to this ideal male body a set of favorable adjectives such as masculinity, efficiency, health, endurance, strength, but also authority and individualism. The ectomorphic[14] man (lean) is judged less favorably (fragile and weak). The preferences of the ideal female body are generally oriented towards that of the moderate ectomorph (thinness) and then of the extreme ectomorph, given the standard filiform and linear type of the body to the models conveyed by the mass media (mannequins, stars). This ectomorphic body is considered the most attractive by both sexes; It is associated with success, youth, femininity, seduction, and eroticism; The mesomorphic

[11] having a usually abnormally large body
[12] having a usually abnormally small body
[13] having a husky muscular body build
[14] characterized by a lean slender body build with slight muscular development

woman is considered authoritarian. Research shows a certain interpersonal aversion for unattractive subjects, thus engendering real discrimination (Lerner and Korn 1972), especially towards individuals with an endomorphic[15] (fat) physique. The physical, social and personal adjectives attributed to them are negative (DeJong 1980).

2.3.4.2 The body for itself, (internalized and subjective view on his own body)

The body on itself and the body for others is every image of the body that determined by its biological appearance. What is desirable and attractive will have an impact on the image of the body (Dion, Berscheid, and Walster 1972). The perceptions of others will be internalized and integrated by the target subject (according to the phenomenon of social interaction). In this perspective (a body for itself), the body becomes fundamentally an interior element, a body for itself is lived from within. " The body image is a multi-faceted construction including perceptions, thoughts, feelings and actions with respect to the body, and especially the appearance" (Cash and Pruzinsky 1990).

The real body, the ideal body and the perceived body cannot be considered separately because the bodily experience is a whole and combines objective, social and subjective.

Is consumer's morphology and / or its perception, for example, being real or perceive large or small, ectomorphic (linear or thin) or endomorphic (transversal or Wide) can be a variable that influences the preferences and evaluations of object shapes by the consumer? Is there a physical relationship of a similar or complementary nature?

The preferred shape may contain the characteristics that the consumer wishes to attribute to himself, which are closer to an ideal-self. So what then can be the role of the feeling of satisfaction with the body and its correlates in expressing a preference for a shape of object that "resembles" or "completes" us? Finally, would these questions concern women more than men?

[15] having a heavy rounded body build often with a marked tendency to become fat

3. THEORETICAL FRAMEWORK AND RESEARCH ASSUMPTIONS

The central subject of this research is the relationship between the body of the consumer defined as an object (morphology) and subject (image of the body), and its preference for certain object shapes. We investigate the extent to which consumer preferences are oriented towards similar or, conversely, shapes of objects that are complementary in terms of real and / or perceived physical characteristics. A shape of "similar" object means that the physical characteristics of the shape and those of the body of the individual are congruent, similar or analogous; For example, a preferred and described small shape is considered physically similar to an individual who is or perceives himself to be small. Conversely, a small shape is considered complementary (or opposite) to a body that is or is perceived by the subject as being large.

These two major paradigms of similarity, and complementarity have been widely investigated in the field of interpersonal attraction[16] or the study of relationships of convenience, the affinity between people (friends, strangers, spouses, partners, etc.). The theoretical framework is essentially based on the theories of balance and self-enhancement which have made it possible to understand this phenomenon.

3.1 Theory of Balance and Theory of Self-Enhancement

There are two major theoretical notions underlie the experimental study on all cognitions and attitudes that refer to the “self” that is particularly involved in interpersonal similarities and complementarity (Newcomb 1956). These two notions state that interpersonal attraction depends on the individual's research for coherence and to enhance his or her self-concept. This allows the consumer to strengthen or maximize his or her self-esteem or agreeable effective elements and / or to minimize opposing or unpleasant elements (Byrne and Nelson 1965).

[16] The interpersonal attraction is the study of why people are attracted to each other and how is attraction built. (urbandictionary).

3.2 Image Congruence in Consumer Behavior

Every commercial object has a symbolic character in the sense that its acquisition implies an explicit or implicit evaluation of this symbolism in order to decide whether it agrees, corresponds, joins, adds or reinforces the idea that the consumer has for himself (Levy and Rook 1999). However, the body as an extension of self (Belk 1988), and as an integral part of the concept of self is often evoked quickly. Few authors have studied the impact of the concept of the body or the image of the body on consumer behavior, as confirmed by Joy and Venkatesh (Eckhardt and Mahi 2004).

3.3 Consumer-object Relationship Through Bodily Variables

Based on these principles, the bodily relationship between the consumer and the product makes sense. The object that seduces us could embody a part of it corporeal discourse hence the notion of congruence of body image in the preferred consumer-product relationship. In this "corporeal" perspective, the consumer can be attracted and seduced by the shape of an object in relation to the pursuit of two possible motives:

1. A motivation that would have a narcissistic function, balance, security and reinforcement or self-enhancement. The consumer's preference for a shape of object whose perceived physical and psychological characteristics are similar to his own perceptions and assessments of his body would be the expression of a search for confirmation, reinforcement or enhancement of his own body image. The shape of the product would then a sort of faithful mirror of the consumer’s corporeal image.

2. A motivation which would have a function of complementarity through the shape preference, the perceived physical and psychological characteristics of the shape of which would represent a kind of bodily ideal feeling, a means of bridging, to a certain extent, inadequacies personal information. The preference of the physically complementary shape would be the expression of a desire to achieve a desired self-

image. The search for a complement through a shape could also respond to a desire of differentiation and self-enrichment.

The feeling of bodily satisfaction (feeling with regard to the different parts of the body, functions, the appearance of the body, or the body in general), closely linked to the self-esteem and more generally to the concept of self, it plays a determining role in this relationship of similarity or complementarity. Indeed, the high level of bodily satisfaction would orient the preference towards a physically similar shape; Conversely, bodily dissatisfaction would guide preference toward a physically complementary shape.

Nevertheless, the effect of bodily satisfaction on the tendency towards similarity or complementarity is qualified when we have to take into consideration the existence of differences with respect to a certain number of variables such as the real and perceived morphology of the individual, Gender, emphasis on the body, aspects of self-concept such as self-esteem and self-evaluating personality traits, and involvement in the shape of the object.

3.4 Different Body Types

According to Friedlander, there are three kinds of body types for both of the female's and male's body (Friedlander 2009).

1. Ectomorph: Skinny, lightly muscled low body fat, long arms, and legs, difficulty gaining weight and muscles.
2. Mesomorph: square shoulders, gaining muscle easy, body fat evenly distributed, naturally lean, naturally muscular.
3. Endomorph: Smooth, round body, high levels of body fat, small shoulders, high waist and large hips creating a pear-shaped physique, lose weight slowly.

