

THE ‘BIG QUESTION’ AS A DESIGNER

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CONTENT PAGE

1. INTRODUCTION.....	4-5
2. USABILITY.....	5-6
3. FORM-FIXED PRODUCT.....	6-8
4. AFFORDANCES.....	8-10
5. EMOTIONS.....	10-11
6. THE “HALO EFFECT”	12-14
7. USER-CENTRED DESIGN.....	14-15
8. CONCLUSION.....	15-17
9. REFERENCES.....	17-19
10. FIGURES.....	19

1. INTRODUCTION

Though “the meaning of the term “design” is quite subjective and a function of the perspective of actors within the design process who view the philosophy and methods of design quite differently” (Townsend et al., 2011), there are still doubts about who owns the design process. If it is engineers, product designers, or industrial designers. We all have to research, plan, create, conduct tests and evaluate our work, but the differences in perspective regarding the meaning of “design” is what sets us apart.

Charles Eames described the design as “a plan for arranging elements in such a way as best to accomplish a particular function.” (Soegaard, 2020) In other words, it can be described as the tangible action of choosing the form and function of an object, service or environment, and our job is to determine the use and the essence of a product for it to be successfully used and for the user’s experience to be pleasant and easy to manage.

As designers, we often use creativity and critical thinking skills to design functional, aesthetically pleasing products. We are responsible for the overall look and feel of a product, service, or environment, so we tend to assess things from an artistic point of view. While engineers, though they are also problem solvers, they were taught to use their scientific and mathematical skills to come up with solutions to problems. Their concerns are mainly the physical constraints of a product associated with component design and mass production, so they focus on things like tolerance and process optimisation. Nonetheless, it is often claimed that in product design, “form follows function”, meaning that the product form should follow its intended function.

Our most exciting challenge as designers is that we are constantly dealing with ill-defined problems. Design is full of uncertainties, unexpected consequences—some positive, some negative—misunderstandings, and dependencies. (Müller, 2022) Ironically, do not just talk about ‘function’, like engineers or industrial designers might. We also think about ‘goals’, opportunities, situations, relationships, attachments, beauty, aesthetics, preferences, choices, and properties. Engineers do not understand that some of our main goals in design are aesthetics, symbolism and meaning. Designers care about the symbolic side of products and the meanings that people may obtain from the product. In this sense, ‘function’ should lose all its power in design.

Because of this, in this paper, I will analyse both form and function, in the form of usability and aesthetics, and the relationship between the two. I represent this association as a spectrum, where on one side, we have ‘function’ centred designs, and on the other, we have ‘form’ centred designs. I discuss these topics by gradually moving from one end to the other as I write—covering everything, including ‘usability’, form-fixed products, affordances, the “halo effect”, emotions, and user-centred designs. Highlighting how emotion can affect the consumer’s perception of the product. Lastly, concluding with how this research helped me recognise what I prioritise and value and the challenges I face as a novel design student approaching the working environment as a designer.

2. USABILITY

For hundreds of years, there was a requirement for products to work as a way of survival. They were driven by “need” or function, not by form and aesthetics. During those times, people just expected functional and usable products.

Both function and usability refer to the user experience with the product. A product’s function specifies what the product or service is supposed to do. It refers to the products’ utilitarian aspects. Bloch (1995; quoted in Townsend et al., 2011, p.375) mentions that “functionality is defined by the factors, benefits, characteristics, and features that are combined to provide utility”. And usability represents the ease with which the user of a product, designed to reach a particular goal or solve a problem, understands how it works and how to get it to perform. (Norman, 2004) They are linked with the product’s effectiveness at work and the possibility of benefiting from it. Usability is often related to simplicity, comfort, and practicality.

Considering all things that are designed, they all often fit into this spectrum where at one end, we have form, and at the other, we have a function. Many disciplines can fit into this spectrum: architecture, furniture, products, tools, etc. We design not just following aesthetics but also the necessities we search for, so a balance between aesthetics and functionality is best. But other times, designers have to prioritise one between the two. Every “good design” should ideally fit in the middle part of this spectrum, where form and function are in balance.

