Sketch in design education

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Abstract

Design education is a “project” centred, dynamic system that includes elective courses. This education system aims to train designers which can criticize, interpret and have a sophisticated power of expression. Thus, the designer can put into practice the designs processes and applications by converging the needs of the users with the characteristics of the existing structure or the limited space. As for making a drawing with the sketch method within this scope is an activity that associates perception and thought. The design process in design education, which can also be defined as problem solving, formalizes thoughts by envisaging them in mind. The sketch drawing, which is a method needed by the designer during the production process of the design ideas for developing and transferring them to paper in a fast and fluent way, is an effective way of thinking. By these drawings of thoughts, the designer brings together various ideas. The quality of the sketches, which are the output of the decisions made during the design process, is a concept that belongs to the designer. In this study, the importance of sketch is going to be indicated.

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1. Introduction

Design is an effort necessary for solving a problem and serving a purpose, which contains creativity. In another definition; design which is defined as a plan or ideas developed for problem solving, and which means giving shape; is interpreting, determining and in short documenting the conceptual, functional, figural and structural characteristics and qualities of all the elements existing in the image of the structure that will carry out the functions determined for fulfilling the needs (İzgi, 1999) (Tunalı, 2009). Design is an idea that exists in mind. This idea becomes concrete as an object that gained its shape in the formation process of the design (Tunalı, 2009). Therefore, in each design phenomenon there is an idea and an object that is formed according to that idea. In fact, the sketch which is a personal dialog, is a process which is learned through practice, and which brings the designer to new solutions by transforming the drawings into an organized data and a process.

2. Sketching and creativity

Creative design is an activity that involves exploration of design alternatives. For example, designers interested in the visual composition of objects may explore designs according to guiding principles of composition (Cross, 1997) (Stiny, 2006). Pictorial representations of designs, particularly sketches, offer relevant support to design exploration through their visual feedback (Goel, 1995). Creative discovery is the result of a set of mental operations on a visual image. It is necessary to understand the specific mechanisms by which sketches aid the designer. Sketches may be

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used as external memory storage (McKim, 1980). Also increases personal understanding and provides external feedback from the design to the designer (McKim, 1980) McGown et al, 1998).

Visualization in design education is defined as developing the expressive abilities, enabling the convergence of graphical and oral languages, and learning ways of producing solutions. In addition to learning these steps simultaneously, they are also learned indirectly by the student through personal and group dialogues throughout the design experience and activity. Learning firstly starts with the emergence of the idea and decision making stages. At the same time, necessary information about the design is gathered in this process. The sketch works, which are the first concrete forms of thought, are guiding as they show which data is missing or necessary. As the grounding and learning is completed the intensity of the sketches decreases. The designer visualizes what she/he has in mind. The sketch drawings that are means of documentation, changes the memory of the designer continuously. In other words, the designer realizes different details in each sketch. She/he can notice in the next one what she/he did not see in the previous sketch. A broadening structure of thought is the most important indicator of visual thinking. Seeing, imagining, expressing and making drawing, which are the essentials of drawing, are the stages of this process (Uraz, 1999).

The first stage which is defined as seeing, enables the designer to communicate with the outer world. As for imagining, it enables the visual data that reaches the eye, to be given direction during the search of the mind for a structure or a meaning. Thus, drawing is not only being able to see but also it is the visual thinking process that depends on the ability of envisaging ideas. As for expressing, it is a graphical transmission of the perception of the outer reality. The sketches, which have an important place in the design process, are visual communication tools that explain the concrete and abstract concepts of the problem in a way to reflect to identity, tastes and aims of the designer. The sketch drawings that enable the relation between mind and perception, are works that are used from the first to the later stages of design, in generating and developing ideas. While the image in mind is only temporary depending on the command of the mind, the visual images continue to exist objectively (İslamoğlu, 2012). It, which is the drawing notes taken on paper, is a tool which the designers use more in the initial stages of design compared to the later stages, as a process in which generally new design ideas are generated and developed. When considered in general terms, sketching helps the design ideas to emerge, be tested and interpreted as it offers a continuously changing working environment. Being a source of learning and thinking, sketch constitutes a kind of external memory for recording prompt creative ideas. On the one hand it is effective in the formation of the design ideas, and on the other hand it enables these ideas to be recorded. These two functions complement and support each other rather than being independently developed processes. The word that best explains sketch, is thoughts. Making sketch for revealing thoughts is an important element of the design process. The sketches which do not claim permanency and which are open-ended are instant and intuitive drawings. As hand moves on paper, the image gets clear, the problems are searched and the solutions are reached. The sketches are made fast in series and the thoughts are transmitted on paper (Dodsworth, 2011). The roles of sketch as a cognitive tool can be listed respectively as; Researching, testing, recording, transmitting, describing and re-describing (Doğan, 2009) (İslamoğlu, 2012).

