

# A STUDY ON THE MEANING OF INTUITION IN SKETCH AS DESIGN CREATION PROCESS

Bo-sup KIM and Soon-jong LEE

Department of Design, Seoul National University, Seoul, Korea, equququ@empas.com

## ABSTRACT:

This study aims to examine the nature of intuition in the process of design creation through specific examples of sketches. Existing studies on design creation process have focused more on logic than intuition and hence emphasized that design is a process of problem-solving. Such a stress on rationality is limited by an inability to explain aesthetic elements such as imagination, challenge, expression, feelings and emotion, which are central to creativity. Intuition is a central concept in the design creation process. For the purposes of this study, intuition is defined as the moment in which imagination is expressed. Understood this way, it becomes possible to regard intuition as a significant part of the creation process. In this study, through specific and practical examples, intuition is illustrated as a form of expression and imagination.

**Keywords:** intuition, creation, imagination, expression, sketch

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## I. INTRODUCTION

This study aims to examine the nature of intuition in the process of design creation through specific examples of sketches. Design creation is a process of rectifying things in the situation,<sup>1</sup> and a process in which logic and

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<sup>1</sup> Ralph Caplan, *By Design*(1983), pp. 5-20

intuition intersect and complement each other.<sup>2</sup> Existing studies on the process of design creation have focused more on logic than intuition and hence emphasized that design is a process of problem-solving.<sup>3</sup> This is because there are approaches from points of view that design was aimed to detect problem, solve the problem and satisfy the user's demands. However, such a notion is limited by an inability to explain aesthetic elements such as imagination, challenge, expression, feelings and emotion, which are central to creativity. The aesthetic elements have irrational characteristics that cannot adequately be explained using deductive rationalization. In this study, the core nature of intuition has been hypothesized using the element of expression. By choosing sketches – seen as a process best exemplifying such acts – and studying particular cases, this study attempts to examine the nature of intuition.

The study consists largely of three parts. Firstly, in the first chapter, the definition and characteristics of intuition are studied using an etymological survey. Then, through a philosophical discourse on intuition, the relationship that the human intuitive capacity has with conceptualization, experience, sensing, impression, etc. is studied. After that, the unique nature of intuition is examined through the notion of expression. In the second chapter, a definition along with the scope of the term 'sketch' is established, and examples of sketches that exemplify expression in the field of design sketching are surveyed. In the third and final chapter, as a comparative analysis of intuition and sketch, the examples of expression – which depict the unique nature of intuition – are applied to the sketches surveyed.

## 2. A STUDY ON INTUITION

### 2.1. INTUITION AS DESIGN CREATION PROCESS

The creative process is still not clearly defined. In religious terms, creation is *ex nihilo*, making being out of non-being, and such powers are thought to be exclusively vested in deity. In human terms, since humans are limited to their own knowledge and experience, the human creative capacity is limited to *ex material*, making being out of pre-existing being. It is often said that "genius is 1% inspiration and 99% perspiration." This could imply that creation is 99% attributable to experiential insight and 1% to some 'indescribable ability.' Out of experiential acts and effort, humans create new things, but 1% of some extraneous ingredient must be added to make the new creations complete. We still think of this 1% ingredient as a thing possessing mystical,

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<sup>2</sup> Ju-Muyng LEE, *Creativity Development and Design in Digital Era* (2005), p. 269

<sup>3</sup> Christopher Johns, *Design Methods: Seeds of human futures* (1981)

unknowable qualities that only comes to people with an extraordinary gift. In other words, the saying could hypothetically be altered to say that “creation is 99% rational and 1% intuition.” The design creation process is overall a rational process, but it is always dependent to some degree on intuition. Thus, within that 1% lies the domain of intuition.

In the process of design creation, intuitive power plays a constant role. According to Lee Ju-Myoung’s thesis, design has been defined as a mixture of logical unfolding and intuitive unfolding, and it undergoes a cycle of “dispersion – change – convergence.” This, in other words, is the process of ‘narrowing the scope – taking the challenge – assessment’ and is a repeated problem-solving cycle involving logic and intuition.<sup>4</sup> Hence, it can be clearly seen that intuition is a part of creation.

