



"NEW DESIGN" APPROACH IN THE PROCESS OF STEEL POT AND HANDLE DESIGN IN TURKEY: EXPLANATIONS OVER MANUFACTURED PRODUCT

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ABSTRACT

Kitchen and cooking product design in Turkey, it is seen that a rising momentum gained in the last ten years of production and export field. Especially design studies in this field create a high added value in the sector with the effect of innovation, originality, creative solutions. The concept of "new design" comes to the fore in all stages from the design process to the production process. It can be evaluated that the new design has progressed in several stages in the sector. The necessity of parallel execution of two design phases, namely the pot forming the main body of the specified product and the handle components forming the product-user interface, arises. At this point, it is important that the productions of both design focus areas, which are designed with the aim of minimizing both economic and production problems, can be combined with different products. As a result, the result of the formation of more than one parameter arises in the consideration of the design focus in terms of "new design".

This article gives industry manufacturing services market in Turkey —Armada Metal Inc.’’ taken out of the production process carried out with metal pots and handle design firm "Globe" has pots and "Chips" has focuses on the handle products. How the "new design" motivation is revealed in the design processes of the relevant product designs is discussed in the production process.

Keywords: Product design, Pot and handle design, New design, Design manufacture, Design components

INTRODUCTION

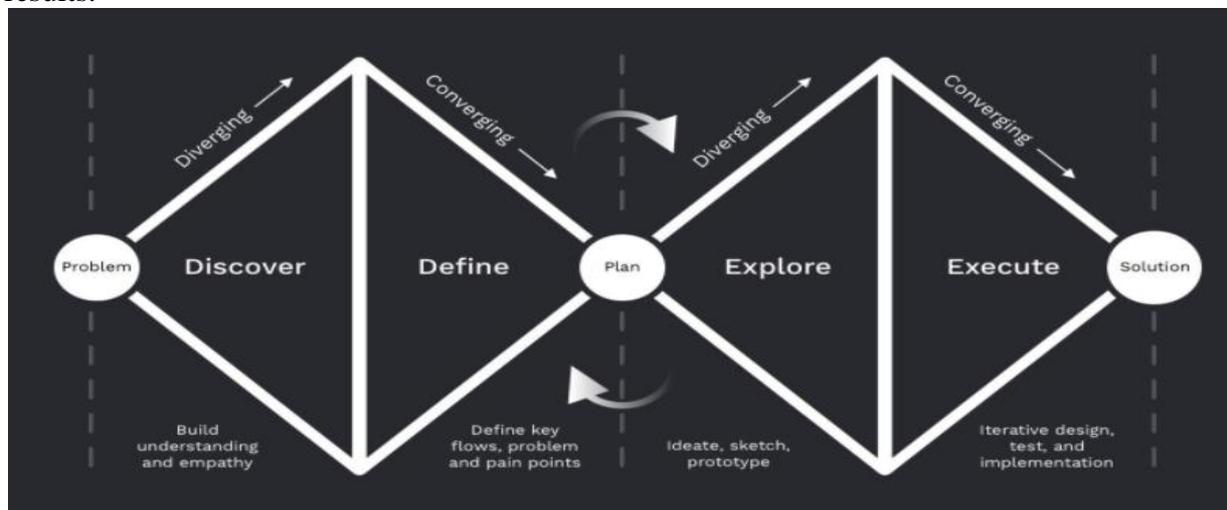
In the experience of cooking and preparing, which is an important part of daily life, cookware and similar products draw attention. It can be said that people's experiences with cooking are linked to a past as old as human history. In this respect, as an important actor of the cooking experience, tools and equipment show social, cultural, economic, technological developments over time. In the historical process, developments and changes in material properties and technologies are at the forefront.

Cookware products meet with users in many different ways, especially with the effect of product design. At this point, the needs and expectations of the user and usage relations become important. The cooking experience, which is an important part of the cultural background and knowledge, turns into a user-oriented design activity in terms of user experience. It can be said that the products belonging to the relevant product family existing in the market also have many advantages in terms of innovation in design, as well as the “redesign” activities, as well as protecting the basic practical functions of the products. In this article, pot and handle components, which were produced within the scope of the new design and reached the user, are presented on a

specific model. Relevant designs are put forward in terms of all processes from the design to the production process and are evaluated within the scope of the added value created by the new design.