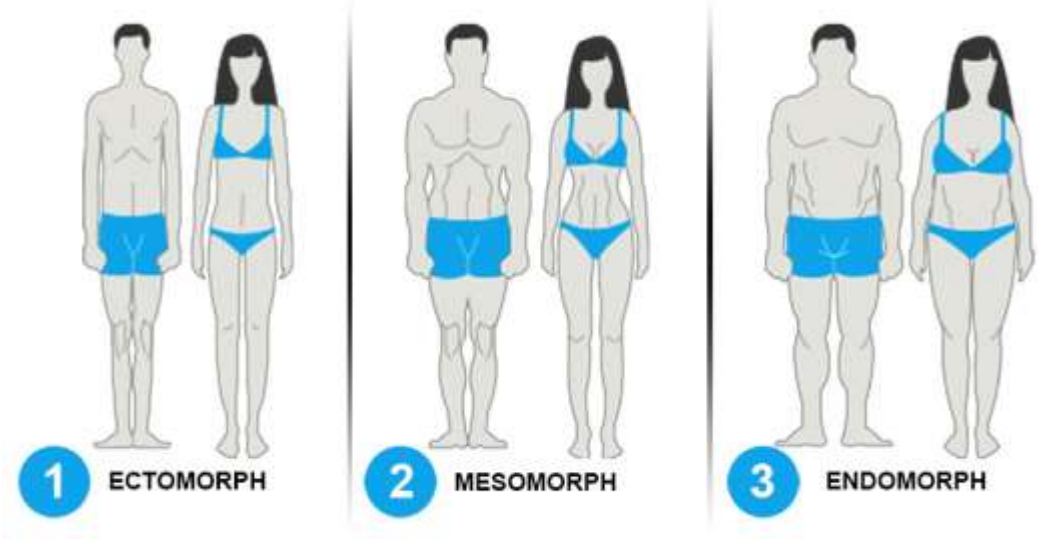

Figure3.1: different human body types (somatotype)
Source: https://www.bodybuilding.com/fun/becker3.htm

3.5 Male/female differences in the use of mobile phones

In March 2011, Mobistar conducted a survey to learn more about how men and women use mobile telephony. Here are the main results.

On average, women use more of their mobile phones than men. They call 19 minutes longer than men each month and send 51 more SMS messages. This more intensive use is mainly due to the fact that women call more often than men to their relatives to get news, while men expect to have something specific to tell them to call them: according to a study , The calls (fixed and mobile) made by the women are thus destined to the family in 66% of the cases, against 45% in the men. On the other hand, it is the men who use more of the Internet of their telephone (22% more than women) (Weatherill 2017).

Women also have a stronger emotional connection to their mobile phones, whereas it is a simple object of practical utility for men. For example, losing a mobile phone is like an emotional drama for a woman (because she loses all the recorded SMS, the photos, the risk of missing calls ...), whereas this is only an inconvenience for a man.

This emotional connection is also projected on the operators: women are more faithful to theirs, and 57% of them are ready to recommend it to their friends against only 48% of men. This loyalty of women to the brands they use is not only relevant to the

telephone domain, but operators have an interest in taking an interest in this phenomenon which could be very beneficial to them (Weatherill 2017).

3.6 Gender Marketing and Smartphones

Gender marketing brings together studies and actions that make it possible to adapt marketing policy according to the sex of the consumer. Gender marketing has mainly applications in the field of advertising and communication, Formalized in the 1970s and 1980s following the sexual revolution, this practice is similar to the "Gender Studies", a social research movement that questions the place of men and women in society. (Wolf 2013).

Gender marketing consists of segmenting the offered products according to the sex of the consumer. An indirect way of multiplying the purchasing intentions, 2 sexual products must thus replace a single mixed product within a household. According to Gender Marketing, the product is shaped according to its recipient: scent, color, design. For example, a shower product will be rather colored for women and rather black for men. Blue or black for men, pink candy for women ... All sectors are concerned and the universe of services is not left behind: bank cards, SIM cards… (Moss 2017).

HTC has already announced the release of its model Bliss, a smartphone dedicated to women, with a suitable design (feminist colors, soft rubber, finer phone), custom applications (calorie counter, purchase comparison) And an accessory called the Charm Indicator, a cube that would become bright when receiving a call or message.

In September 2013 Apple lunched the IPhone5c with colorful new plastic shell (white, pink, yellow, blue, green). It’s likely that Apple included those candy colors to appeal to the ladies. Adding to that you’ll find a huge variety of bands for Apple Watch in both 38mm and 42mm sizes from Italian calf’s leather to chainlink[17] to the more exotic materials including nearly every color of the rainbow. Twice as many women own the iPhone 5c as men, where the iPhone 5s is almost equally popular amongst men as women (flurry

[17] A chainlink fence is a type of woven fence

analytics 2015). It could mean that the iPhone 5c is better marketed to women, because women like the colors more than men (Moss 1996).

In September 2015 Apple presented its new smartphone IPhone 6S in its new color, the golden pink. This version had astonished more than one observer and was perceived as a means of aiming more directly at a female audience. Apple has not given details on preorders of the phone and won't comment on the demand for the color, but the very idea that pink is a color for girls is a relatively new concept, says Jo Paoletti, an associate professor of American Studies at the University of Maryland. Through the last century, pink was considered more appropriate for men because it was a "strong" color and the "softer" blue was better for women (Paoletti 2012). Personally, I don't believe that the iPhone 6 Plus was specifically designed for women. It is much too big for their hands or to fit in the pocket of their jeans. I think it needs a quite big hand to hold it. But for a normal size pink colored IPhone 6 is it really designed for females? I think that only Apple can answer that question.

In March 2010 Samsung presented its mobile phone (Samsung Diva or Miss Player) specifically designed for women. Glamor and fashion design, feminine touch interface for a compact and glossy mobile to access community portals and enjoy exclusive applications. The Pink Diamond menu lets you enjoy an extended desktop and a 3-part menu.

It features 2.8-inch touch screen navigation and 16 million colors, an MP3 player, and an FM radio with RDS system[18]. Its interface is adorned with feminine themes to choose from a selection of wallpapers.

The simulated call function allows a simple press of a key on the keyboard, to make the mobile phone ring and simulate an incoming call. The SOS message sends an emergency message to a predefined list of your contacts in case of danger.

Finally, the mobile tracking function sends an alert message to a predefined and personalized number as soon as the SIM card is removed from the mobile phone in case of theft or loss. This feature allows to block the mobile phone from distance.