The thoughts in design process are shaped, clarified and communicated to others by the help of drawing. Thanks to the sketches, that are also defined as thought drawings, the ideas can be worked on, be thought, tested and drawn again by getting different design ideas together. The designer uses figural tools too, besides the symbolic representation methods like numbers, words and graphics (Akın, 2001) (Zelef et all, 2011). In this process of search for a figure, it takes a short time to transmit the image formed in mind to paper. Gehry, in the psychoanalytic review of sketching process, states that the image in mind can be kept for 3-4 minutes (Ivy, 1999) (Zelef et al, 2011).

The examples of sketch drawing defined as visual notes can be seen below (Figure 1, 2, 3).

Figure 1. La Chapelle de Notre Dame du Haut Ronchamp-Le Corbusier
The designer does not start from concrete parts of analyser model, on the contrary, she/he starts from an abstract whole, from the first suggestion, and works with sketches that continuously think and search until she/he reaches the final product. For this reason designing thought is a visual and graphical thought and shows itself in two different forms. While the first one shows prompt, superficial, holistic and multi-optional characteristics, the second one is a detailed, particularistic, and gradually developing thinking activity. How does the designer work during the designing process? The answer can be drawn out from the designer’s works and sketches. When all types of modelling works, whether they are the drawings on paper that the designer expressed and visualized her/his thoughts or the three dimensional models, are examined this difference between these types of thinking becomes even more evident. Some works are produced fast, do not contain details, are unclear yet productive, creative and thus open to research. The others are logical and more detailed towards finalizing the solution and contain clear design solutions. Different visualization methods that support these are necessary for design. The period of emergence of sketch drawings as an important tool in design, in Renaissance period has aimed to attribute a more intellectual role to the architecture as a profession by isolating it from its previous definition which was mastery in construction (İslamoğlu, 2012). This was a period in which theoretical works were intensely produced and the architect had a role of theorising as much as a role of constructing. Design, has defined a new practical field independent of and different from construction, and one of its main tools of thought is accepted to be sketching (Spankie, 2012).

Sketch, as a tool of external representation includes the main features of the design thought more than its details and represents a quickly finished drawing. As tools of representation the sketches signify either an abstract thought or an object. Different sketches between these extremes belong either to physical objects or abstract thoughts in various degrees of concreteness and abstractness. In this way, the sketch and sketching in fact establishes a link between what is abstract and cognitive and what is concrete or corporal or physical. Therefore, from an epistemological perspective, sketch, as different from the other tools of external representation, eliminates the mind-body dichotomy as stated by Descartes, during the sketching process (Doğan, 2009).