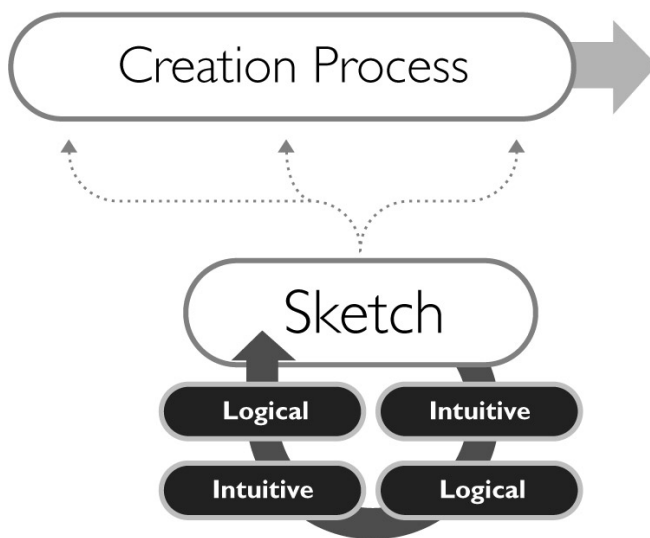


Figure 1. The Intuition/Logic Process in the Creation Process of Sketch

Intuition is a part of the creation process; it is not its essential whole. In design creation, if all emphasis is put on intuition, problems of reality cannot adequately be solved. In order to address such practical problems, the process of rational analysis and examination should occur and, whenever possible, uncertainty should be minimized. This is because design can only be a part of economic activity, and the client should always be persuaded.

Nonetheless, such emphasis on the rational process, it seems, has made explaining of creative acts in design more ambiguous. The deductive nature of the rational process infers from generalized experiences and draws the most adequate conclusion. This, however, does not imply a capacity to imagine or challenge uses that are

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<sup>4</sup> Joo-myung Lee, *Creativity Development and Design in Digital Era* (2005) This paper stresses that, in the process of creation, logic plays a more significant creative role than intuition

not already existent. Here, imagining and surpassing the existing experiences are essential, and it is intuition that plays this function. Therefore, without intuition, it is difficult to adequately explain the creative process.

The object of design and design materials always contain aesthetical elements. Often, when designers are describing their own aesthetic expression, they cannot provide an exact explanation and find it difficult to come up with the accurate terminology. This is caused by the intuitiveness of aesthetic expression as intuitive cognition is closely related to aesthetical expression, which is an essential element in design. Explaining intuition is critical to explaining the aesthetic.

But in design creation, the explanation of the aesthetic is ambiguous and unclear. This is due to the fact that the aesthetical elements are heavily intuitive, which effectively prevents them being explained by rational deduction. Therefore, establishing the nature of intuition in the creative process is parallel to establishing grounds for the aesthetic.

## 2.2. DEFINING INTUITION

Intuition has always played an essential role in human cognition. Intuition is the capacity to combine external information with intellect and through cognition process, arise at cognition. Fundamentally, humans cannot have full cognition of an object. For example, when we look at a cup, we can only observe one side of the object and the other side remains unknown. Hence, in any circumstance, cognition of an object merely through human experience has its limits, and humans cognize objects holistically, based on generalized thinking. Intuition is one of the elements that makes such cognition possible.

To establish this point, the epistemology of intuition would need to be discussed. But this paper has not been written to examine the cognitive elements of intuition. Instead it investigates the fundamental nature of intuition through the etymological and lexical definition of intuition. Then intuition as an element in the cognitive process shall be examined as well as the philosophical discourses of Plato, Aristotle, Bergson and Croce as they reflect changes in the meaning of intuition.

According to the Oxford Dictionary, the word intuition is derived from the Latin 'intuitio' and 'intueri.' Here, 'in' has a similar meaning to 'in' in English – inside of something or interior – and '-tuitio' and '-tueri' both mean "to look" or "look carefully." Therefore, intuition refers to looking into the interior. 'Looking into the interior' means that it goes through internal interpretation. So based on this etymological definition, intuition connotes internal cognition of objects.