[18] Radio Data System (RDS) is a communications protocol standard for embedding small amounts of digital information in conventional FM radio broadcasts.

Image 3.2: HTC Bliss with its Charm Indicator cube
Source: http://dash.coolsmartphone.com/wp-content/uploads/2011/09/HTC-Rhyme-w-accessories.jpg

Image 3.3: IPhone 5c candy colors
Source: http://allthingsd.com/files/2013/09/iPhone5c-allcolors-327x285.jpg

Image 3.4: Samsung Diva or Miss Player
Source: http://img1.lesnumeriques.com/produits/36/7639/36_7639_2_450x400.jpg

Smartphones like Nokia N-gage, Xperia Play or gizmondo might be designed especially for men, the common thing of the last tree smartphones is that they are a smartphone and a handheld game system at the same time. According to Madigan 2015 Studies have found that the areas in the brain responsible for reward and addiction got more activated when men played video games than when women did. Unlike women, Men are hard wired to be hunters, conquerors and fighters and that's why they experience more excitement when they play video games. In addition, women are more wired to seek social connections when they feel stressed. A woman might feel better when she talks to a friend than when she plays a video game. A man on the other hand can cope with a stressful day by playing a video game (Madigan 2015).

Image 3.5: Xperia Play
Source: http://img.shoppydoo.it/shared/images/7/d6e3d6af-bc7b-4d58-a72a-082a536335da.jpg

Image 3.6: Nokia N-gage
Source: https://www.technopat.net/vt/wp-content/uploads/2016/09/Nokia-N-Gage-QD.jpg

3.7 Research Hypotheses

A number of hypotheses have been mainly articulated around the highlighting of differences between men and women. These differences concern a set of characteristics that relate to certain physical aspects (such as the importance given to the body, levels of bodily satisfaction, morphological types, relations between the real body, the perceived body and the ideal body) As well as some aspects of self-assessment (self-esteem, personality traits, involvement in product's shapes), and on the other hand, responses to object shape's (Preferences, evaluations) and relationships in terms of similarity or complementarity.

4. METHODOLOGY OF THE RESEARCH

A qualitative approach was adopted to collect and analyses data. A qualitative study is a study designed for a collection of information to understand the attitudes and motivations of individuals in a population. It is most often based on individual in-depth interviews or group interviews from a small sample. In the case of this study all the needed data was extracted from 24 participant by observation and interviews, all the collected data was collected and organized in the content analysis coding section presented in the annex.

4.1 Choice of Field of Application

The field of application of smartphone was chosen. This product category met the following requirements:

- The existence of extreme variety in shapes and physical appearances (long, thin, angular, broad, round, flat) avoiding products with too pronounced shape.
- The ability to control the effects of color, brand, material and any other criteria that may bias respondent's answers.
- Similar technical performance between the products of the same category.
- Simple shapes to be identified.
- A category of products which may represent a certain form of self-expression, in particular of the body shape.
- A certain familiarity of consumers with the product.

In order to limit the complexity of the experimental control of stimuli, the description of smartphone shapes was limited to three physical, objective and dichotomous criteria:

- The size criterion: large-small
- The width criterion: narrow-wide
- The criterion of roundness: angular-rounded

4.2 Study Sample

This research aims to study the similarity or complementarity between design and consumer's body. Due to the deep difference of corporal structures between the two genders, the sample will contain both of females and males with average age of 24 years old.

Guest, Bunce, and Johnson (2006) suggest that saturation frequently occurs with around 12 participants in the homogeneous sample (Guest, Bunce, and Johnson 2006). According to Crouch & McKenzie (2006) not as much than 20 participants in a qualitative research helps the researcher to build and uphold a close relationship and thus expand the open and frank exchange of information. (Crouch and McKenzie 2006).

In the case of this study the sample is as follows:

12 to 15 females and 12 to 15 males: 4 to 5 ectomorph males, 4 to 5 ectomorph females, 4 to 5 mesomorph males, 4 to 5 mesomorph females, 4 to 5 endomorph males and finally 4 to 5 endomorph females.

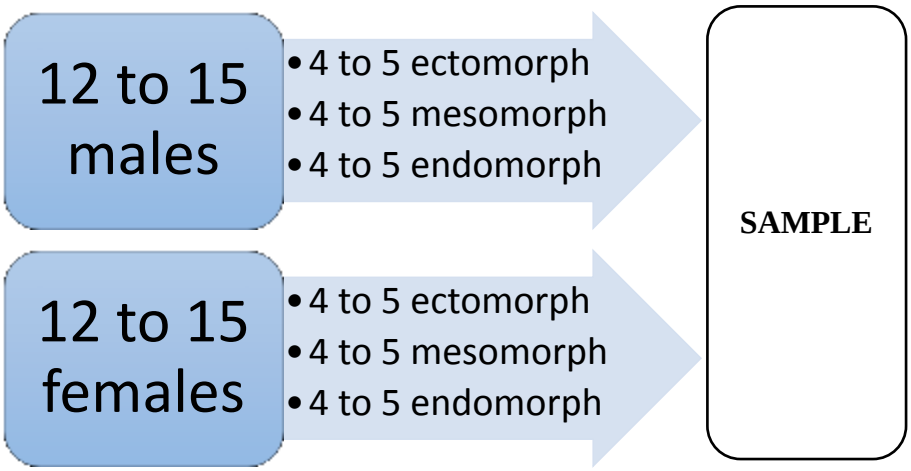

Figure 4.1: study sample

The participants were nicknamed in depend on their gender and somatotype, for example, ectomorph females were nicknamed "ECTO F 1", "ECTO F 2", "ECTO F 3" and

“ECTO F 4”, mesomorph females were nicknamed “MESO F 1”, “MESO F 2”, “MESO F 3” and “MESO F 4” and endomorph females wer nicknamed “ENDO F 1”, “ENDO F 2”, “ENDO F 3”and “ENDO F 4” and the same thing for the males but with “M” In the place of “F”. “ECTO M#”, “MESO M#” and “ENDO M#”.

Purposive Sampling method (Non-Probability Sampling) was used in this research. Participants are selected according to the needs of the study. In other words, in order to squeeze the exactly needed information out of the collected data, the population study was selected on purpose one by one.

4.3 Data Collection

In order to realize this study, observation and interviews were the keys to collect the four main variables which are body type, body satisfaction, self-esteem and shapes preference.

- Body type (somatotype)

The observation was the way to identify the somatotype of every participant in the study. The different somatotypes are ectomorph, mesomorph and endomorph.