1. NEW DESIGN CONCEPT

Designing industrial products is accepted as an industrial discipline devoted to functional and formal descriptions of products. New product design is not only forming of the concepts in dimension in human cognition and mind, but it also comprises a multidisciplinary professional area that includes designing of tools used for producing the product and designing of the manufacturing process to reach an innovative and original outcome. Design knowledge is a collection of different cognitive and also applied artifacts with different purposes. Projects in the field of industrial design; tools to help understand the state of things and implement design ideas; along with reflections on the sense of what we are doing or could do. Yum (2020b) mentions that efficiently projected products are effective in demonstrating the professional skills of designers. However, the design knowledge we are talking about can also be described in terms of form and morphology. It must be explicit, discussable, transferable, and accumulable specifications of designing activities. It must be knowledge that can be clearly expressed by whoever produces it, discussed by anyone who is interested, applied by other designers, and it must become the starting point that allows other researchers to produce further knowledge (Manzini 2008). Design research that produces conceptual, cognitive, operational tools for both designing and research stages helps us to understand the nature of what we are designing. Today, many companies redesign their products in order to improve product performances in different domains including environmental sustainability, customer satisfaction, and profitability (Bayraktaroglu 2019). In today's market, most companies redesign to create new products. Redesign improves product quality and reduces cycle time (Smith, Smith, and Shen 2012). Newly designs products are getting closely matches with user needs, and only introduce new products when major conflicts exist between user needs and existing products. Yum (2020a) mentions that the satisfaction achieved as a result of the use of physical products is called the user experience. The concept of 'Usability', which can be regarded as the starting point of experience design, has been transformed over time by being influenced by technological development, and 'User Experience Design can be examined according to new rules and ways of handling as mentioned by (Yum, 2021). When designing a product today, it's both impossible and unsensible to set up a rigid process and follow it for every situation; we need to be agile and quick to adapt in order to obtain a positive experience. If the results are not satisfactory, you can go back and analyze what you did wrong and improve the process. If you did things randomly, you would always get random results.



“Double diamond” process for redesign design activities and applications

A redesign is never really done; it's a continuous effort to keep experience relevant. A great place to start is what many designers as the "double diamond" process. It takes the designer through four main phases to get from the problem to the end solution:

- 1- Discovery — building shared understanding and empathy
- 2- Definition — identifying key flows, challenges, and pain points
- 3- Exploration — ideate, sketch, low fi prototype
- 4- Execution — iterative design, test, and implementation

So that the product, which is a strategic competitive element for companies, also contributes to the development of the material culture of the society. Product design and product development is an interdisciplinary activity that meets the needs of the industry, based on user requirements (Beyazit 1994). The design of industrial products is handled within the scope of new product development. Product design does not only consist of the dimensional shaping of concepts in the human mind but also includes the design of the tools used in the production of the product and teamwork that includes the design of the production process (Rodriguez and Ashaab 2005). In tool design, it is necessary to produce the necessary bindings and punching sets, apparatus, molds, and so on.

1.1 Design Criteria's For New Design

The first step to being taken before starting anew design activity is to gather information about the product under the light of the following items such as (Shah, Kulkarni and Vargas-Hernandez 2000):

- Determining the requirements,
- To determine who the product to be designed will appeal to,
- To determine the features that may be of interest to the consumer,
- To collect information about the products to be designed, if there are similar products in the market,
- To determine the cost of the product to be designed.

