

INDUSTRIAL DESIGN: AN INDISPENSABLE APPROACH IN THE PRODUCTION OF MODERN CERAMICS

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Abstract

When ceramics is looked at from the angle of arts, the idea of mass production, which involve repetition of the same shape in large quantity is neglected, specification and mensuration are being marginalised. But if ceramics is to attain and surpass its original peak of glory, the schematic design which spells-out shape, size, ergonomic of handling, material usage and type of consumer, etc, must be taken care of. This paper highlights the importance of industrial design which is the spring board for any industrial production. It re-challenges the ceramist to the indispensability of planning and strategising to streamline mass production. It attempts to bring out ceramics from the “pottery era” when ceramics was crafted by hand without a systematic study of the ergonomic and technical rendition which could make room for mass production, and fired at a low temperature for use by the immediate society.

Introduction

In everything that has a sustainable life span, there is always a plan or design of how such a thing should be done. Every standard and functional building comes from a well articulated design thought on paper. A motorcar, train, ship, electronic, etc; have schematic design to help understand the functionality of every part of the system. Now what is a design? Design according to Geddes and Grosset (2000: 91) is a transitive verb meaning; to plan, to propose, to make working drawing for. It is also an intransitive verb meaning to intend; as a noun, a drawing or sketch, purpose and aim. On the other hand, the Oxford Advanced Learner’s Dictionary defines industry as a noun – the production of goods from raw material, especially in factories. It follow therefore that industrial design is encircled around designing and production in the industry.

Industrial design is therefore a combination of applied art and applied science whereby, aesthetics, ergonomics and usability of product may be improved for marketability and production Wikipedia (2010). Thus the role of

an industrial designer is to create and execute design solutions towards the problem of form, usability, physical ergonomics, marketing, brand development and sales.

Wikipedia has it that, the term “industrial design is often attributed to the designer Joseph Claude Sinel in 1919 (although he denied it in later interviews) but the discipline predates that by at least a decade. Its origins lay in the industrialization of consumer products. For instance the Deutcher Werkbund, founded in 1907 and a precursor to the Bauhaus, was a state-sponsored effort to integrate traditional crafts and industrial mass-production techniques, to put Germany on a competitive footings with England and the United States.

Oluremi (2009: 257) define design as “a plan for making something that can be used to create technology” and goes further to say that “industrial design” is the design of object for machine production, that it is an integration of art, engineering, and merchandising. The industrial design therefore is a process that uses problem solving device to arrive at the

best solution, or design. It is also used to improve products and services that are already in use.

Oluremi, quoting Wangboje (1982) said “visual art is classified into fine arts, which include painting and sculpture, and applied or industrial art which consist of ceramics, textiles, graphics, and jewellery, among others.” Sketching and drawing are basic to all forms of art. Drawing is an important form of communication. Drawing has always been used to record ideas, Oluremi (2009: 258). To illuminate what Wangboje said, Oluremi agrees that the civil engineer draw the plans for new roads and other projects like dams and bridges. Electrical engineers use drawings to show the circuits of new computers and stereo systems, while structural engineers (builders) make drawing of the basic and fundamental structures of intended building etc.

However, the industrial designers create three dimensional drawings from sketches that are two dimensional. The New Age Encyclopedia according to Oluremi (ibid:257), refers to the industrial designer as to essentially involve in the process of designing object to be manufactured by machine, rather than crafted by hand. The industrial designer is a skilled professional trained both in art (technical drawing) and the means of mass production.

“Industrial design is the professional service of creating and developing concepts and specifications that optimise the function, value and appearance of products and systems for the mutual benefit of both user and manufacturer”. Design itself is often difficult to define to non-designers because the meanings accepted by the design community is not one made of words. Instead, the definition is created as a result of acquiring a critical framework for the analysis and creation of artefacts’. One of the many accepted (but internationally unspecific) definitions of design originates from Carnegie Mellon’s school of Design. “Design is the process of taking something from its existing state and moving it to a preferred state”. This applies to new artefacts, whose existing state is undefined, and previously created artefacts, whose state stands to be improved, Ekong & Ito (2009: 172) agree that industrial design is the art and science that centres on the creation of

machine-made product, for mass production, and therefore for mass market.