When a user looks at your design, let's say that it is a chair, they can agree that everything presented they are looking at is furniture, so before they even test it, there are many things they discuss before buying it. They talk about how it was manufactured; they talk about the materials, colours and shapes chosen. All these things fit into the aesthetic category. The moment when they use it or sit on it becomes a matter of function. Whether it is comfortable, usable, or it is strong and reliable enough. And that is when you cross the great divide between these two. "Form" generally dictates the general aesthetic of a product, and "function" dictates its intended purpose. Occasionally we find products that have "dominating aesthetics but are not supported by good usability or ergonomics". (Nikolov, 2020) Like heels. As said before, many products were designed for a need. In this case, shoes were created to help us walk more safely and comfortably. So why are they now made to look nice and attractive, yet they destroy our feet? This demonstrates how aesthetic designs can seduce humans even at the price of their health. (Nikolov, 2020) In some other cases, usability must be the main focus like, medical equipment.

3. FORM-FIXED PRODUCTS

By stripping down the product's form to its essential elements and minimising unnecessary ornaments, it is proven how the product's physical form helps fulfil its function. In research Lee, Tufail and Kim (2021) noticed how most modern products have a particular form because their form is generally fixed, which defines a structure optimised for its intended function. In other words, the product's shape entirely depends on the function. Such as spoons or scissors. Though all spoons are not the same, they are all designed to carry and hold food, so they all share common form features that fulfil said function.

Now, those designs that only take their function into account, like medical equipment, their form is precisely the way it needs to fulfil its specific purpose. The same goes for most functional products, such as a wine openers.



Figure 2: “Where’s the best wine opener for you”, (N.d)

This tool has a particular and unusual form, but the combination of all the components of the product allows removing the cork from the wine bottle’s neck quite easily. This product is one example of the many products whose forms are sympathetic to their function, even if the final product looks somewhat strange. It sacrifices its appearance to function optimally because all other attempts to make a better-looking outcome have not yielded anything more successful than this cork remover. This means that even though you might achieve a more cohesive-looking product, it is no longer functional.

On the other end of the spectrum, we have things that look pretty but must be fixed. In most cases, with designed products, this is where designers might struggle the most. We completely forget about the fact that they are supposed to function and end up creating something that looks aesthetically pleasing or beautiful, but it is far from useful.

Every designer has a different design process they follow. Ideally, from a design standpoint, it makes more sense to move from the functional end of the spectrum towards the middle. Not the other way around. Hence, you would start with a raw function, and then you can decide how it needs to look to do what it is meant to do. Lastly, without compromising its function, you can find ways to make it more visually appealing.

The late Louis Sullivan, an American architect, said, “form ever follows function”, which suggests that there is a methodology for automatically generating form based on a clearly defined function. This expression implies the superiority of ‘function’ over form,

assuming that functionality is the only imperative in design and that the product's physical appearance and ergonomics are all secondary. Soegaard (2020) considered there are two ways to interpret it: either any aesthetic factor must always take second place to the functional requirements of the design, or any beauty of a design must only result from the “purity” of the function. He explains this last one by highlighting nature’s beauty. Many species and animals were created with a particular form and then developed their function from that form. Soegaard uses Giraffes as an example. Considering they have a long-necked form, giraffes failed to eat food from the ground, so they had to conform to eating leaves from high branches.

4. AFFORDANCES

Donald A. Norman is an American researcher and professor who examined products’ ergonomics in the context of usage constraints. He supported “that product’s form should limit users’ usage to what is right”. (Norman, 1988, quoted in Bolch, 1955) In his books, Norman cites many examples of how the ergonomic design of numerous products fails to support its functions. To him, any design that is confusing or difficult to use, or functions counterintuitively, is poorly designed (Morgan, 2018). Bad designs can provoke prediction errors that lead to inefficient and erroneous use of products, with possible adverse outcomes or unsatisfactory experiences (Carbon, 2019). Such as door handles.