Market research has been conducted for the product that is intended to be designed for the relevant field and will appeal to the purpose of being an advertising product. It was decided that the desktop pen holder, inspired by the bolt, which is a machine element, would be an original product suitable for the purpose. Criteria should be determined for the product concept to be designed (Pugh 1991). The criteria that have been decided and selected are given below:

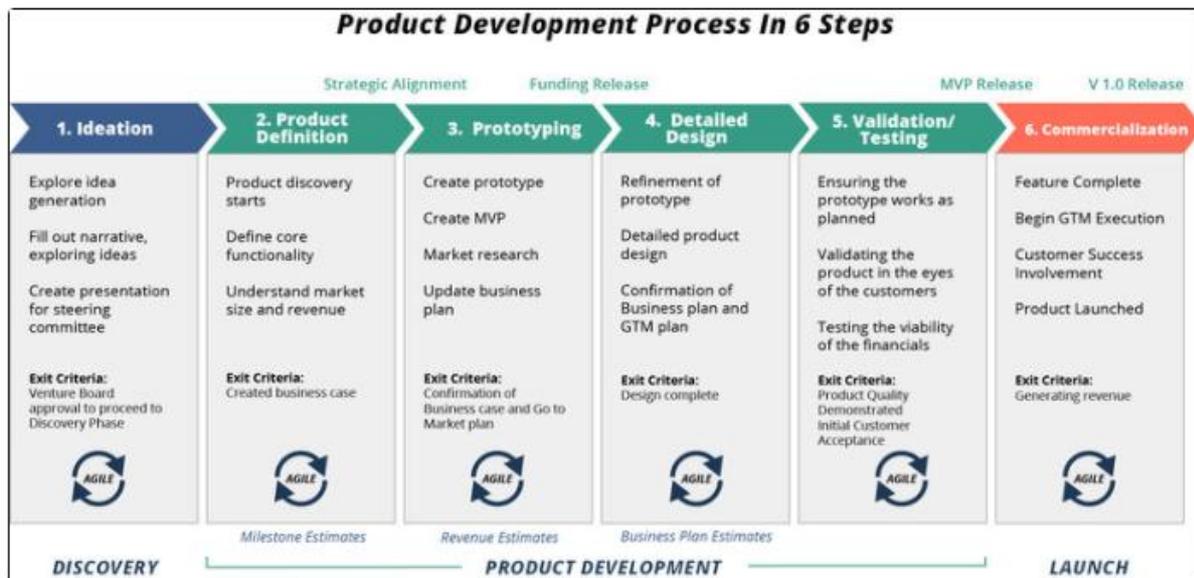
- It has a static structure,
- Easy to use,
- Small footprint,
- Suitable for mass production,
- Easy to clean,
- Visual link,
- Aesthetic appearance.

2. PRODUCT DESIGN AND DEVELOPMENT

Product development is the process of creating a new product to be sold by manufacturers to reach its users. Design refers to those activities involved in creating the styling, look and feel of the product, deciding on the product's technical background, selecting materials and processes, and engineering the various components necessary to make the product use. Development refers collectively to the entire process of identifying a market opportunity, creating a new product to appeal to the identified market, and finally, testing, modifying refining the product until it is ready for production which we are calling the process the designing process. The task of

developing outstanding new products is difficult, time-consuming, and costly (Cooper 1988). That's why lots of manufacturers chose to use the same product infrastructure same and changing the appearance. And also there is another practice, especially companies producing pots and handles by foreseeing the use of the same handle in many other pot designs, it can gain some economic implications and gains.

People who have never been involved in a development effort are astounded by the amount of time and money that goes into a new product (Bruiyan 2011). Successful products are not simply designed, but instead they evolve through countless hours of research, analysis, design studies, engineering and prototyping efforts, and finally, testing, modifying, and re-testing until the design has been perfected and stated as new design (Vandenbosch 2006).



Product Development Process - 6 Step

The product development process is the specific series of six steps or stages a company uses to achieve its realization of new offerings to satisfy a market need.

2.1 "New Design" Approach In The Process Of Steel Pot And Handle Design

Armada Metal Inc. I made various design studies on cookware and handle products within the scope of my design consultancy duty. During these studies, customer-oriented design activities were carried out. During my design studies, my main design motivation was to reach original, innovative creative products. There are certain constraints in the cookware product that affect the design. These are:

- External angles that the product has
- The internal angles of the product
- The ratio of chamfer and fillets the product has
- Cheek angles that the product has
- Diameter of the product
- The material of the product
- Production Method

There are certain constraints that affect the design of the side stem and top components. These are:

- Size of the product
- The width of the section where the product is attached to the pot

- Compliance of bolt connection gaps with international standards
- The weight of the product
- Mold angles of the product
- How many molds the product comes out of (number of mold wings)
- The position of the pushers
- The location of the mold parting line