Goldschmidt (1992) draws our attention to the role of visual thinking and self-generated sketches in this context: “A design problem is solved when a satisfactory visual representation of a drawing concept is produced. To deal pictorial properties of the design concept, the designer utilizes visual. The role of sketches in terms of creativity in design education thinking, which is represented through sketching. In serial sketching the designer systematically transforms images of the entity that is being designed: each sketch provides feedbacks that informs the generation of subsequent representations” (Goldschmidt and Smolkov, 2004) (Ayıran, 2007).
Freehand sketching is typically used at the front edge of designing, with a considerable number of sketches. Some of the sketching does not follow ideas in the mind. Thus designers often engage in sketching not to record an idea, but to help generate it. This is visual thinking. The purpose of this early sketching activity is primarily to enable the designer to identify clues that can be used to form and to inform emerging design concepts. The designer uses a series of rapid sketches to transform images, each sketch generates images in the mind, which drive the development of the themes embodied in the design. Speed is very important in facilitating the transformations (Ayraran, 2007) (Goldschmidt, 1994) (Tovey, Porter, Newman, 2003). Goldschmidt has observed that the designer may be thinking about a sketch, and reading off it, that is deriving information from it, or she/he may be reasoning without the involvement of sketching activity. Arguments within such moves can be of two types—‘seeing as’ and ‘seeing that’—linked together in a dialectic process. This is very similar to ‘seeing—moving—seeing’ (Goldschmidt, 1991) (Ayraran, 2007). It is stated that during the use of sketch in the design process, beyond being able to be explained by the rationalist epistemological theories, what is mental and what external to the mental are in a non-stop relationship and change one another respectively. Sketch is interpreted as the representation of an idea or an object. Reinterpretation and giving it a new meaning can be made possible by attributing it scientific elements. The researches of scholars like Goel, Goldschmidt and Schön on sketch in design works are made on the subject of how sketch establishes the link between the cognitive and the physical (Doğan, 2009). As Arnheim states, when the architects aim to shape the physical world, they started to do this more via mental images that depend on visual perception. Thus sketch, while offering a thinking context to the designers together with the other new representation tools that started to be used more prevalently and effectively such as models, is going to enable the new ideas to be tested and evaluated (Doğan, 2009). Goldschmidt emphasizes that sketching is a process that contains two different types of reasoning that are “seeing as it is” and “seeing as the other”. “Seeing as” in other words represents the figural, visual reasoning; and “seeing that” represents the oral reasoning which is not visual.

Goldschmidt, having encoded the sketches that the designers made during the design process as “seeing as” and “seeing that”, states that the sketch drawings continue by following each other between these two forms of reasoning (Doğan, 2009).

Goldschmidt names this process as the “dialectics of sketching”. What is stated here is that, this process, which sketching brings along, enables the new inferences to be made via “seeing that”, and new interpretations to be made via “seeing as”. The new interpretations in the design process are realized through new sketches made by referring to the new inferences in the sketches. While describing the sketch drawing, Goldschmidt uses the “figural concept” thought of E. Fishbein for emphasizing the definitive aspect, in other words conceptual aspect, besides the visual aspect, in other words figural aspect, of the design thought (Doğan, 2009). Sketch, makes “seeing something as something else” possible by putting together the visual dimension of the design reasoning that is based on perception and its conceptual dimension. Goldschmidt calls this “interactive imagery”. Schön calls the sketch drawings in design process as “reflective conversation”, and just as Goldschmidt states, points out that the designer sees new and various figures on paper by sketching and generates different ideas. Schön describes the design process as “building up a world” by departing from and being in continuous contact with what exists. This process is defined as “seeing/ drawing/ seeing”. The perception and drawing of the designer is shaped constantly via what is perceived and drawn (Doğan, 2009).

3. Conclusion

Design sketches are different from ‘drawing from the object’. They are not drawings of something that already exists, in front of the artist, as is the case with figure drawing, still life drawing and similar. Instead the designer is involved in a process of attempting to give external definition to an imagined, or only half imagined, suggestion for a design form (Purcell, Gero 1998) (Doğan 2009). Sketch is a process that supports creative processes and is a personal process. Having no rules, sketch is a work unique to the designer and it is not a drawing that needs to be reproduced. The designer works with reasoning and searching sketches from the first idea to the last design stage. For this reason, the importance of sketch drawings that support the creative process, and the need to give it to the student starting from the first years of education are attempted to be explained. Sketches are the simplest means of
visualizing the idea, the image in mind. The data and the imagery about the design problem are visualized, analysed by thinking with the lines, in other words the thought between the cognitive and perceptual is supported through the means of sketches. The student learns in design education, especially in project intensive courses, the importance of sketch, that every line has a meaning, that sketch is open to different interpretations and the concepts like visualization, making analysis and detection. The comprehensibility of the design can be enhanced by simplifying through drawings. Despite the gaining prevalence of the usage of drawings in digital medium, the sketch drawings has major contributions to the formation of creative designs.

References