Figure 1: “UX is present everywhere” (N.d)

We know that doors can either open or close; from context, we should immediately know whether to push, pull, or slide. In “The psychology of everyday things”, Norman (1988) sustains that the door fails if you have to think about whether to push or pull, if you cannot locate a place to push or pull or if you try to push and the door slide. Therefore, any door that is confusing or difficult to use has been named after him. You determine if a door is a “Norman door” as you approach it, and its performance makes sense. Their ergonomic design is what gives us hints on how they should be used. A door must have a knob if it is meant to be opened by pulling and twisting the knob or a steering wheel that affords gripping and spinning around a central axis. These types of “hints” provided by the product’s form are called “affordances” (Morgan, 2018).

In 1977, James Gibson suggested that “affordance” is not about the product’s function but all the possible actions the agent interacting with it can do based on its physical capabilities. According to James Gibson, based on the perceptible properties of an object, we can determine its uses and analyse how it might help us achieve our aims or objectives. Though, an affordance is not a “property” of an object. Gibson (1977) originally described the term as “the actionable properties between the world and an actor (user)”. Later, Norman slightly changed the term’s meaning so it would fit better in the design community.

“An affordance is a relationship between the properties of an object and the capabilities of the agent that determine just how the object could possibly be used” (Norman, 1988)

He claimed that affordances were just the actions that the user thought possible depending on their physical and perceptual capabilities, goals, and past experiences.

Due to this, as designers, we need to understand and appreciate the fundamental interactions between humans and products if we are to design pleasurable and effective products. We must pay attention to how they perceive the world and understand how many factors, like the users’ culture, knowledge, experiences and expectations, affect our facility to distinguish all the possible actions a product offers. When we design, it is our job to make sure that the object we create fits our target group of people and that it affords our users to use it in a way so they can discover and understand how products work. (“What are affordances?”, N.d) Many products can have more than one affordance, like chairs, stools, tables, etc. Users are able to identify affordances depending on their current intentions, motivations, or their imagination. For instance, a chair can either afford sitting,

standing, or even throwing, etc., based on the context or situation. This suggests that if the users' intentions change, the affordance will also change. (Carbon, 2019)

“When affordances are taken advantage of, the user knows what to do just by looking; no picture, label, or instruction needed”—Don Norman (1988, p.9)

For this reason, designers should be able to create products that allow users to identify the effects of their actions instantly and unconsciously. “It should be immediately apparent how to interact with a product” (Morgan, 2018). Clear affordances are vital to usability. The better we make our affordances, the less frustrated the user will become trying to figure out how the product is used.

5. EMOTIONS

If the functions of a product are inadequate, it is of little value, so why do we keep or even have them in the first place?

As survival became easier, products were not just designed as a “need” to function but also to meet the emotional needs of people. The user's expectations have evolved; now, they expect usability by default and seek out products that generate pleasure and evoke positive emotions in us. The objects in our lives are no longer mere material possessions. We take great satisfaction in those products that bring meaning into our lives. (Norman, 2003)

Beyond the external appearance of a design, there is a subjective factor that no designer can offer. Everything we do, think and make is subconsciously linked with emotion. And these emotions affect the way we feel, act and think, and serve as constant guides to appropriate behaviour, guiding us toward the good.

When he wrote “The design of everyday things”, Don Norman was against unusable objects (Rojas, 2013), which resulted in harsh criticisms from many designers that believed that, even if all products were usable, they would also be ugly. And we can all agree that, though functional, ugly designs are not necessarily enjoyable. So, he decided to write “Emotion & design: Attractive things work better”, in which he argued how by selecting different attributes in a design, we could fulfil the users' needs, depending on the context of use, the occasion and the mood. Norman supports this with his own collection of teapots.