- Body satisfaction

This step aims to collect information about the image of the ideal body in the mind of every participant. Then by observation tries to identify how much the descriptions that the participant announced corresponds to his own actual body image, at the same time make the participant himself compare his actual body image with the ideal body image in his mind. And to be more precise the participant will be asked to set exactly which parts of his body is not really satisfied with. According to the answer of the participant, it will be easy to identify if they are satisfied with their corporal image or not. In order to reach this level of credibility these following two questions were asked:

- Describe the ideal body for you and compare it with yours?

-Which parts of your body you would like to change or edit?

- Self-esteem

This step aims to identify the negative or positive psychological effect of the actual body image and its effect on the self-esteem of every participant. In another word, the effect of the absence or the presence of the enough self-confidence thought the body image and its effect on their self-esteem. To identify that the following question was asked.

- How your physical appearance is affecting your image in the society and your self-esteem (positively or negatively) ?

- Shapes preference

This step starts by presenting a series of four shapes of smartphone shapes of each group (size, width, roundness) the name of the brand, color, material have been concealed to avoid criteria that may bias respondent's answers and to make the attention focused solely on the shape. Each version was randomized to the order of presentation of the shapes in order to avoid an order effect. In the second step, the participant will be asked to describe the details of his preferred shape.

- Stimulus design

From different smartphone shapes, four smartphone shapes of each category were selected against the three dichotomous groups: size criteria (large-small), width criterion (width-narrow) and roundness criterion (angular-rounded). These twelve smartphones were then reproduced as faithfully as possible using Adobe Illustrator software, the name of the brand, color, material have been concealed to avoid criteria that may bias respondent's answers and to make the attention focused solely on the shape. Each range was subjected to a randomization of the order of presentation of the smartphone shapes in order to avoid an order effect. The diagrams of these smartphones are presented in the next 3 figures.

Figure 4.2: The size criterion: large-small

Figure 4.3: The width criterion: narrow-wide

Figure 4.4: The roundness criterion: angular-rounded

5. SYNTHESIS OF THE RESULTS AND DISCUSSION

The conclusions of the study are built on the collected data (presented in the annex) and the previous studies related to this subject. The synthesis is about a comparison between men and women in their relationships with their body, self-assessment and object shape preferences. The goal of this study is to distinct the presence of a “similarity” or “complementarity” between the consumer’s body and the preferred shape.

5.1 Differences Between Men and Women in their Relationships with their Bodies and Various Characteristics of Self-Assessment

The existence of significant differences in the concept of self between men and women is controversial (Hattie 1991). According to Hattie there are no observable differences between men and women in relation to average self-concept scores. Other studies agree that men have self-concepts that are generally more positive than women (Burns v. Reed, No. 500 U.S. 478 (1991) n.d.).

This is revealed by the sample we studied. Indeed, when compared to women, men tend to have higher self-esteem. Indeed, looking at the result presented in the content analysis coding we can distinct that females with a low body satisfaction especially endomorphs are always having less self-esteem compared to endomorph males.
ENDO F1 affirmed that it is hard for her to find a boyfriend and said that she is feeling inferior when ENDO F2 said that some people are ignoring her because of her body. At the same time there was some endomorph male’s answers showing a low self-esteem but at the same time they was looking less depressed and they showed much more self-confidence and hope. ENDO M1 affirmed that the image of his body doesn’t have any effect on his self-esteem and his image in the society when ENDO M4 he just said I’m the best.

Among the explanations for the existence of such differences is the assumption, that women would recognize their negative aspects more than men. (Burns v. Reed, No. 500 U.S. 478 (1991) n.d). Females, in particular, have a self-esteem that depends more on social criticism of their femininity which traditionally means acceptance, popularity, fulfillment

of expected social roles, and so on. Males seem to establish their self-esteem through more independence, autonomy, and responsibility.

5.1.1 Importance of the body and satisfaction (or esteem) of the body

With the release of sex roles in recent years, men become more concerned and active in managing their appearance (Koivusilta, Rimpelä, and Rimpelä 1999). Nevertheless, if men place more importance on their bodies than before, women are more concerned about their physical appearance, weight, diet and body in general than men (Cleveland et al. 2000). On the other hand, studies indicate that the majority of men and women are generally satisfied with their physical appearance, however, many of them reveal that women express more body dissatisfaction than men. (Cash and Pruzinsky 2004).

These observations are confirmed in the analysis of our results. While men pay less attention to their bodies than women, they nevertheless express a higher overall bodily satisfaction, which tends to be little differentiated according to the various aspects of the body.

We can deduce this by previewing some answers.

ECTO M 3 said" I don't care at all I'm happy any way", "It doesn't make a sense for me, I respect myself and I love myself as I'm" while ECTO M4 said "I'm proud of myself because I cannot change my physiology and the shape of my body, I cannot change my high. "

We found a clear tendency in women to have more differentiated attitude towards their bodies than men. This differentiation translates into distinct and nuanced feelings of satisfaction about specific aspects of the body, unlike men who tend to have a more comprehensive and less detailed assessment of their bodies.

When females were more accurate to describe several parts of their bodies like fingers, waist, legs, butt, stomach, shoulders… males they just complained their weight in general and muscles. We can see that in the participant's comments about their bodies.

ECTO F 2 described proudly her slim waist saying “I have a slim waist and a perfect body for me should has a slim waist too.” When ECTO F 2 complained her butt saying “I have a small ass”. When most of the males talked about their muscles, weight and high ECTO M 1 and MESO M 1 affirmed that they need much more muscles.

5.1.2 Relationship between body satisfaction and self-esteem

The way to perceive the body is a broader process involving self-perception (Cash and Pruzinsky 2004). All research is converging to confirm the existence of strong associations between bodily satisfaction and self-esteem. The relationship between body satisfaction and self-esteem is stronger among women than men (Cash and Pruzinsky 2004). The relationship between body satisfaction and the physical attraction is particularly strong in women. The sociocultural insistence of physical attraction, idealized and highly publicized body norms, this last is addressed more to women than to men and creates a greater centrality of body image to self-esteem in women than in men (Jambekar, Quinn, and Crocker 2001).

This observation is confirmed by this research adding to other previous researchers. Men's physical satisfaction is less strongly related to self-esteem than to women (Secord and Jourard n.d.). We noted, however, a strong relationship between men's bodily satisfaction and a more pronounced self-perception than women. It appears more in the latter, that the more satisfied they are with their bodies, the more tend to be sociable and extrovert.