According to the Chartered Society Of Designers, design is a force that delivers innovation that in turn has exploited creativity. Their design framework known as Design Genetic Matric determines a set of competences in four key genes that are identified to define the make up of designers and communicate to a wide audience what they do. Within these genes the designer demonstrates the core competences of a designer. This is normally within the context of delivering innovation in the form of a three dimensional product that is produced in quantity. However, the definition also extends to products that have been produced using an industrial process.

Also, according to the ICSID (International Council of Society of Industrial Design), “Design is a creative activity whose aim is to establish the multifaceted qualities of objects, processes, services and their systems in whole lifecycles. Therefore, design is the central factor of innovative humanisation of technologies and the crucial cultural economic exchange. It is critical to the product development process that the industrial design and engineering aspects of a product are considered simultaneously. This according to the ICSID design can occur via two methods. The most streamlined method is for the product designer to have an education and/or background that encompasses both industrial design and engineering. Unfortunately, there are very few educational establishments that embrace this educational ideology. A survey of engineering and industrial design curricula clearly demonstrates this fault. The other method, which is utilised by most U.S. companies, is to employ or contract with separate teams that focus somewhat independently, with occasional meetings to ensure the primary goals of each team are met or exceeded. The difficulty with the later process is that there is sometime a vast disconnect behind the skills, education, and understanding of the two groups. this disconnect can sometimes become extremely cumbersome to the design process, and possibly detrimental to the ultimate success of the product.

Process of Design

Industrial design also has a focus on technical concepts and processes. In addition to considering *aesthetics*, usability, and ergonomics, it can also encompass the engineering of object, usefulness as well as usability, market placement, and other concerns such as education, psychology, desire, and emotional attachment of the user to the object. These *values* and accompanying aspects on which industrial design is based can vary, both between different schools of thought and among practicing designers.

Product design and industrial design can overlap into the field of *user* interface design, *information* design and *interaction* design. Various schools of industrial design and/or product design may specialise in one of three aspects, ranging from pure art college (product styling) to mixed programmes of engineering and design, to related disciplines like exhibit design and interior design to schools where aesthetic design is almost completely subordinated to concerns of function and ergonomics of use (the so-called functionalist school).

Although the process of design may be considered creative; many analytical processes also take place as earlier mentioned. In fact, many industrial designers often use various design methodologies in their creative process. Some of the processes that are commonly used are user research, sketching, comparative product research, model making, prototyping and testing. These processes are best defined by the designer, and/or other team members. Industrial design according to Wikipedia (2010) often utilise 3D software, computer-aided industrial design and CAD programs to move from concept to production. Also, industrial designer may build a prototype first and then use industrial CT scanning to test for interior defects and also generate a (CAD) model. From this the manufacturing process may be modified to make the product better. Product characteristics specified by the industrial designer may include the overall form of the object, the location of details with respect to one another, colours, texture, form, and aspects concerning the use of the product ergonomics. Additionally, the industrial designer may specify aspects concerning the

production process; choice of materials and the way the product is presented to consumer at the point of sale. The use of industrial designers in a product development process may lead to added values by improved instability, lowered production costs and more appealing products. However, some classic industrial designs are considered as much work of art as work of engineering. The iPod, the jeep, the fender Stratocaster, the coke bottle and the VW Beetle are frequently cited examples.

Types of Design

Unlike unique sciences, such as mathematics, the prospective, activity, or discipline of design is not brought to a generally accepted common denomination. The historical beginnings of design are complex and the nature of design is still the subject of on-going discussion. In design, there are strong differentiations between theory and practice. The fluid nature of the theory allows the designer to operate without being constrained by a rigid structure. In practice, decisions are often referred to as *intuition*. In his classification of design, Gorb (1976) divided design into three different classes. Design management operates in and across all three classes: product (e.g. industrial design, packaging design, service design, information (e.g. graphic design, branding, media design, web design), interaction (usability, human-computer interaction), and environment (e.g. retail design, exhibition design, interior design). For this paper, only product design will be considered.