In terms of lexical usage, the Oxford Dictionary contains five entries for the term 'intuition'<sup>5</sup> :

- (1) The action of looking upon or into; contemplation, inspection, a sight or view
- (2) The action of mentally looking at; contemplation, consideration, perception, mental view
- (3) The spiritual cognition or immediate knowledge, ascribed to angelic and spiritual beings, with whom vision and knowledge are identical.
- (4) a. (modern philosophy) the immediate apprehension of an object by the mind without the intervention of any reasoning process  
b. Immediate apprehension by the intellect alone  
c. Immediate apprehension by sense
- (5) In a more general sense: direct or immediate insight; an instance of this

Definition (1) refers to seeing and examining an object, and definition (5) alludes to the sensory capacity applicable to animals and is closer to the meaning of presentiment. So, these two definitions are closer to sensory meaning whereas definitions (2) and (3) are more psychological and religious. Definition (4) is used in philosophy to refer to the immediate apprehension of an object without the rational process of reasoning. It can imply that intuition can begin with the intellect or senses, but it culminates in the apprehension of an object without a rational process.

### 2.3. INTUITION AS COGNITION PROCESS

We perceive the world through sensory activities and this sensory information reaches cognition with the help of intuition and intellect, with the intuitive process as the medium. Intuition always takes the particulars as its subject while intellect is the capacity of understanding the universal. Intuition creates images through knowledge of particular objects, and the intellect produces concepts through the universal—in other words, through the knowledge of the relationships shared by the particular object.<sup>6</sup> Therefore, forming a concept means extracting a certain common quality. The intellect analyzes sensory information and forms perceptions.

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<sup>5</sup> Ed. by R. W. Burchfield, *The Oxford English Dictionary* (1976)

<sup>6</sup> B. Croce, *Aesthetic* (1953), p. 1, re-quotation from the thesis of Hae-wan Lee

The intellect has the ability to create abstract concepts or notions, but intuition, on the other hand, is responsible for the incipient self-concentration of our hearts toward things that have no intellectual properties.<sup>7</sup> Intuition is the cognition prior to conceptualizing or organizing our senses, and for this reason it is difficult to clearly categorize it or understand sensing. Images are uncertain, ambiguous and are different from person to person.

In Western philosophical tradition, intuition is the immediate data of intellect. Intuition is cognition that stems directly from sensing, which is the immediate response to an object.<sup>8</sup> Through this, intuition can be said to have a close relationship with immediate sensing and comprehension of an object. Intuition remains only as an understanding of the object itself.

Then, if intuition is based on immediate sensing of our environment, what distinguishes intuition from the sensory perception itself? Sensing stems directly from a fact and cannot, like intuition, develop into something which is a non-fact. Sensing is the receptive process exclusive of cognition. Intuition is different from sensing, and it is neither an impression created from sensing. In essence, intuition is cognition that interprets sensing.

Then, what is the relation between intuition and experience? Senses, along with memory, form our experiences, and experiences become the foundation of intuition. Experiences are facts by themselves obtained from the sensory organ, but intuition, based upon experience, develops into imagining something which is not a fact. Through experience, we remember particular facts as impressions. Intuition is the ability to create imaginations, based on personal experiences and impressions.

According to Benedetto Croce's definition, intuition is "based on imagination and is the ability to produce a mental-image."<sup>9</sup> Intuition is connected to intellect through experiences based on memory and the impression made by materials through 'sensing.' Intuition, in conjunction with intellect, generates new, "creative things."

However, intuitive ability is different from conceptualization, sensing, impression, or experience, and intuition is limited to personal images. In other words, intuition is an objective ability possessed by the self, and cannot accurately be communicated to others. Creating something new means making an element that is unique. Hence creation is not understanding the universal, but rather it is first of all the ability to cognize the particular. Intuition is the ability to discover this 'aloneness,' and through this ability creative aspects can be discovered.

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<sup>7</sup> M. Rader, *A modern Book of Esthetics*, p.77, re-quotatation from the thesis of Hae-wan Lee

<sup>8</sup> Young-jin Song, *intuition and thinking* (2005), p. 202

<sup>9</sup> G. J. Nardo, *The Aesthetics of Benedictto Croce* (1957), p. 40, re-quotatation from the thesis of Hae-wan Lee

## 2.4. INTUITION IN PHILOSOPHY

The issue of sense and cognition has usually been discussed under epistemology in philosophy, and even here these discussions are not unanimous. As mentioned, the term intuition is often used with different intended meanings and is therefore difficult to define through one single concept. In this chapter, two Classical Western philosophers– Plato and Aristotle – will be briefly looked at as well as probably the most prominent modern philosopher, Kant. A more recent philosophical contribution, Bergson's discourse, will also be discussed as it stood in firm support of intuition.