5.1.3 Relationships between physical characteristics, ideal body and body satisfaction

Body satisfaction is dependent on the ideal body of reference. The ideal female body is an ectomorphic (thin) silhouette whereas the ideal male body is similar to the moderate mesomorphic silhouette. Studies have often pointed out, however, that the gap between the perceived body and the ideal body was higher in women than in men due to the social

pressure of thinness as a criterion of beauty in our western societies (Fallon and Rozin 1985).

The results of the analyses carried out on the sample we interviewed are in line with these remarks. The gap between men's perception of body and ideal body is lower than the gap in women (which confirms their stronger body satisfaction). The ideal silhouette of men is a moderate endomorphic body whereas the ideal body of women approaches the ectomorphic silhouette.

The female participants described the ideal female body as: long fingers, long legs, thin shape, skinny body, slim, 50 KG, Flat stomach, Lean...

When male participant described the ideal male body as: wide shoulder, sportive body, muscular body, big arms, six bags, athletic, bulky...

If body dissatisfaction is more pronounced in the torso (Waters 1987) and areas of the body most prone to overweight in all individuals (Cash and Pruzinsky 2004), those with an endomorphic body are most dissatisfied with their bodies (Tucker 1983). It appears, however, that excess weight is more the subject of bodily dissatisfaction in women than in men.

This is confirmed in our research. Although endomorphic subjects (large, big) are less satisfied with their bodies than ectomorphs (thin, lean), the physical dissatisfaction of endomorphic men with a high weight is less than that of endomorphic women. In men, ectomorphism is more the subject of bodily dissatisfaction than in women.

The answers of endomorphic participant females were showing a high level of inferiority and depression, some answers were like that: “it is hard to find a boyfriend”, “I’m feeling inferior”, “some people don’t like me because of my body”, “of course, skinny girls are more favorable than me”, “I know that I’m ugly and I don’t care”.

While endomorphic males were less depressed: “I would like to lose weight but I don’t think that my body has any effect on my image in the society or self-esteem.”, “May be my body is not that good looking but I believe that I have some talents more than others.”.

Having a large size is sometimes valued culturally, the small body sometimes arouses male body dissatisfaction (Cash and Pruzinsky 2004).

We can see that on the answers of the Ectomorph males: “I need much more muscles”, “I’m not average in term of weight”, “my body is so slim compared to the ideal sportive body”, “my shoulders are not too wide”.

5.2 Differences Between Men and Women in Object Shape Preferences

"Sexual dimorphism" is the scientific appellation for physical variation between males and females of a species (GEBER, Dawson, and Delph 2012). Physically female’s body is different of male’s body. So when we say “consumer’s body” we must take in consideration first the sex then the somatotype (morphological type). If the object shape preference is affected by the shape of the body it is necessary to distinct the difference between the male and female in their object shape preferences.

5.2.1 The preferences of shapes in relation to the morphological type and the body satisfaction

The results of this research show that the relationships between body characteristics and preferences for physically similar or complementary shapes are much less pronounced and less coherent in men than in women.

Bivariate analyses show that the more endomorphic women are, the less they tend to prefer similar (wide, rounded, horizontal) shapes; Conversely, the more they have an ectomorphic body, the more they tend to choose congruent (fine, narrow, vertical, angular) shapes.

That is clear in the collected data (Presented in the annex). Most of the females prefer the sizes 2 and 3 (not too big), the widths 3 and 2 (not too wide) and the corners 3 and 1 (angular).

If we take into account the bodily satisfaction variable, it seems that the more women have a high body satisfaction, the more likely they are to establish a physical similarity

relationship in terms of preferred shapes. On the other hand, the more women are overall dissatisfied with their bodies, the more they tend toward a search for physical complementarity with the preferred shapes.

In women, there is a significant interaction between the type of morphology and the bodily satisfaction manifested through their shape preferences. Endomorphic and dissatisfied women tend to prefer complementary (vertical and narrow) shapes. In men, as we predicted, there is no interaction effect between the type of morphology and bodily satisfaction on shape preferences. These results allow us to account for the moderating role of the interaction between the morphological type and the body satisfaction, on the tendency to choose similar or complementary shapes, only in females. The fact that this moderating role appears only on the female and non-male sample is justified by the first previous results which showed the existence of differences between men and women in their self-esteem and relationships with their bodies. This is also justified by the differences in their appreciation of preferred shapes and their level of involvement with object shapes.

5.2.2 Object shape preferences

Some psychologists, such as Erikson (1973) suggest "deep differences between the sexes in the sense of space". A large number of works have revealed differences in graphic expression (painting, drawing, writing). Majewski (1978) studied evaluations by 65 boys and 62 girls of 31 descriptive characteristics of drawings and paintings (shapes, colors, and dimensions). Significant gender differences were found in 9 characteristics. In particular, there are some clear divergences in the preferences of shapes: they are circular in girls and straight in boys. Other research that compared the drawings of men and women, confirmed these results. Men tend to deploy shapes in a vertical direction and use angular lines, unlike women who develop shapes in a limited area and avoid the use of angular lines. The work of men is more linear, more technical, more serious and less colorful than those of women. Unfortunately, there are no similar studies on the differences between men and women in the field of design (Moss 1996).

Thus, in this research, although the bodily variables seem to have little effect on men's preferences of object shapes, significant differences in preference and assessment appeared simply in relation to the sex of the subjects, as suggested by Moss (1996). Indeed, unlike women, men tend to prefer larger shapes, wider and more angular, but not more vertical.

As it is shown in the collected data, males always prefer the wide and big size and most of them prefer the big sizes, and the spacious shapes.

ECTO M 4 “Big and spacious, good for all kinds of use”, “I think not too rounded corners give more space to a larger screen”.

5.3 The Study of the Differences in Women According to their Morphological Type and their Level of Physical Satisfaction

The related assumptions to the analysis of the differences between subgroups of women according to their morphological type and their level of bodily satisfaction have been confirmed by this study.

The results reveal that women who have high body satisfaction have a more ectomorphic body, they appreciate more their bodies, have higher self-esteem, and are more sociable than women with low body satisfaction. This makes it possible to understand the strongest tendency in these satisfied women, to prefer the similar shapes.

Finally, endomorphic women who are nevertheless strongly satisfied with their bodies have a higher self-esteem and they are more sociable than the dissatisfied endomorphic women; This provides a possible justification for the tendency of this subgroup of women (endomorphs and satisfied with their bodies) to prefer similar shapes.

ENDO F 4 explained her choice of rounded corners by saying that “it looks too soft and kind when holding” while ENDO F 3 affirmed that she loves the big and wide design.

