The Significance of Asking the Question "What is Design?"

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1. Introduction

I started studying design at university. After a short while, I became able to make things with my own hands, and to express the form that I had in my head as images. While I was acquiring those skills, a question gradually emerged inside me. That question was "I wonder why that form was expressed?" Over time, that question expanded into the question "What is design?"

What was it that I was seeking when I posed that question back then? It was a fact that I felt that it was not enough to make things just by using my hands, a ruler and a compass. Why did I think that I wanted to try and make things using the tool called thinking? At that time, I must have had thoughts like these : I want to ask the question "What is making?" I want to have friends whom I can sound out, and a place where I can ask that question. However, I was not able to find a formal place in the university education system at that time or in my design practices in the field where I was able to give serious thought to that question.

In this paper, I will present this question and relate my personal experiences as I sought the answer to it. I will then move on to considering the significance of questioning what design is.

2. Learning Design

The reason why this question arose is due to the existence of friends in my high school days who became mirrors that reflected me. At that time, my friends also pursued various fields of learning in their respective locations, and were respectively constructing their learning. When I met with them, I often listened to their stories and also told them things about myself.

"Mmmm, I draw sketches and plans, and I am creating various things.....It is very interesting." Words like that, words that did not make sense even to me, came forth from my lips. Drawing sketches and plans are the means of design. Creating things are the goals of design. However, when we draw something, what on earth are the design problems that we are dealing with? When we draw something, what are we creating?

Even when I posed that kind of question to a design professor, I did not get the answer I wanted. Draw sketches, draw plans, create things somehow or other. That kind of pattern continued day after day. At that time, I began to think that I should start over and study something else. Design is work that considers only the surface of a thing, the arranging of the appearance of the target object.

If design is only that, then the work that we call design is trivial. Studying design may not hold an important significance for me. I first began to think like that during a discussion that I had one day with one of my seniors. His words cut me to the quick. "Your concept of design is not true design. Design is not about that."

To be sure, design work excited us students. We can create an image of an object that is not before our eyes, and delineate that form. It is the coming into being of something unknown. And, it is the shaping of that something with one's own hands into a functional device. What is interesting about this work is that we cannot say what the problems are that we are dealing with, but there is no doubt that they resonate with our concerns. The problems being dealt with there are definitely not trivial problems. Supported by those words, that change of mind was born inside me.

From there I come to the question of what are the problems that are inherent in design. I can sense these problems when I am designing something, but why is it that I cannot explain this in words? The journey to search for that answer began in my design practices. Projects, graduation, employment–my journey in pursuit of that answer continued throughout my work as a professional designer. I was able to obtain something like an answer in the middle of a project around seven years after I first asked the question "What is design?"

That project was the design of a piece of medical equipment that I was in charge of in 1978, an electrocardiographic recording instrument designed for use in group medical examinations. At that time, the instrument with a newly built-in

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computer was called "electrocardiac/heartbeat processing device". This project was carried out by a team that consisted of experts from five fields under a project manager. The project team consisted of experts in the fields of marketing, chassis design, data processing software, software architecture and product design. There were two product designers–myself and one of my colleagues.

In the project's basic design phase, we proposed an innovation to the frontality of the instrument. In other words, we proposed that the side with the screen that was used by the operator should be the front of the instrument from the operator's point of view. And, we also proposed that the side facing the people who were undergoing the group medical examination should be the front from their point of view. An instrument with two front panels–that was our proposal.

This proposal was something that developed out of a survey carried out by the product designers in which we observed a group medical examination that was performed using current equipment at an elementary school. What we noticed was the anxious expressions on the faces of the children. When they entered the school infirmary, the children were met with a row of instruments that had a large number of cables sprouting out of their rear panels, cables that looked like snakes. The children seemed to be frightened at the thought of having one of those cables connected to their own bodies.

Our idea was born out of this realization. It was an idea for an innovative design where the instrument would have an additional face turned toward the children undergoing the medical examination, a design that newly incorporated a second front panel. One answer to my question "What is design?" appeared in the meeting to propose this design.

3. Discovering that answer

The presentation of several design proposals is an important part of the process involved in developing a design for a product. In our tradition of design development, it is customary for the client to select the final design. The three design proposals for that medical instrument that we presented to the team members met with their approval. The next step was the selection of the best proposal by the project manager. We were convinced that that was going to be the case.