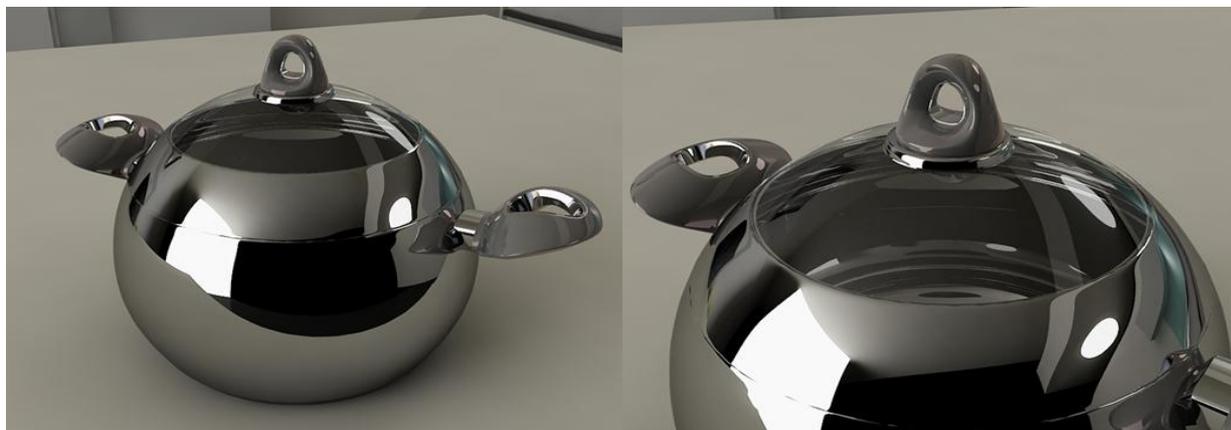
It can be said that many parameters are effective in this design area. However, in the customer-oriented design activity, the expectations of the customer, their needs and customer personas can be seen as factors affecting the direction of the design. The appearance of the product is determined by the factors mentioned above. In addition, designing a new product within the sector allows it to be carried out in a healthy way by closely monitoring other products and innovations in the market, and especially by researching and analyzing design registrations.

2.2 Products Called "Globe Pots" and "Chips Handle" Descriptions

The main design motivation for my pot design called Globe was to use various analogies. Inspired by the spherical structure of the world in the design of the pot, I aimed to create a spherical-shaped main body. The body and lid intersections of the pot are planned to complement each other. In this way, while maintaining functionality, form integrity is also provided. Half of the cover is made of stainless steel and the other half is made of heat-resistant glass.