Figure 3: *Norman, D.A* (2003)

The first symbolises aesthetics, the second functionality, and the third practicality. For him, his teapots were more than just utilitarian objects; they lighten up his day, and each has a personal meaning, as they have their own story. This story of the teapots helps illustrate the main three components of product design: usability, or lack thereof, aesthetics, and practicality. Norman points out how he chooses each design depending on the situation and his mood. With this, he shows that attractive designs are not necessarily efficient but give us pleasure anyhow. (Zein, 2018)

6. THE “HALO EFFECT.”

After writing “The design of everyday things”, where Norman claimed the importance of a product’s usability, he wrote “Emotion & design: attractive things work better” as a campaign for beauty. In other words, he supports the role of aesthetics in providing a positive emotional judgement that improves the perception of the product’s usability.

Now, people have the need of being attracted to what they buy. We are drawn towards pretty designs and love looking at beautiful things. Because of this, the physical appearance of a design has become the main reason for its marketplace success. As Norman says in “The impact of persuasion”, “we are no longer people, we are consumers, and the consumer’s job is to consume”. (Rojas, 2013) And consumers tend to go for products and designs that are more aesthetically pleasing because they are perceived as having more value and being more easy to use than those that are useful yet ugly. Even if it is not the case.

“In the end, we all judge a book by its cover. The better the book covers, the more we believe the content is better” (Nikolov, 2020).

Persuasion is key here. And this type of persuasion has a positive side which is often used to make the consumer feel better the minute they make use of the product. This phenomenon is called the “halo effect”, according to which perceptions of a single trait of a person can affect how we perceive other characteristics of that person. “The halo effect makes it so that perceptions of one quality lead to biased judgements of different attributes” (Cherry, 2013). This phenomenon can also be applied to design. It is a type of cognitive bias in which a product's or design's physical appearance influences how we feel and think about it. Though it is commonly thought of as “aesthetics” as the visuals of the design, we are now aware that it consists of more elements than just how it looks. (Nikolov, 2020) There is a whole branch of philosophy exploring aesthetics. Alice Isen, a psychologist, with the help of some of her colleagues, did a study where it was shown that being happy broadens the thought process and facilitated creative thinking. (Norman, 2004) As a result of the positive effect, neurotransmitters broaden brain processing, the muscles relax, and the brain pays attention to the opportunities offered. Which stimulates curiosity, attracts creativity and converts the brain into an effective learning organism.

This is Norman’s central thesis in “why we love (or hate) everyday things”. (2004) He suggests that beautifully designed products make people feel good. Thus, form plays such an essential role in design. It affects people’s emotions, it means something to them and adds value to the product, and therefore, increases the quality of the users’ experience with it (Rojas, 2013) Furthermore, aesthetically pleasing designs do not just create and encourage positive attitudes in both products’ perception and functionality but also develop emotions of trust, pleasantness and loyalty towards the product and the brand. It makes consumers care more about the product and also allows the user’s bond to keep strengthening. (Nikolov, 2020) They become more loyal to the brand and tolerant towards errors.

It is not all about the first impression but about how pleasurable the experience with the product is. As Norman says, “sure utility and usability are important, but without fun and pleasure, joy and excitement, and yes anxiety and anger, fear and rage, our life would be incomplete” (Norman, 2003)

Bloch (1995) noticed how the usage of aesthetically pleasing products affects not just the users’ experience with the product; but also, significantly improves the quality of their lives by providing sensory pleasure and stimulation.

Though beautiful products can significantly improve the users’ experience and the quality of their lives by providing happiness and stimulation, appearance is not the only way designers can give pleasure through their designs. There are four crucial aspects we might want to consider when designing if we want to improve the overall user experience:

- Physical pleasure: derived from the feel of a product through the senses. It is smell, touch, feels, and taste.
- Social pleasure: derived from designs that support social interaction in the best way possible.
- Psychological pleasure: derived from how easy a design is to understand or how it stimulates the user’s emotions. It is strongly related to the usability of the product.
- Ideological pleasure: derived from designs that communicate ideas and meaning by engaging with the consumer’s values. It could be religious, moral, or aesthetic. Like, taking the sustainability approach, which results in deep pleasure, making them feel good because they are taking care of the environment.