### (1) Plato's intellectual intuition

The special feature of Plato's philosophy was the hypothesis of the 'idea' lying behind the sensory world. For Plato, "true reality cannot be perceived through senses but is a transcending reality."<sup>10</sup> Hence, humans can only observe the shadow of the 'idea' when they look at an object and cannot ever comprehend the universal concept through sensory experiences. Plato altogether denied the sensory world; consequently, for him, human cognition was always imperfect. Accordingly, Plato's intuition is the ability to directly cognize the 'idea.'

### (2) Aristotle's abstract-inductive intuition

In comparison, Aristotle's intuition possesses a more rational and inductive nature. For him, the act of knowing is based on the sensory world and intellect cognizes universality from images of objects. Hence universal concepts and decisions arise from abstract induction of the particulars. If universal concept is already possessed, other truths can be proved from this.<sup>11</sup> Therefore, for Aristotle, these universal concepts – justice and utilitarianism – have been given from the beginning and are intuitive and self-evident. Aristotelian intuition has an abstract-intuitive character that enables discovery of universality from particulars in the sensory world we live in.

### (3) Kant's sensitive intuition

In Kant, intuition is divided into two forms: sensitive intuition and intellectual intuition, but the thing in itself can only be cognized by intellectual intuition. However, this intellectual intuition cannot be understood with human cognitive capacity, and hence intuition does not assist intellect. On the other hand, sensitive intuition is understood as the fundamental aspect of sensory activity – a tool for gaining human experience – and is

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<sup>10</sup> S. V. Rovighi, *Gnoseologia*, tr. By Jae-Ryong Lee (2004), p. 27

<sup>11</sup> *Ibid.* p. 33



transcendental (a priori). Especially for Kant, sensitive intuition is the ability to cognize space and time and is not given through experience. Therefore, for Kant, intuition is limited to the role of cognizing space and time, and through this sensing one can reach cognition. Kant calls this the pure form of intuition.

#### (4) Bergson's intuition

Bergson's intuition, compared with the philosophers previously discussed, possesses the most active, complex and fundamental characteristics.<sup>12</sup> He understood intuition within the context of the continuing nature of objects, and this has opened the possibility for explanation in many areas that previous metaphysical philosophy could not.<sup>13</sup> As has been noted, in the past metaphysics considered sensory capacities as inferior to intellect, and so, inevitably, explaining human nature, sub-consciousness, and feelings was difficult. However, Bergson has posited that through intuition, one can directly approach an object. This opened a new path distinct from those of previous philosophical understandings.

## 2.5. THE FEATURE OF INTUITION – EXPRESSION

The idea of intuition as expression in modern philosophical discourse is mainly proponed by Croce. Croce says that unexpressed intuition, or intuition that we cannot express, is the same as non-existence<sup>14</sup>. As mentioned, intuition is the ability to overcome experience through imagination, resulting in the generation of something new. It remains as a particular and personal image until the moment it is expressed. Here, detailed and realistic expression is employed. Intuition lies at the point immediately before everything is expressed through image. To this, Croce asks, "if we do not possess a certain metaphysical image with great certainty so that it could be reproduced on a sheet of paper, how could we then say that we truly possess the intuition of that image?"<sup>15</sup>

Summarizing intuition in Croce's terms, intuition is independent of concept and is overcome through new expression with personal experience as the foundation. Here, expression is not simply imitating representation but it is the first and momentary cognition. After the expression of intuition, it gradually moves from being

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<sup>12</sup> Su-jin Jeon, A study on aesthetic meaning of H. Bergson Metaphysics; intuition, duree, emotion (1998), p. 8

<sup>13</sup> H. Bergson, *La Pensee et le mouvant* (1934) tr. Kwang-Rae Lee, pp. 191-203

<sup>14</sup> Hae-wan Lee, A study on Croce's Early Aesthetic Thought (1989), p. 48

<sup>15</sup> B. Croce, *Aesthetic* (1953), p. 8

ambiguous to being clear and communicable. As our image is expressed in detail, it heads toward being real, and this connects with our rational ability and is generalized and applied to the existing concept.

Borrowing Croce's discourse, it can be seen that intuition relies heavily on expression. Therefore, in the next chapter, by examining sketches – the design format with the most active expressive elements – intuition, expression and patterns of sketches are going to be examined in detail.

