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Experimental experience in design education as a resource for innovative thinking: The case of Bruno Munari

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Abstract

Design education in general includes various design fields such as product design, graphic design, communication design and design in engineering. *Designing* as an activity captures all these various fields. *Design* refers basically to a problem solving method, a creative problem solving approach and relevant processes. *Design* as an activity has always been considered as a creative tool. Design education mainly focuses on enhancing creative approaches with various 2D and 3D project based basic design studies. As the tools of designing developed in parallel with technology, the core structure of the education is based on a model with creative and analytical aspects: *Designerly* way of thinking aims at originality and uniqueness. Today the need for innovation has become more evident than ever. The main purpose of the paper is to explore and to identify the relationship between creativity, innovation and design related to design education. Bruno Munari(Milano, 1907-1998) as a designer and a design educator, is one of the prominent names reflecting innovation and creativity in the history of Italian Design. His innovative contribution to Italian Design is reinforced by his experimental design educator background in research for creativity. The paper aims at exploring the educational structures through history of design and design education that leads to creative thinking and nurture sustainable innovation through the case study of Bruno Munari's works as a designer and as an educator.

Keywords: Design thinking; design education; Bruno Munari; innovation; basic design; experiential learning.

1. Introduction

Design as a term captures various fields such as; graphic, communication, fashion, engineering, architecture and product design. For each of the fields, the term performs a different content. Within the framework of this paper, the word, design refers mainly to the discipline of industrial product design. Design is defined as the conscious decision making process by which information (an idea) is transformed into an outcome, be it tangible (product) or intangible (service) (Von Stamm, 2003). Innovation during the 90's was barely related to technology and science as the outcome of the research and development processes. Since the beginning of the millennium the contribution of

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'design' for innovation and innovative thinking has become more evident, particularly for the business world. Innovation however is mainly related to technology, innovative thinking keeps a closer link to the design discipline. Innovation is considered essential in today's business world, both for firms and individuals (Fixson, 2009). With the recognition of the increasing importance of innovation mainly for economic success, more attention is drawn towards the research to innovate. Today the core of the process of designing results as a core strategic tool for management and innovation. In 2008, *Harvard Business Review* allocated an article to design and innovation to drive forward the importance of 'Design Thinking' for innovation (Brown, 2008). Being a part of a whole creative process, designers are considered to be tolerant of ambiguity, ask questions, see possibilities, be divergent thinkers, risk takers and perceive the world differently (Von Stamm, 2003). Since innovation is associated with accepting high levels of ambiguity and uncertainty, original thinking, passion to drive the idea through to conclusion, willingness to take risk and the ability to inspire others, the overlapping characteristics of both of the fields warrant the bare link.

Since when the input of design in business as an economic value has gained attention, the two fields both in professional and educational ground have come closer to establish new models for innovation. Considering that a substantial part of product design and development involves creativity and iteration, it lends itself to being taught in an experiential fashion (Beard & Wilson, 2006). With reference to a recent research made on the teaching of innovation within the Product Design and Development education programmes in the US (Fixson, 2009), we see that majority of the design education programmes aim at educating inventors rather than conventional professional experts using educational methods less traditional, more explorative in nature and collaborative in style.

Some have described innovation itself as a constant learning process, which 'moves its participants between the concrete and the abstract worlds' (Fixson, 2009). Innovation is not a one time action or activity; it is a mindset therefore the educational system that leads to nurture innovative mindset needs to be explored. From this contemporary context, the situation offers a new vision towards design education. As innovative approach gains importance, we see the main problem arising as; *can innovation be taught?*

The evidence of the bare relationship between creativity, design and innovation needs to be underlined. Design education creates a mindset, a way of seeing and thinking. It is a process with a series of experiential exercises. The aim of the paper is to set out and to explore the inter-relations between innovation-creativity-design and design education. To be able to draw attention to this process, the purpose is to analyze the experiential creation methods of Bruno Munari as a reference case study. In the first part of the paper will focus on the structure of design education with its interrelations in art. The learning model and the methods will be briefly set out. Then the second part of the paper will capture the analysis of the case of Bruno Munari; his methods towards art and design education, his works as examples of innovation, and his contribution in research of sustaining the relationship of creative education through experiential and experimental approaches.