(Nikolov, 2020)

7. USER-CENTRED DESIGN

As previously stated, objects or products are defined by their relationship with humans and what they mean to them, so we have to overcome the idea that a design is just an entity with materialistic properties.

At this point, scientists know how important emotion is to everyday life. Emotion is considered a self-regulatory process that helps us adapt our behaviour. (Carbon, 2019). Because of this, products should constantly affect the subconscious. Without emotions,

our decision-making ability would be ruined. With them, we are often able to make decisions between specific alternatives. Most of us decide on something without even knowing the reason. When the brain processes information, conscious awareness comes late. Due to this, a great deal of our human behaviour is subconscious, and most of the judgements have already been determined before they even reach consciousness. Usually, people react emotionally to a situation before they can assess it cognitively. “A decision has to “feel good”, or else it is rejected” (Norman, 2003), which is why designers that do not take the aesthetic aspect into account tend to be rejected in shorter periods, as they create negative emotions that cease creativity and problem-solving.

No single product can hope to satisfy everyone.

“Satisfying people’s needs, including the requirements of different cultures, age groups, and social and national requirements, is complex and confusing. Now add the necessity to cater for the many wants, whims, opinions and biases of the people who purchase products, and the task becomes a significant challenge.”

(Norman, 2004, p.43)

Design is very user-centric, so adjusting the aesthetic elements that appeal to the consumer’s emotion is key to making people feel good and giving positive vibes. This is understandable as most designers’ purpose is to design products FOR people; their ideas are inspired by what they need or want. “Designs become a matter of individual perception and construal defying constant, objective specifications.” (Carbon, 2019) But we cannot expect to please everyone. What might be desirable for consumers in one culture may be unattractive in another. For this reason, Alexander (1979, quoted in Bloch, 1995) argues that “the cultural norms regarding design are essential because they tend to overwhelm feelings and personal preferences.” Designers presume that consumers prefer those products that share desirable values within a particular culture. Thus, forms that communicate technical complexity should be selected if a culture especially values high technology.

8. CONCLUSION

As someone who is genuinely enthusiastic about design, I often dream of someday being recognised as one of the best designers, becoming an inspiration to many future aspirants

or just being remembered. However, design is an industry filled with amazing creative people, which makes it extremely hard to stand out. Not to mention that if every product's form were to be designed as a result of the function, they are meant to do, all the products designed to perform the same task would be identical. "There is little we can find in common to all chairs, except for their intended use" (Soegaard, 2020). If we were to design all the chairs the same, as they were all created for a specific purpose, then designers would not have any motivation or incentive to design. For this reason, I consider "form follows function" as an anti-design movement that is often used against creativity and confines our innovative thinking.

Personally, I believe that "form follows function" does not allow us to design freely. And we are all different. We do not think, act, or plan the same way, and we all definitely have different skills. That is why I believe that design should not be not fit into a single linear spectrum, where on one side, you have form, and on the other, you have a function. It should not be "this" or "that". In design, there should not be any order or any "firsts" and "seconds". I would visually represent it as two perpendicular lines or spectrums, where the horizontal spectrum is the form, and the vertical is the function—the intersection between these two results in four quadrants.