However, what happened next was something completely different, something that we designers had not experienced before. The project manager said, "I want the designers to select the best design. We don't know anything about design, and so that is why we asked you to participate in designing the product." I felt as though I had been hit over the head with a baseball bat when I heard these words.

When I thought about it, indeed it was only the designers who had carried out the group medical examination survey. The marketing, chassis design, data processing software and software architecture experts accepted the proposed frontality innovation, but coming up with ideas and then selecting one of them as the final proposal was not their responsibility. The designers created those ideas, and so the responsibility was theirs.

This itself is one of the "problems that are inherent in design". That is what I realized. What is important to us designers is the observation of the activities of people, the realization of how they came about, the discovery of problems, and the solving of those problems. These are all design problems that only designers deal with.

The other experts made us realize that the very considerations of designers are design issues themselves. That led me to the following verbalized explanation. Namely, the essence of the problems that are inherent in design does not lie in the sketches that were drawn or in the form of the thing that is completed, or in other words, the "results". It lies in the relationship between people and instruments. The creation relationship itself is a design problem, and the materialization of the relationship thus created into the form of a thing called a instrument is the design process.

When I realized this, I went to the company library and searched through an enormous amount of design document files. Sketches, plans, models and photographs of completed works created by older employees and colleagues, as well as minutes of meetings, are all on file there. However, amongst those materials I was not able to find any descriptions, that is, design discussions relating to the basis for the argument of form, about the "relationship" between things and people, a concept which should have been the nucleus of these creations.

However, there had been no language developed to provide an "explanation" of the design problems that are the basis for the argument of designing. The reason for this is because there had been no concept or language developed to describe design itself. At that time, I was convinced of this, and felt that I needed to obtain the knowledge required to develop the concept and language to explain design.

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Clarifying the design problem referred to as "the relationship between people and things" just by creating one design after another is undoubtedly a difficult task. In order to grasp the problems that lie behind design, language that can perceive and explain them is required. Furthermore, I felt sure that if there were another different type of language, I would be able to use it to directly deal with and put together design problems. So then I decided to move the location for considering those things from the design front line to graduate school. At that time, I started activities toward constructing a study of design that would clarify the way in which design problems came about.

This kind of personal experience is linked to my current activities of developing a new framework to coordinate design education, research and practice, and a framework where concept and language go hand in hand with the creation of form. In the midst of all this, I recently started to realize something.

That something is the new wall that I have come up against in the midst of perceiving and clarifying design problems. Language that can perceive and explain design clarifies the issues inherent in design. However, there is a dilemma in that unless the aforementioned design activities to return it to its origins do not occur there, that language will not bring to bear any tangible meaning or value socially.

If I were to describe this dilemma as an actual issue that I am currently facing it would be as follows. For example, at the initial stage of a design educational curriculum, even if we determine what the design problems are and offer the students a concept and language as knowledge to deal with various design problems, most of them do not show any interest. Rather than descriptions of the problems that become the nucleus of design, their interest lies in expressing objects as things that exist before their eyes. In design, the act of expression is the first target, and, in the same way, it is also design's ultimate target. Moreover, the design students' interest always lies in the act of expression.

The explaining of design problems is always linked to expressing things regarding design. That has become the premise for asking what design is. This is the contention of this paper, and I would like to discuss this in the second half.

4. Doing and Knowing

In their concept of "Situated Learning", Brown, Collins and Duguid identify the separation between "what is learned" and "how it learned and used". In their argument, they draw attention to the problem that "knowing" and "doing" are handled as completely separate issues. The following quotation is what they assert [1].

Many methods of didactic education assume a separation between knowing and doing, treating knowledge as an integral, self-sufficient substance, theoretically independent of the situations in which it is learned and used. … The activity in which knowledge is developed and deployed is not separable from or ancillary to learning and cognition [1].

If we perceive the learning of design that lies underneath these viewpoints of "knowing" and "doing", the characteristic inherent in the learning of design become apparent. That characteristic is that design is learned in the sequence of "doing (trying)", then "knowing". It can be said that this sequence of "creating something unknown" connotes the essential mechanism of design.