1.1. Art and design education: Form of experiential learning

The arts are called 'creative' fields because there are no predetermined correct answers to the problems (Lauer, 2005). Creative production; be it an art piece or a product, is a research process seeking a diverse way of seeing, interpreting or communicating. The process is a journey from abstract to concrete in research of 'the diverse'. Creative mind does not always have an innate characteristic. Everyone can have the capacity to think creatively. But the artistic background due to art education focuses on creativity that makes the field a unique creative resource.

In experiential learning the fundamental 'method' is the provision of experience. According to Beard & Wilson, (2006), with reference to Dales's 'Cone of Experience', we see that; more concrete the learning experience gets, the percentage of the tendency for remembering the content gets higher. As the learning experience gets more concrete towards the base of the cone, the learning outcomes such as; analyzing, designing, creating, evaluating demonstrate more permanent characteristics. The learner participates actively and the outcome is a concrete process: *doing the real thing.* As the sources of creative activity are *thinking, looking, doing* (Read, 1956); the link between experiential learning and creativity becomes more evident.

'Basic Design' also known as the 'Foundation Courses' is an experience based art and design education programme. 'Basic Design' form of teaching and learning develops the creative spirit of students by introducing them to shapes, colors, rhythm and light outside of any academic approach that allows students to discover a personal bond with various materials (Boucharenc, 2006). The basis of the pedagogy of the course was formed by

the classical schools of design like the Bauhaus since the 1920's. Design elements used within the basic design syllabus are: line, shape, texture, color, unity, balance and rhythm.

A recent research carried out in 2006 (Boucharenc, 2006), on the determination of the status of 'Basic Design' pedagogy in contemporary design education systems shows that 'Basic Design' education is still regarded as the most important programme where the importance is given equally to the analytical classes; syntactical, pragmatic and semantic dimensions. Of all educational approaches, experiential learning methods offer the greatest hope for learning which is genuinely, personally meaningful. And of all curriculum areas, it is surely art and design in which such methods sit most closely with its own goals and values (Salmon, 2000).

1.2. Design education: Territory between art and science

«Imagination comes from watching, creativity comes from thinking. »
B. Munari

Within the system of education we can draw that; designing is an action that is driven by the combination of aesthetic instincts and scientific instincts. Design education has adopted itself to the changing function of design throughout history due to the changing consumption, production and competitiveness patterns. At the beginning of the century and especially during the post war period, design gained importance as an aesthetic element on objects. As the function shifted from pleasure to differentiation, the concern and the content of the design problem has been diversified. The core structure is based and focused on 'alternating' solutions to problems.

Product design and development is an inherently creative act: by definition, radical products chart new territory. Research on product innovation indicates that high-performing firms make extensive use of experimentation. 'Fail often to succeed sooner' is reported as one of the mottos of the most innovative and creative design consultancy firm IDEO (Fixson, 2009).

The structure of design education is project based. After problem definition, experiential hand-on work is performed as a tacit learning process in a cooperation of the students and the instructor. Design schools, as a discipline more rooted in art than in science, have developed studios as a prevalent teaching mode, a mode in which faculty supervises, discusses and critiques students' works on an ongoing basis (Fixson, 2009). *Bauhaus*, being the first official design school, set the characteristics of the design education over the last century. The base of creative production is stressed with production. As the founder of the first design school, Walter Gropius states:

'The ultimate aim of any creative activity is building… architects, sculptors, painters; we all must become craftsmen again… no essential difference exists between the artist and the craftsman, the artist is a craftsman of heightened awareness… But the basis of craftsmanship is indispensable to all artists. It is the prime source of all creative work.' (Itten, 1975)

Design covers visual education that is related to the eye, plastic education that is related to feeling (touch). Product design is related to constructive education as crafts; it is related to thought (Read, 1956).