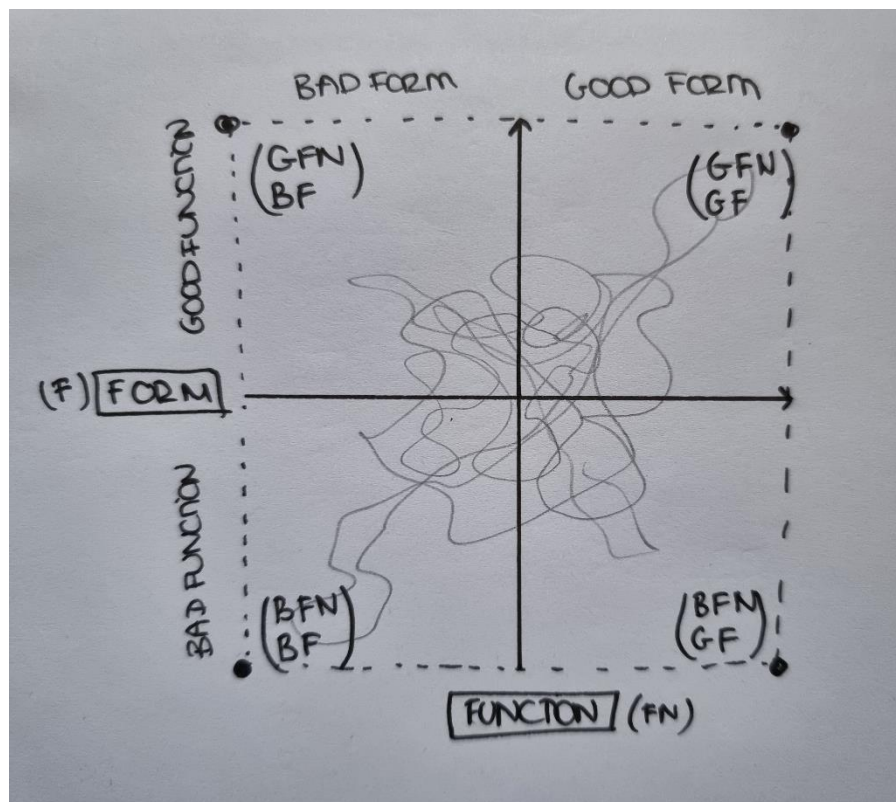


Figure 4: Arias de diego, (2022)

In the bottom half of this schematic, we have bad-function products, and in the top half, we have good functions. In the left half, we have bad form, and on the right side, we have good form. These axes are spectrums, meaning that the qualities of a design can land somewhere in the middle of this space or bring aspects of these quadrants together. Here, designs run from bad function and bad form to good function and good form, or good function but the bad form to bad function but good form. Every “good design” should ideally fit in the top right-hand corner of this chart. Nevertheless, there is no “right” or “wrong” quadrant here.

At the end of the day, design is very individually dependent. It can vary depending on numerous factors such as aims, goals, values, audience, etc. for that reason; the ideal design process does not exist. Some designers utilise the famous Double Diamond process, with four stages: Discover, Define, Develop, and Deliver, where the first step is finding or choosing a problem that should be improved or solved. The main focus here is to find different ways to design a functional solution for said problem. For them, research and observation go first. If they gather enough information by watching how people use and interact with everyday products, they might discover difficulties and find ways to overcome them. Plus, with enough research, you know precisely what is at stake. In this process, the appearance factor is often left as the last step of the process. These people would aim for their designs to belong in the top left-hand corner of the scheme, where designs are functional but need better form. Thereby, their challenge would be gradually moving their design from the left side to the right.

On the contrary, when designing a product, I start by sketching the product's physical appearance. For designers like me, the idea just comes naturally. It is like sudden thought that comes into your mind, and once the idea is there, you need to put it down on paper. In my case, my designs belong in the bottom right-hand corner, where aesthetically pleasing products are not supported with good functionality. This is my challenge as a designer. I needed help finding different ways to create a functional outcome of the aesthetic design I had in mind so that I could gradually move my design to the top.

Whatever path you choose depends on you and your audience's needs and wants, goals, values, and preferences. So, the next time you are designing, think carefully about whom you are and whom you are trying to communicate with; and how your designs can successfully provide your audience. As for me, I prioritise form, not just to offer

emotions to the user but for me as well. Designing beautiful things makes me feel good and satisfied, allowing me to think more creatively and openly.

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FIGURES:

Figure 1: *“UX is present everywhere”* (N.d) available at:
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Figure 3: *Norman, D.A* (2003). Available at:
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[s07/lectures/affordance_files/CH00_Prolog.pdf](https://www.cs.cmu.edu/afs/cs/academic/class/15494-s07/lectures/affordance_files/CH00_Prolog.pdf) (Accessed: 13 November 2022)

Figure 4: *Arias de Diego*, (2022) (Accessed: 13 November 2022)