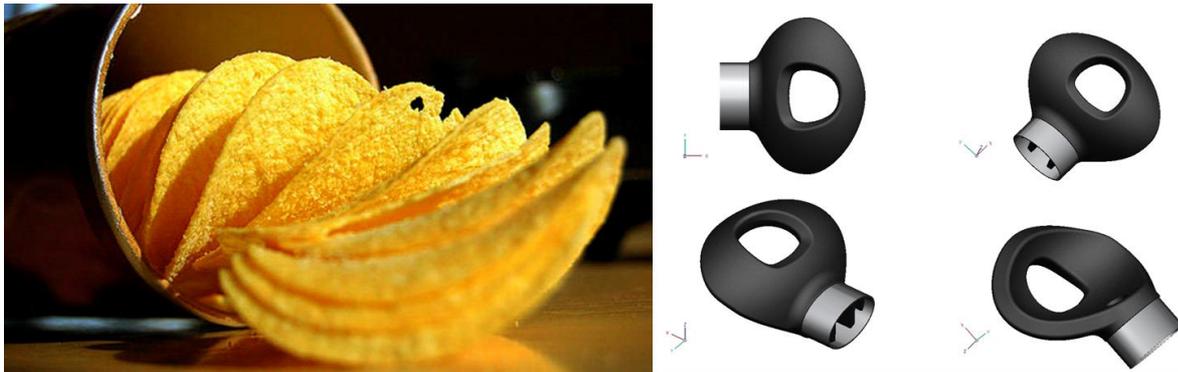


"Globe Cookware Product" designed using world analogy

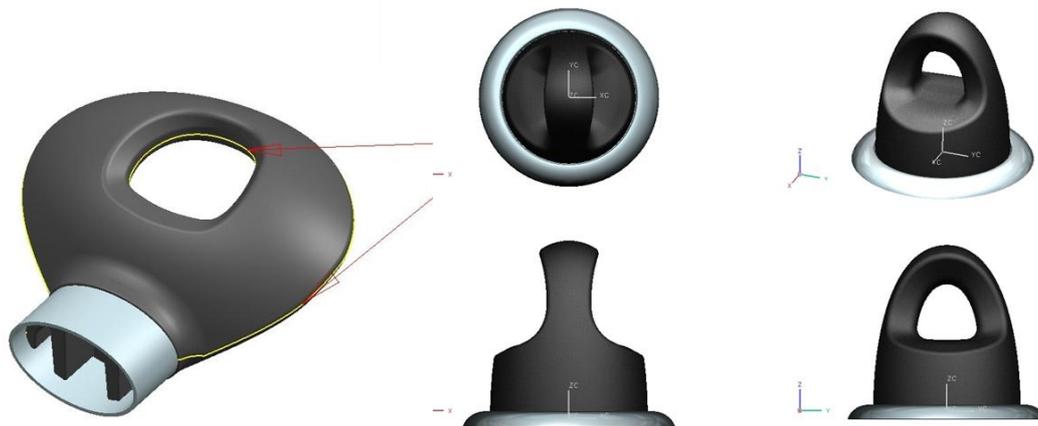


"Globe Cookware Product" design closeup 3D modeling views

My main design motivation in Chips Side Handle and top handle designs was inspired by the curved and curved structure of the potato chips and used as an analogy in the formal structure. The curved structure of the side stems are shaped facing downwards. And in the middle part, there is a wide space at the rear that narrows towards the front. This handle structure and gap creates positive results in terms of grip and grip for the user, increasing the user experience. In addition, by increasing the control of the product, it has been tried to ensure product safety. The top handle also has the formal tongue of the side handles, allowing the user's hand to be reversed without being burned by the heated cover. All the elements that make up the form have been developed with usage tests, regardless of the function.



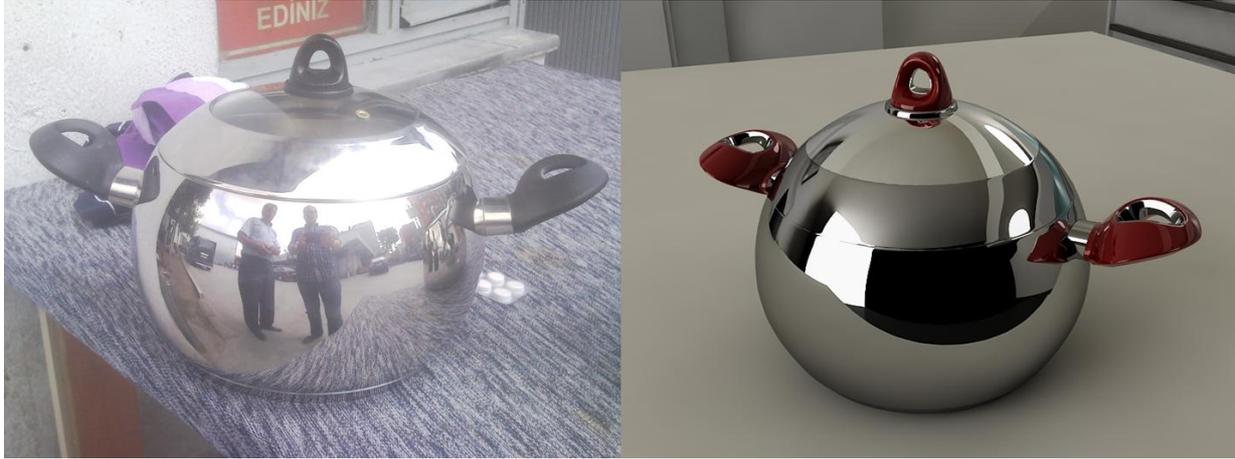
“Chips Side Handle” designed using potato chips analogy



“Chips Side Handle” and “Top Handle” design closeup 3D modeling views

3. EXPLANATIONS OVER MANUFACTURE

The design process was initiated by evaluating very general information from the customer such as size, character, weight and price, and then conventional design methods, that is, many design sketches on paper. Certain design ideas have been matured and transformed into concrete design documentation. As part of this process, 3D models were created in computer environment. Models have been created using a 3D printer in order to control the mass properties, proportion, proportion and overall dimension of the designs selected from these models.