Product Design

In product focused companies, design management focuses mainly on product design management, including strong interactions with product design, product marketing, research and development, and new product development. This perspective of design management is mainly focused on the aesthetic, semiotic, and ergonomic aspects of the product to express the products qualities and to manage diverse product groups and product design platforms.

Ceramic as a course of study in schools falls under the product design area. It is not difficult to observe that ceramics as a course of study has got more inclined to the area of art and craft than the industrial or applied art and

technology that encourage mass production of wares. This is because the product design aspect of the profession is missing. As has been earlier mentioned in the beginning of this paper, design connotes planning, proposal, development of a working drawing – to specification to aid production. Design involves the ergonomic consideration of usage of the finished product. It involves measuring of size, definition of a type or agreed shape of what the final product will look like. All of these are normally done on the drawing board before the actual three dimensional work is done with the clay with some type of shape guides e.g. moulds and machines.

Ceramics has passed the stage of craft pottery of old, where shapes are manipulated by hands, and some shapes cannot be reproduced. Modern ceramic on the other hand, (industrial and ceramic technology) are often produced under exacting conditions in the laboratory, and call into play the skills of the chemist, the physicist, and the engineer, Encyclopedia Britannica (2010). Ceramics now contain a variety of ingredients and manipulated by a variety of processes, and are finally made into a wide range of industrial products- from common floor tile to nuclear fuel pellets.

All the product now newly discovered require this knowledge of industrial design for purposeful industrial production. But unfortunately the qualification for entry into doing ceramics in most school does not open door for students to be trained on industrial design as most students have neither science, nor technical academic background before being given admission or being sent to the department of Fine/Industrial Arts.

But this problem can be solved by sending student of the ceramic unit to do elective courses in the various relevant department of the University to be able to graduate a student of ceramics, who can withstand all test both in the industry and in the studio.

It is observed that in some school, because of lack of proper funding of the ceramics unit, the unit resort to throwing on the wheel and hand building without any working drawing in the form of design. This is a minus in the whole

studio process, and would end up pushing ceramics back to the pottery era.

To be able to venture fully into industrial ceramics which can lead us to today's 'advance ceramics', the knowledge of industrial design is quite indispensable as most of the items produced in this sector are classified items which require exacting conditions for reproduction.

Summary/Conclusion

Industrial design is the combination of applied art and applied science to the service of creating and development of concept and specifications that optimise the function, value and appearance of products and system for the mutual benefit of both user and manufacturer. Design is a creative activity whose aim is to establish the multifaceted qualities of objects, processes, service and their systems in whole life cycles. Therefore, design is the central factor of innovative humanization of technologies and the crucial cultural economic exchange (ICSID in Wikipedia, 2010).

Suggestions

Since a designer makes the economically viable and technically feasible items for the society, the proper recruitment, training and employment of designers for industry should be considered as a matter of urgency if product like modern ceramics and other three dimensional products are to be appreciated valued and patronised. It would not be out of place to forecast that in the nearest future, experienced industrial designers would be lacking since most schools have discarded this aspect of project development.

If our schools cannot go back into the drawing boards, in the nearest future we would not be able to compete with the western world because of recent, there is a big competition in production line based on the massive employment of the only few industrial designers that enter the market, and there may be no enough designers to go round the world in the nearest future according to (UNESCO, 1972) statistics.

- Every object to be produced in the course area of industrial ceramics in schools and studios must have it designed on the drawing board first (technically).

- Every object in the area of ceramics technology must also pass through the drawings board to be drawn to specification before production.
- Student should be made to do elective courses in the relevant course area such as technical drawing in the school of engineering.
- Industrial design/ceramic design should assume a course status.
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- Student should be made to draw technically what they intend to produce on the throwing wheel and stick to it.
- Facilities in the ceramics unit of higher institutions should be improved to meet up with Western standard.

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