5.4 Conclusion

Our overall conclusion is made up of four parts. In the first part, we provide answers to our research problem, based on the major obtained results. Then present the contributions of the research, both theoretical and managerial. Thirdly, we emphasize the limitations of this work and suggest ultimately future paths of this research.

5.4.1 Major research results

This research aims to confront certain bodily parameters of the consumer

On one hand, this research aims to identify the nature of the relationships that could be established in terms of similarity and physical complementarity of the consumer's body with the preferred shape of the object, and on the other hand, to explore the role of the image of the body and its correlation in the understanding of these relationships, through theories of balance and self-enhancement.

A number of principles such as image attraction and congruence, based essentially on theories of balance and self-enhancement, have allowed us to suggest two responses (among other possible responses):

1. The tendency to prefer physically similar shapes is expressed more in the individuals who have a positive image of their bodies. This corresponds to a theory of balance, and self-enhancement; This is what we have called congruence to the real corporeal self.
2. The tendency to prefer physically complementary shapes of objects concerns the individuals who have a negative image of their bodies. Through their choices, they express a desire for compensation and enhancement of the self-image through an approach to an ideal corporeal self; This is what we have called congruence to the ideal corporeal self.

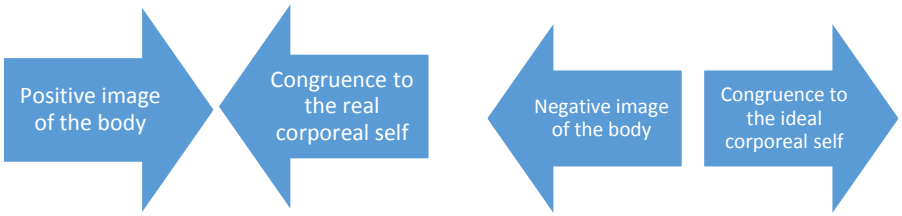

Figure 5.1: Theory of balance in relation to the body satisfaction

Understanding the relationship of the body of the individual with the shape of the object required, above all, a deciphering of the complexity of the relationships that the individual maintains with his own body and with the image of himself. This is what the research tried to achieve. It has sought to confirm a number of a founded propositions in the literature on the psychology of the body.

The results clearly show similarities, but also significant differences between men and women in their relationships with their bodies and their self-image.

Indeed, while a majority of men and women positively evaluate their bodies, men express a higher overall body satisfaction than women; They also tend to have an overall and less differentiated assessment of their body. Compared to women, men have a perception of their bodies that is closer to their ideal body.

In general, subjects whose bodies are endomorphic (large, big) are less satisfied with their bodies than those whose bodies are ectomorphic (thin, lean), the physical dissatisfaction of endomorphic men is less than that of endomorphs women. Feelings of body satisfaction are more strongly related to females with real and perceived physical variables (low weight, large size, reduced body mass) than in men.

Relative to women's self-esteem, men's self-esteem appears to be higher and less strongly related to their bodily satisfaction. This approach has revealed that in men, physical similarity/complementarity to preferred shapes seems to be little related to their own physical characteristics and body satisfaction, unlike women. In the latter, it was clearly evident that the more they had an endomorphic body (large, big) and perceived themselves as such, the more dissatisfied they were with their bodies, and the more they

tended to prefer complementary shapes. As we have predicted, the moderating role of the interaction between morphology and body satisfaction on the tendency to seek similar or complementary shapes has been evident in women.
The analyses clearly demonstrated that the tendency towards the preference of similar shapes is expressed in all women who have high body satisfaction. They also have a higher self-esteem, more sociable, and characterized by a more ectomorphic (thin, lean) morphology than women with low body satisfaction.

Also, the difference in morphology in women with strong body satisfaction does not lead to differences in shape choice; Ectomorphs as well as endomorphs, who have a high bodily satisfaction, do not have a different self-esteem and choose their similar shape. And behind the love which these women bear for a shape of the object, it is the love which they have of themselves which is expressed by the selection of a similar shape. In these women, the preference of a shape can represent the mirror of their own body image, which they desire to reinforce.

However, among women with low body satisfaction, only those with an endomorphic body (large, big) express the tendency for complementary shapes. This search for physical complementarity through the preferred shapes express a desire to achieve an ideal corporal self. The empirical study[19], as well as the literature, converge to affirm that women who have an endomorphic body and who perceive themselves as dissatisfied with their bodies because they perceive themselves far from the ideal ectomorphic body, conveyed by our western societies.

Women would, therefore, be more likely to project their body image in their reactions to the shapes of products than men. And as we have seen previously, our empirical research has shown that men establish less close and less central relationships with their own bodies than women. This helps to understand that women are more concerned with the problem. Women who have a negative body image and whose body is endomorphic tend to seek complementary shapes, which doesn't include the men who have the same characteristics.

[19] The empirical study of literature is an interdisciplinary field of research which includes the psychology, sociology, Philosophy, the contextual study of literature, and the history of reading literary texts.

Also, the importance of appearance is conveyed from childhood, then to adolescence and adulthood through family, school, mass media and is specifically addressed to female subjects. Two images persist their image of the body and the ideal body image. The greater the gap between them, the more it affects bodily satisfaction and, more generally, self-esteem and self-image. Dissatisfaction with weight and an endomorphic body is very related to low self-esteem in women.

5.5 Research Inputs

- Theoretical contribution

Three specific objects of study make it possible to apprehend the body of the consumer:

  - The physical structure (external view).
  - The appearance of the body in a socio-cultural perspective (external view on the body of the Other).
  - And finally, the image of the body (internalized and subjective view on his own body).

Given the three aspects of the consumer's corporeality

- A body on itself
- A body for others
- A body for itself

we can question the status of a "corporeity of product design"

- A design on itself:

It is the body of the product in itself, defined by its exterior, objective and extrinsic morphological characteristics. The shape of the product can be liked for its purely ergonomic characteristics (comfort, functionality, maneuverability, etc.) and aesthetics. Aesthetic value can be linked to the sensual pleasure that the individual derives from the possession of an object outside of its specific uses. The shape, color, material and all the

visual components attract the attention, the interest and the emotion of the consumer. Adding to that the pleasure of the eyes, touch of polished surfaces, matt, rough, etc.

- A design for others:

It is the body of the product for others, defined from a psychosocial perspective. Consumers make psychological inferences, interpretations based on physical characteristics, attractive or unattractive. The shape of a product has connotative and semiological functions; It expresses values of social status, belonging to cultures and subcultures. Through the shape of a design and its appearance, the consumer would seek to communicate to his own body image.