### 3. A STUDY ON SKETCH

#### 3.1 THE DEFINITION AND SCOPE OF SKETCHES

The definition of sketch in the dictionary is a simple or rough drawing made as a recording of a preliminary idea which artists intend to serve as the bases for a finished picture in general. It may also be said that sketch is a rough design, plan, or draft that has a story, usually descriptive, an essay, a history. In a broader sense, it is an outline or plan, such as 'A Sketch of Life' or 'A Sketch of Seoul.' The etymological roots of 'sketch' can be traced to 'skedium,' from the Latin word referring to an extemporaneous poem or temporary verse. In sum, a sketch has a preliminary or immediate meaning, as well as the meaning of referring to the act of drawing a conceptual outline. Additionally, the words 'esquisse' and 'croquis' are French terms similar in meaning to sketch but have been used with a little more extemporary and fragmental meanings.

In contemporary art, the term 'drawing' is used to refer to a particular genre. The dictionary definition of drawing is a graphic representation by lines of an object or idea as with a pencil and a delineation of form without reference to color. It can represent objects in the visual world as well as less tangible elements such as concepts, thoughts, attitudes, emotions, illusions, symbols and abstractions. Also, the French word 'dessin' corresponds to a drawing and has been used to refer to the basic process of arts, but not an independent genre like the term drawing.

In choosing the proper terminology, 'sketch,' 'drawing,' 'esquisse,' and 'croquis' are hard to definitively classify (This is not to suggest there is a more appropriate word.). Moreover, the term 'drawing' has been used more widely and independently in art than in design. On the other hand, 'sketch' is more prevalent in discussing design processes. Nevertheless, the classification of concepts seems to defy unanimity and varies with institutional and customary usages.

Because sketches or drawings refer to the start of idea, but also sometimes to the finished results, they can connote the process itself in many cases. Therefore, it is not meaningful to speak of a start and end point. It is difficult to decide the hierarchy of concepts, especially as the process itself is endowed with multiple meanings today. For this reason, for the purposes of the present study, no singular word is used exclusively, and 'sketch' is mainly used because it is commonly used in discussions on design.

All of this is to say, 'sketch' has an exceedingly wide-range of meanings: the Lascaux cave paintings in France could be described as a kind of sketch, and so could a child's markings in the sand, graffiti painting on a wall, and even architectural blueprints.

### 3.2. SKETCH AS COGNITION

Because one can say that an act of design is intended to solve a problem, sketches in design can also be associated with its purposes or goals in the problem-solving. A sketch in design has the objective of obtaining practical solutions and then communicating the visuals that are themselves works of arts. Wonkyoung Kim defines sketch as media that expresses the diversified forms and concepts in the search for a new solution.<sup>16</sup> Thus, a sketch in design can be defined as the process of visualization whereby a designer considers alternative solutions to a given problem and then represents the selected solutions in a visual, concrete form.

Therefore, sketch can be classified as the process of appreciating the problems (perception), the process of analyzing and expressing the possibilities (intuition), and the process of intellectually reasoning to analyze and synthesize the two. Sketch is a process of looking, feeling, judging, analyzing, forming, and executing. In the process of judging and analyzing it re-defines the information it obtains from the external world.<sup>17</sup> And sketch is the process of ideation and imagination by drawing with a new point of view through the visual thinking and visualization process. In effect, sketch is a cooperative and complex cognitional process involving intuition, experience, sensation and intellect.

### 3.3 SKETCH AS INTERSECTION OF INTUITION AND LOGIC

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<sup>16</sup> Won-kyung Kim, *Design Sketch Power; For visual thinking process* (2005), p. 8

<sup>17</sup> Ho-ik Jang, Sang Ku, *Sketches and rendering in digital age* (2005), p. 10

Sketch is the thinking process permanently lying at the interface of intuition and logic. That is, sketch can be understood as the intersection between the intuitive process which looks and expresses and the thinking process which synthesizes.

In design, emphasis is generally placed on the process of searching for the proof of actuality and the best suitable solution in sketch through expressions and imaginations. Therefore it can be said that logic has been given more weight than intuition in sketch as design process.

Wim Gilles's study of a scooter (Fig. 2) shows that the process demonstrates various ideas on structures. The sketch of his folding scooter is aimed at obtaining space efficiency using the folding mechanism. In the earliest sketch, the pedals were located on the front wheel. Three years later, in completing the design sketch, he placed the engine over the front wheel and the pedals were moved near the rear wheel for folding efficiency. In the folded and unfolded state, the saddle folds forward at a 90° angle and to give the folded scooter stability, the rear wheel rests on the extended luggage rack, to which rubber supports have been added.<sup>18</sup> The gradual changes over 3 years show how in these sketches a great deal of consideration was placed on a logical process for efficient folding.