From this viewpoint, I would like to interpret my personal experience mentioned earlier as follows. Namely, in a design educational program, students gradually become able to create designs while "doing". Then, the question of what is design manifests itself. That is the grasping of design problems through "knowing" and the desire to develop design from that knowledge. After I had graduated school and had applied myself to practicing design through "doing", I grasped the answer to my question one day at the design front line. That revelation was that design is the creating of a relationship between the artifacts produced and the people who are affected by the artifacts.

"Doing" seeks "knowing". A concept that has been produced from "knowing" is once again embodied through "doing" and realized as actual objects and things. These two acts are linked to form a whole. However, the status quo is that the field of design has "doing" at its center, and "knowing" is not included in that process. A large number of universities have failed to expand their design educational programs to include "knowing". It goes without saying that this status quo is in need of reform. However, profound thought will need to be given to how these two types of intelligence can be incorporated.

I wonder why the field of design has "doing" at its center. Becoming able to create things as design is similar to becoming able to ride a bicycle or becoming able to ski. This similarity lies in the fact that the person attracted to the action in question becomes able to do it through using his or her own body and actually trying to do it.

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Learning such skills in the reverse order is difficult. For example, very few people can become able to ride a bicycle without any practice just from the knowledge gained by reading about the structure of a bicycle.

You grip the handlebars of your very own bicycle that you have wanted for a long time and have finally gotten. You then straddle it, and propel it forward. You can only become able to ride a bicycle by trying to ride it. Yes, riding a bicycle, skiing and creating designs are all achieved through working at "doing" it. Surely it is natural to start by "doing" in order to become able to do those things.

And, when you gradually become able to ride your bicycle, you start to think ahead about enjoying your bicycle, about riding it somewhere with someone, about how to ride it. Questions emerge. From that point, a person who has a bicycle encounters the essence of a bicycle as a mobile tool and becomes fond of it. Thus begins a lifestyle where the bicycle is widely used. The design process is the same.

Therefore, it is important to place the asking of the question "What is design?" within the domain where design is done. Design that starts from "doing" leads to "knowing", and encounters the problem that is its essence. It deals with those problems themselves, and this leads to a design that puts them together. The knowledge that has been put together there is once again returned to the design as "doing". Then for the first time "knowing" and "doing" link the design, resulting in the design being brought up to a higher dimension as "doing".

That is a design where that process is manifested together with the results. However, it is not easy to externalize or make visible the processes of thought and action that develop within a designer's work. The "knowing" part of a design is nothing but the use of words to clarify both the flow of the thoughts and discussions of the people who take part in the design process, and phenomena that arise and disappear such as the problems that can be perceived there. If those things become clear, in addition to the products that are thought up and brought into being, a further product called the knowledge of design is sure to spread out into society.

5. Placing "knowing" inside "doing"

There are two questions involved in the theme of this paper "The significance of asking the question "What is design?" ".

The first question seeks to know what the target of design is, and to know how design designs that target. The acquisition of that knowledge becomes the substance for explaining what design is. However, that explanation itself is not directly linked to "doing" design. The questioning of design by no means ends there when the answer to that first question is obtained. That fact is expressed in the above-mentioned example of a bicycle. You can know what a bicycle is without riding it. However, a bicycle exists for people to ride it, not for people to know what a bicycle is.

Design is all about doing design in this society, and presenting the resulting products to society. In other words, the asking of the question "What is design?" and the "knowing" about design from that question links design to "doing", whether we like it or not. Here, we can see the shape of the answer to the second question.

In other words, the significance of questioning what design is can be found here. It can be said that that significance is the asking of this question in order to return the "knowing" of "what is design" that was discovered through doing design to "doing" design, and to move from there to thinking up and bringing into being objects and things as the fruits of design in a higher dimension.

In order to ask the second question, it is necessary to construct a mechanism for returning "knowing" to "doing" and a place for practicing that. There, the true meaning of "knowing" design and its value should become apparent. Knowledge is born out of questioning the real world of lifestyles and work, and is there for the purpose of once again being returned to that real world. And so, I believe that we must construct the study of design as knowledge that contains a mechanism for returning it to the real world.

In doing that, design creates what the scheme of things in the real world should be, and its mission is actually arranging that scheme of things. That is what design is. And, by adding "knowing" to "doing" in design, at last a real design can be constructed. That design is undoubtedly not only the creation of the designer, but should also become the intelligence of the people who are universally trying to shape their own society. I believe that constructing a study of design consists of making the doing of design the nucleus of the study.

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