- A design for itself:

It is the body of the product addressed to itself. Beyond objective and social characteristics, design can be a representation of itself and have a particular function within itself. A narcissistic consumer, "in love with his body" would seek shapes of product in which he recognizes itself, a body of mirror product, in a way. A consumer dissatisfied with his body and appearance will seek through his preferences a catharsis of his desires, a compensation for his frustrations, the illusion of coming closer to a personal ideal body. The shape of the design certainly meets the needs of self-image, personalization. this research has been approached from this perspective.

- Managerial input

The design is a powerful and strategic tool. If it is defined as a process that seeks to maximize consumer satisfaction and profit through the creative use of design elements (performance, quality, sustainability, cost, and of course appearance). This research aims to motivate marketers and especially designers to think about the impact that the “body”, including the consumer’s body image, can have on the behavior of the consumer. We were able to show the moderating role of the body image and its correlations on the tendency of consumers, and particularly women, that may prefer forms of products that are physically similar or complementary.

5.6 Limits of Study

After such research, restrictive remarks have to be formulated which define and delimit what has actually been achieved.

- Limitations related to the sample

This research was based on a sample made up of students only. However, given the experimental nature of the study, the obtained results should not lead to any statistical generalization; It was therefore not necessary to seek a representative sample.

- Limitations related to the stimuli

Because of its exploratory nature, this research studied only one product category, “smartphones”. The research would have been richer if a comparison with another category of products had been made. However, the smartphone shape still a limited subject to conduct such research.

The used patterns of smartphones shapes are simple, probably too simple but this corresponds to the aim of controlling as much as possible the biases that may occur in the preferences.

The representativeness of the stimuli is arbitrary since we have limited ourselves to three objective criteria (size, width, angularity). This also raises the problem of the relevance of these criteria. We could have retained other variables such as symmetry, the proportion of forms, novelty, and so on. But these criteria refer to other problems, because it may make the experimental more complicated and out of control.

The presentation of stimuli is only visual, whereas usually the subject looks at the smartphone, touches them, moves around, etc. The mode of presentation of forms in

diagrams and on a reduced scale requires to asked whether it changes the nature of the shapes or not.

We tried to minimize the ambiguity of the material, insisting that attention should be focused only on the presented shapes of the smartphones.

Finally, is it really possible to isolate the shape of a product from the rest of its elements? The problem arises immediately when the product design is defined as a mix of elements (shape, color, material, etc.) that cannot be dissociated, in order to achieve a sensory effect. Some researchers attest that the reactions to the shape are limited; The consumer tends to perceive the specific elements of the stimulus and then link between them (Holbrook and Hirschman 1993).

5.7 Future Research Paths

The future paths are innumerable, the fields of body and design are very vast. In addition to the last limitations which open up future avenues of this research, other topics seem particularly interesting to explore.

- Other fields of application

A large number of categories of products would make it possible to compare the results of our research, in particular products whose exterior shapes may be the expression of the consumer's personal and bodily individuality: forms of glasses, bottles, plates, vases, furniture, bags, the typography of brands, etc. It would be particularly interesting to study categories of products with a strong "male" involvement, such as automobiles.

- Final destinations of the product

In case that the consumer will choose a shape for someone, let’s give the example of a gift. Some shapes of objects the consumer may choose for himself, and other shapes of

objects that he chooses for other. Is the process of choosing a design for someone else is the same as he chooses for himself? That there is no indirect and unconscious expression of his own bodily self.

- Individual differences in relation to culture

Both the conceptions of the body and the preferences of shapes of products, are differ according to the various cultures or systems of thoughts. It would be extremely interesting to study the confrontation of the subject-object body parameters in terms of similarity/complementarity relationships across different cultures like (western, oriental, African or Asian) and subcultures.

Beyond the obvious deep differences between men and women in their relationship to their body and in the responses to the shape of objects, it would be particularly interesting to conduct this study on the transgenders, or homosexual participants.

- Consumer and Product Morpho-psychology

The question of the expressivity or emotional and affective value of lines and shapes has been less frequently addressed than that of their overall pleasant or unpleasant character. Shapes create certain emotions and have specific connotations(Planchon 1986). If shapes, by their "corporeal discourse" of circular, angular, vertical, oblique or horizontal types, denote personalities, research could be oriented more towards the establishment of morpho-psychological relationships of both the consumer and the design of the product.

- Individual characteristics

The narcissistic personality of the consumer probably has an important moderating role in the relationships that the consumer maintains with his own body and with the object. This approach would provide additional explanations for this study.

For two decades, an effervescence of academic and scientific thought has been emerging contributing to the construction of a psychology of the body. Far from being a single entity, the constructed image of the body is multidimensional. It results from objective, social and subjective realities. The research fits into a multitude of disciplines and directions. It may seem regrettable to note the lack of interconnections between them, which makes the construction more complex because of a great disparity and diversity of theoretical and empirical frameworks. The psychology of physical appearance would be more fruitful if a holistic and integrative view could account for the rich diversity of the construct (Bruchon-Schweitzer and Ferrieux 1991). Even if this overall structure still seems at a stage of gestation, the domain of the body nevertheless opens up infinite paths to marketing, with a view to a better understanding of consumer behavior.

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APPENDEX

Content Analysis Coding

- Describe the ideal body for you?

females	males
long fingers	wide shoulder
long legs	not too big and no too small
prominent ass	sportive body
thin shape	muscular body
skinny body	big arms
large hips	average height
moderately plump body	six bags
fertility	not fat and not too slim
bottle shape	average
prominent boobs	athletic
youthful	bulky
not too skinny	not too buff
not too large	very ripped
healthy balanced	large chest
slim	flat belly
50 KG	strong and muscular
Flat stomach	

Lean low weight reduced body mass	

Ectomorph	Mesomorph	Endomorph

- compare it with yours?

Ectomorph female	I'm too flat. My body is skinny and that is good. I have a flat stomach and that is so good thing in a female's body. I have a slim waist and a perfect body for me should has a slim waist too. I have a small ass. I have long legs like a model. I can find fashionable clothes easily. I have a graceful silhouette.
Mesomorph female	I have a perfect body. My hips are just perfect. I have a not too skinny body and a not a too fat body and I think that is the ideal image of a female. I want to flat my stomach. I love my shoulders. Stars in the TV they have a similar body

	to mine. Being too skinny is good in some ways but having some mass is better.
Endomorph female	I need to lose weight to become perfect. If I compare my body with the ideal female's body I think I'm a little bit fat. I think my waist should be slims. I think many boys will prefer the shape of my body compared to the skinny girls and that is good for me and makes me happy. A perfect female's body has a slim waist but I have a little bit large one. I have extra fats in my waist and belly.
Ectomorph male	I need much more muscles. I'm not average in term of weight. In term of height I'm ok. My body is so slim compared to the ideal sportive body. My shoulders are not too wide.
Mesomorph male	I need much more muscles. My shoulders are good I want to lose more fats My shape is so attractive.