The mental images are realized through detailed and rough lines through the process of logic. And searching for the best selection while wielding the pen is just the nature of expressions in sketch. And the expressions derive from the nature of intuition.

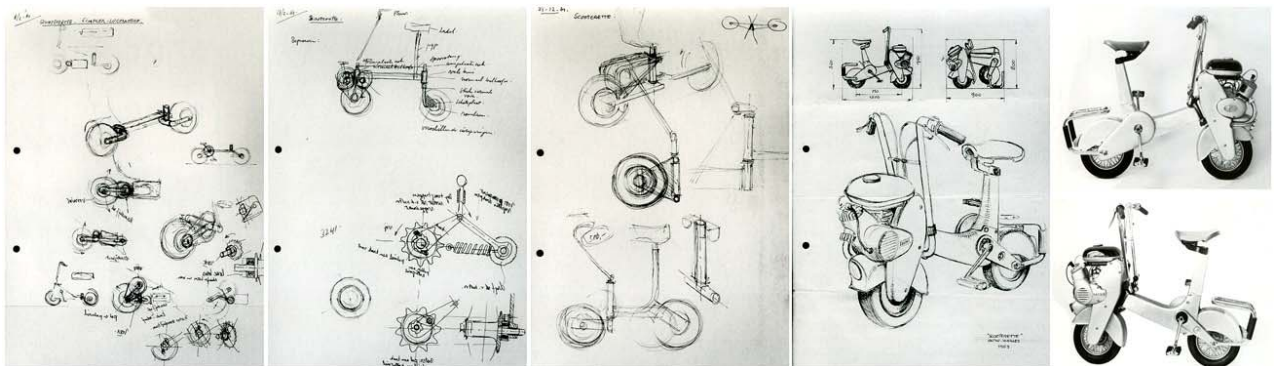


Figure 2. Wim Gilles, Sketch, ballpoint pen ink on paper (1961-1963)

### 3.4. SKETCH AS EXPRESSION IN DESIGN

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<sup>18</sup> Ed. Thimo te duits, The origin of things – sketches, models, prototypes (2003)

The goal of sketch can be useful in creating a new form. We can draw images of an unreal form through imagination. Sketch is an exploration of the new via the interactions between perceiving, seeing, imagining and drawing. To judge with imagination is to evaluate and understand through the eyes of the mind. The eyes of the mind look at the new form sharply and sensitively or help to visually represent the unreal objects.

The Philips City People Light Project (Fig. 3) shows the elements of expression. These warm and humorous sketches convey how a city can change through light. Citizen Cane also presents a virtual scenario of an unreal world. This project is a complete sketch. In the sketches of Philips' project, imagination is expressed freely, and practicable images in real life are embodied. This project leaves open practicable possibilities; the ideas can yield possibilities that could be expanded infinitely. However, this project's ideas aim not to realize but to express. This is because these examples show how distinct objects have the potential to change into new objects in conjunction with other objects through the common feature of 'light.' The existing unreal conjunctions connect with other objects through intuition.

Intuition allows the designer to twist conjunctions and connections through expressions. For examples, curtains and a theatre, reeds and lightning bugs, canes and streetlights are all unfamiliar conjunctions of everyday objects.



Figure 3. Philips, City People Light Project (2005)

In this Philips' example, sketch serves to express the power of imagination. And the imaginative power overcomes existing experiences to the extent that the objects are reborn as new creations.

In this chapter, the characteristic nature of sketch was analyzed through the cognition process and expression. The conclusion can be drawn that sketch is a process of intuition as well as of logic. It is also a means of communication with others by expression, and it is the result of personal thoughts and imaginations visually expressed. As previously stated, intuition is the personal cognition prior to conceptualization or organizing of senses. Hence, sketch defies simple explanation or definition, but it opens the possibility of communicating via representation through sketch. Borrowing Croce's wording, designers are people who can see that it is only so much feeling to others or it is passed by without intention.<sup>19</sup>

## 4. ASPECTS OF INTUITION IN SKETCH

### 4.1. EXAMPLES OF INTUITIVE EXPRESSION

Understanding the role of intuitive imagination in sketch can assure that the process of form is implemented in product design. Mario Bellini's three-dimensional sketches of an ETP 55 portable typewriter (Fig. 4)<sup>20</sup> show how basic form elements can be applied for practical results. The designer finds the results through collating elements such as circles, straight lines and rectangles. The collation of pure form elements supplants functional instrumentation as priority. This suggests that intuitive power serves to express pure form elements in functional form. Intuition uses imagination as the most suitable form for the results of the product.