Final product of Globe Cookware, side and top handles pictures

As a result, the product has the potential to achieve a competitive position as an innovative, original and new product in the market, taking into account the general demands of the customer and economic values. In order to prevent the protection and imitation of the design at this stage of production, the design registrations were taken by the manufacturer firm at the Turkish Patent Institute (TPE) and the designs were taken under protection.

<p>Dosya Bilgileri</p> <p>Başvuru Numarası : 2011/05684 Tescil Numarası : 2011/05684 Bülten Numarası : 187</p> <p>Başvuru Tarihi : 15.09.2011 Tescil Tarihi : 15.09.2011 Bülten Tarihi : 01.11.2011</p> <p>Sahip No: 6384892 ARMADA METAL SANAYİ VE TİCARET LİMİTED ŞİRKETİ (Akçaburgaz Mah. Akçaburgaz Cad. 4. Bölge No:58 Esenyurt İstanbul TÜRKİYE)</p> <p>Tasarımcılar</p> <p>ÇINAR NARTER (*****)</p> <p>NİHAL EMSAL (*****)</p> <p>OSMAN ŞAHİN (*****)</p> <p>Vekil Bilgileri</p> <p>MUSTAFA DEMİRKAYA (ADRES PATENT MARKA VE FİKRİ HAKLAR LTD. ŞTİ.) ****</p> <p>Tasarımlar</p> <p>1. Mutfak Eşyası İçin Kulp Resimler</p>  <p>Locarno Sınıfı : 07-02</p> <p>2. Mutfak Eşyası İçin Kulp Resimler</p>  <p>Locarno Sınıfı : 07-02</p>			<p>Dosya Bilgileri</p> <p>Başvuru Numarası : 2011/00533 Tescil Numarası : 2011/00533 Bülten Numarası : 179</p> <p>Başvuru Tarihi : 28.01.2011 Tescil Tarihi : 28.01.2011 Bülten Tarihi : 01.03.2011</p> <p>Sahip No: 6384892 ARMADA METAL SANAYİ VE TİCARET LİMİTED ŞİRKETİ (Akçaburgaz Mah. Akçaburgaz Cad. 4. Bölge No:58 Esenyurt İstanbul TÜRKİYE)</p> <p>Tasarımcılar</p> <p>NİHAL EMSAL (*****)</p> <p>ÇINAR NARTER (*****)</p> <p>Vekil Bilgileri</p> <p>MUSTAFA DEMİRKAYA (ADRES PATENT MARKA VE FİKRİ HAKLAR LTD. ŞTİ.) ****</p> <p>Tasarımlar</p> <p>1. Tencere Resimler</p>  <p>Locarno Sınıfı : 07-02</p>		
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Globe Cookware, side and top handles Turkish Patent Institute design registrations with Reg. No: 2011/05684 and 2011/00533

4. CONCLUSIONS

Product design is generally described as the adaptation of the objective environment to the physical and spiritual needs and needs of humans and society. Industrial product designs are only examples of the evolution of the existing to what is desired. The adventure of this design work reminds us that product designers are two customers. The first is the designs presented to the manufacturer, the manufacturer, and the other designs are presented to the real consumer of the product. If a product does not touch the life of the consumer in the eyes of the consumer, if it does not create an impulse to buy, if it does not cause him to be excited, he reminded many times in the historical process that the chance of success is low. In this respect, it has been tried to touch the motivations targeted in this design and the expectations of the user with a new product design perspective. A process has been tried to be implemented in order to emphasize the added value created by products designed in product design and the importance of design in the sector. The whole process from design to production and then to the registration process of the design has been tried to be revealed.

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