	My arms are big enough to proof that I'm a sportive guy.
Endomorph male	I have a big stomach. I have too much fats in my waist. I'm always too lazy compared to others. I think my appearance is not healthy My muscles are not easily visible.

satisfied	Not satisfied

- How your physical appearance is affecting positively or negatively your image in the society and your self-esteem?

Ectomorph female	I'm feeling beautiful. My friends want to have a skinny body like mine and that makes me feeling proud. Everyone around me appreciate my beautiful shape. I can wear beautiful clothes and look attractive. I can find a job easily. Because of my body I can have many opportunities more than those who have a fat body.

Mesomorph female	I'm feeling proud. I'm feeling sexy. Boys want to come closer to me always. My body making me special I can wear anything I want and look sexy. I can find a comfortable job after my graduation.
Endomorph female	Many guys prefer my type of body. It is hard to find a boyfriend. I'm feeling inferior. It is me and I'm proud. My body shape is a sign that I'm living an opulent life. Some people they don't like me because of my body. Of course, skinny girls are more favorable than me. If I can lose weight my life will became easier. I cannot get the guy that I like because of my body. I know that I'm ugly and I don't care.
Ectomorph male	In depends If I will find myself face to face with a people with a muscular body yes I will feel inferior. But If not I will feel good

	When I see sportive people, I can lose my confidence. I don't care at all I'm happy any way. It doesn't make a sense for me, I respect myself and I love myself as I'm
Mesomorph male	Not much because I have a self-concept. I'm proud of myself because I cannot change my physiology and the shape of my body, I cannot change my hight. I accept myself as I'm. The society must accept me as I'm. I always want to save my energy to focus on my goals and life and that is what can affect my image in the society and my self-esteem, as for my body I think it is the best, because it is me.
Endomorph male	I would like to lose weight but I don't think that my body has any effect on my image in the society or self-esteem. Sometimes people look to me as a lazy person who doesn't do exercises and sport. I'm not so popular between girls. May be my body is not that good looking but I believe that I have some talents more than others. I feel better to do individual activities like playing video games because I feel uncomfortable with people. Yes, because people always prefer a guy

	with muscles and strong body. Not at all I'm the best.

Positive	Negative

- Shapes preference

Ectomorph female	size	width	roundness
	3: comfortable not small. 3: easy to carry and not too small. 2: so portable and easy to hold, I'm not fan of social media so it is enough for me. 3: not too big and not too small	3: comfortable not small. 3: just perfect size for me. 3: reasonable size and the 2 is too narrow. 3: small enough to hold and the screen size is comfortable to use.	3: corners are not so rounded. 3: doesn't hurt my hands. 1: simple and beautiful 3: rectangular shapes give me good feeling
Mesomorph female	size	width	roundness
	3: not too big and not too small 3: comfortable for my eyes and for my hands	3: as a dimension, I think it is the best 3: it is perfect to watch videos	3: not too circular and not too angular 3: it looks more valuable.

	2: I think it is cute to hold. 3: the size of the screen is average.	3: I'm an internet addict, this shape is big enough to watch videos and pictures comfortably and suitable to hold in my bag easily. 3: it is easy to hold and comfortable to use.	4: looks like the shape of my hand. 1: It looks so smart.
Endomorph female	size	width	roundness
	3: It size is perfect to use it anywhere and anytime. 3: Looks fashionable in my hand. 2: This size is enough for me. 3: The size is not too small and not too big.	2: it is easy to hold and take with me every where 3: It is perfect for every day using, listening to music, surfing in the net, checking my Instagram and Snapchat. 1: It can be tablet and smartphone	3: I just love its appearance. 3: I don't like too rounded corners. 1: It looks prestigious. 2: it looks too soft and kind when holding.

		at the same time. 3: It has a standard size that works in all conditions.	
Ectomorph male	size	width	roundness
	1: I like big screen because I use my smartphone more than my laptop. 1: I like big screens. 4: It is so easy to use to check every day news, social networks and watching videos at the same time easy to take with me everywhere in my pocket. 3: I always use my phone to listen to music then	4: It is big but not too much like 1 which looks like a tablet for me then a smartphone, and I like big screens. 1: It is just awesome to have a big screen always with you. 4: because I can play online video games on a big screen comfortably and 1 is too big for me. 1: I can use it to read books and articles.	3: Is angular more than rounded which gives a better feeling of a big screen. 1: it makes it easy to hold the devise from the corners specially if you cannot hold it with one hand. 3: because with a too rounded corners the screen will has less space, I always want the maximum size of screen in mobile phone body.

	to check my social media accounts I think 3 is not too small as a screen and the size is good to use as an MP3 player.		1: I want a too simple design; I don't like complicated ones.
Mesomorph male	size	width	roundness
	1: it is big enough to use it to surf in the internet, to listen to music when doing exercises and to read my scholar articles. 1: because big screen means too much for me. 1: because it is big enough to replace my laptop. 1: I want to hold a big device in my hand when	3: easy to slide in my pocket or to hold it while doing my exercises. 1: big screen offers a better experience specially when dealing with visual media. 4: It is vast and big and gives me a lot of visual freedom. 4: It is big, but not very big like 1	1: I don't like too rounded corners because I feel it is too feminist. 3: I want to have the feeling that I'm holding a book or a document and 3 looks like a book corners. 3: I like a not too rounded or angular corners. 3: It gives me a feeling of sobriety because it

	sitting with my friends because that gives me a good feeling.		is not to angular (masculine) and not too circular (feminist)
Endomorph male	size	width	roundness
	1: It is big enough to use it comfortably in different ways, video player, music player … 1: It has a big screen which allows me to play games and applications on it easily. 1:it big, easy to hold, looks beautiful. 1: Big and spacious, good for all kinds of use.	4: easy to take anywhere and big enough to enjoy videos on it 1: all what I care about big screen and good image and audio quality so 1 has the biggest screen 4: not too big and not too small, for a personal device it is perfect 4: spacious enough to keep my hands and eyes comfortable	2: The corners look soft, not hard, and touching them gives me a good feeling 3: I think not too rounded corners give more space to a larger screen 4: rounded corners give me a good feeling like energy, enthusiasm and feminism. 3: it is angular and rounded at the same time, soft when you touch

			beautiful when you see.

Similarity	complementarity	None of them

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