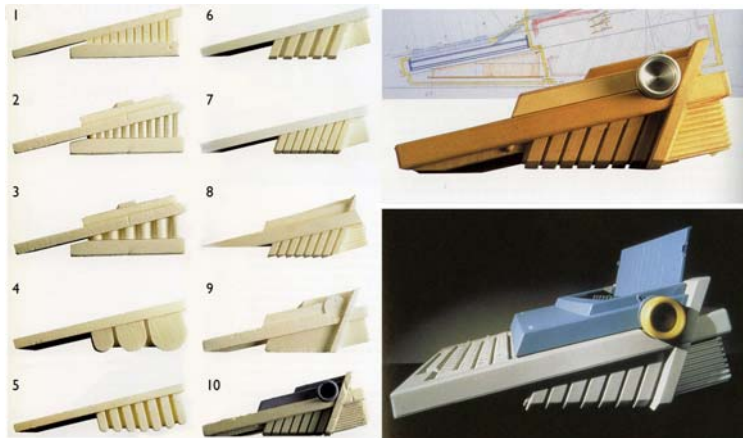


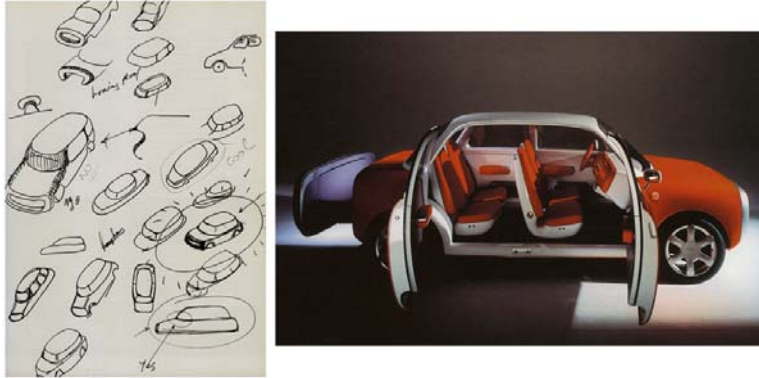
Figure 4. Mario Bellini, The Development of an Idea for the Portable Typewriter (1987)

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<sup>19</sup> B. Croce, *Aesthetic* (1953), p.8

<sup>20</sup> Thimo te duits edit., *Ibid.*

Designers have to select one of the forms and ideas for their sketch. Imagination is the ability to forecast complete states. Furthermore, intuition is the ability to select expressed forms through imagination. Marc Newson's sketch of the Ford concept car 021c, 1999 (Fig. 5)<sup>21</sup>, shows only one selection and decision in lots of humorous and simple sketches. One could say this is a kind of leaping. Newson's selection is very similar to a real, complete result for form's sake. Only the selection through imagination determines the suitable form according to his intuitive judgment. Determining this formal imagination arises from intuitive power.



**Figure 5. Marc Newson, sketch of the bodywork of Ford concept car (1999)**

Frank Gehry's sketch for the Peter G. Lewis Building (Fig. 6)<sup>22</sup> shows a logical leap of image. Of course, it cannot be argued that the building was developed based on that one simple sketch. However, it does depict the building's complete form in that sketch. It seems to have lines penciled indiscriminately. But Gehry's ability to express intervenes in the lines, and he already has a complete mental image of the building. So it cannot be said that the complete result was preconceived but that his sketch was a starting point in the process of realizing structure. This imaginary leap cannot be understood as the result of one's rational capacity; the leap can only be understood as the result of one's intuitive ability.

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<sup>21</sup> Thimo te duits edit., Ibid.

<sup>22</sup> Teel Sale, Claudia Betti, Drawing: A contemporary approach (2004), p. 39



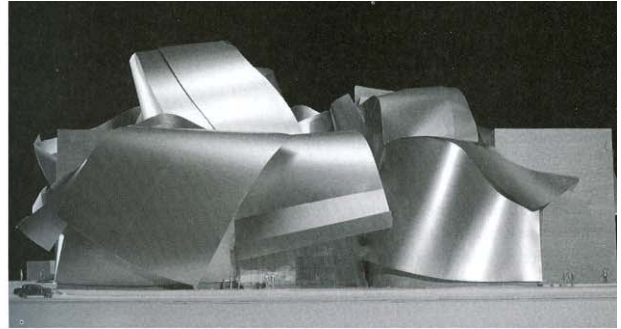
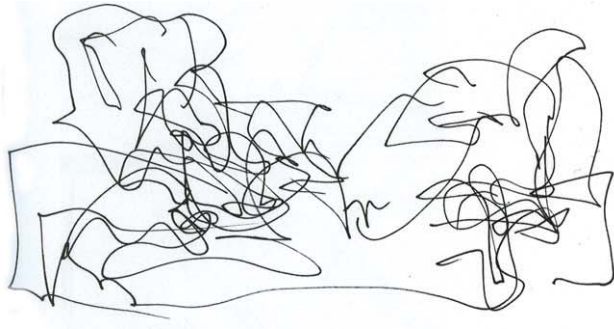


Figure 6. Frank Gehry, Sketch for the Peter G. Lewis Building (1987)

Another example of intuitive expression can be seen in Japanese architect Ando Tadao's sketches for the Naoshima Contemporary Art Museum Annex. (Fig. 7) His sketches of real buildings evolve from very rough pencilings to detailed plans. His expressions were drawn on paper from a magazine. His plans show how water and light were expressed through his buildings. Expressions are revealed momentarily through intuition by real-time acts such as sketches. A sketch like a scribbling using intuitive power shows the infinite formal expressions residing in the designer's mind. Tadao's personal image is revealed through expression.

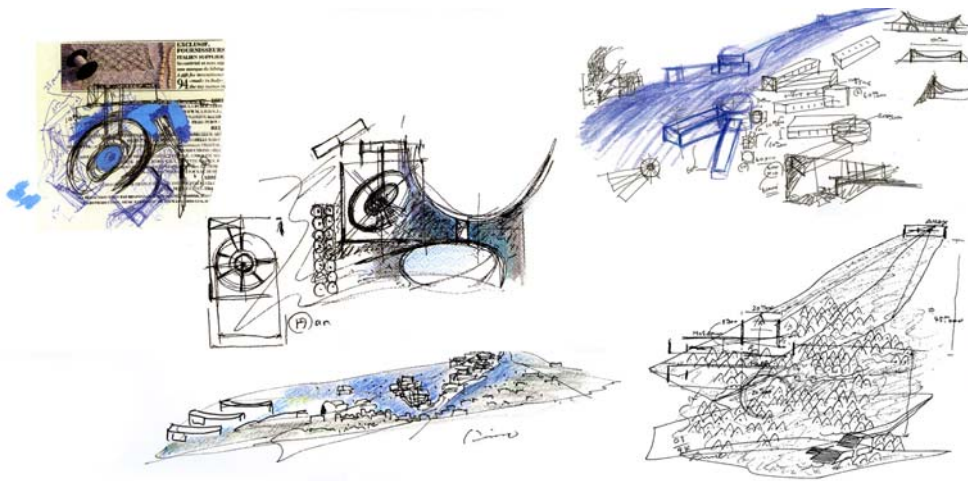


Figure 7. Ando Tadao, Sketches and Plans for Naoshima Contemporary Art Museum Annex (1993-1994)

## 5. CONCLUSION

This study has examined the essential nature of intuition through specific examples of sketches. To briefly summarize, sketch as creation process is the process of obtaining specific knowledge through the cognition process, specifically intuition and logical ability. In this study, intuition was defined as the moment in which imagination is expressed. Intuition thus imposes a cognitive ability on something nonexistent, simply imitating representation. Understood this way, it becomes possible to regard intuition as a significant part of the



creation process. In the latter half of this paper, specific, practical examples were given that illustrated intuition as a form of expression and imagination.

This study leaves some questions for future exploration, such as 'Can Intuitive ability be developed?', and 'Are intuition and logic opposites?'. Design can be developed in conjunction with intuition and logic. Therefore, it is expected that examining the problem of intuition will make it possible to improve a key part of the design creation process.

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