2. Bruno Munari: ***Artist, designer, educator***

« A seed contains the future and tomorrow will be yesterday »
B. Munari

2.1. Life of Munari

Bruno Munari, described by Picasso as 'the new Leonardo', is considered to be one of the most influential designers of the 20th century. Munari was born in 1907 and died in 1998 in Milan, Italy. He has been very productive till his late ages. It is quiet complicated to sum-up his life-time production as artist, painter, sculptor, designer, illustrator, graphic designer, photographer, movie maker, writer, poet and educator.

At a very early age, he began his artistic work in the cultural area of Futurism (1909-1944) under the influence of Filippo Tommaso Marinetti, the father of the Italian avant-garde movement. At the age of twenty, he had already exhibited at the collective exhibition "33 Futurist Painters" in Milan and he began to get involved in various activities as art-director, publicist and illustrator for some periodicals as well. During this period he participated in

the Venice Biennial and Quadrennial exhibitions in Rome and Paris. Soon he moves away from the influence of Futurism to explore new fields within an extremely personal and singular research on the border of art, design and visual communication. After World War II, he began to get involved in the field of industrial products, lay-outs and prototypes for many important companies and started to investigate the field of education concerning children. He published his first books for children. His collaboration as an art director with important companies like Olivetti, helped him to gain prominence in Italy and internationally. During this period, he produced the toy monkey "Zizi" in 1953 for Pirelli, "Fountains" in 1954, "Talking Forks" in 1958, the series of "Travel Sculptures" in 1958 and "Twenty-first Century Fossils" in 1959. In the following years, he continued his researches and he started teaching a course in visual communication at Harvard University in 1967.

His contribution to Italian Design can be observed well in the field of industrial design, during the period from 1935 to 1996. During these years, Munari designed various furniture and furnishing accessories like tables, chairs, bookcases, lamps, ashtrays, trolleys. Most of his designs were and still are produced by 'Danese': an Italian firm focused on design objects. The ashtray "Cubo", the lamps "Falkland" and "Bali", the "Abitacolo" modular furniture, the trolley "Vademecum" are some of the products that still today represent a big achievement in the history of Italian design perceived by *'Made in Italy'*.

In the last years of his career, he was mostly involved in visual communication and artistic education, organizing and taking an active role in lectures, courses, seminars and workshops for children, teachers and adults as well. He collaborated with schools, institutions and museums all over the world, such as Venezuela, Israel, Spain, US, France, and especially Japan. Starting from the 1980's, numerous exhibitions have been dedicated to his work in galleries, principal museums of contemporary art and in design centers world wide. Throughout his career, he received many international awards. Some of the most important can be listed as: Compasso d'Oro, an important Italian design award which he received three times, the Honorable Mention from the New York Academy of Sciences, an award from the Japan Design Foundation for the intensely human value of his creations, and the Andersen Award for being the best author of children's books.

2.2. Munari as an artist, designer and educator

His approach towards art and design is characterized by a great sense of humor, which can be traced since the beginning of his activities. As a futurist artist, but within an ironical approach, he produced the *Aerial Machines* in 1930, from which he derived later the *Useless Machines* in 1933, a series of works based on abstract, three-dimensional, mobile paintings in space which reflect his intentions to develop a new art, even against the 'useful machine' of the futurist movement.

Munari used a pedagogic method that inquires the development of creative processes in children, through learning, playing and having fun. As stated by Andrea Branzi (2007), 'the child' represents a portrait of Munari himself, always curious to discover the world around him, in an eternal game of a life without certainties, in the art as a field for endless researches. After World War II, he launched the experiential, interactive books called the *I Prelibri* or the *Books before Books*, which were made to deconstruct the concept of a book. They were pre-reading experiences for children who haven't been taught to read yet, giving them the possibility to explore a book sometimes with only colored or blank pages, or with different materials and shapes. Exploring these special books, page by page, the child could enjoy a book interacting through the five senses. He designed approximately forty illustrated books that are still in edition and translated in several languages.

All his production, both artistic and industrial, theoretical and practical, is always characterized by a pedagogic target, which is not only explicit in his true interest in the development of children creativity through play but is also very well expressed in research into the most diverse fields, such as the industrial product design and book's editing. His artistic production aimed a criticism. He charged the designer with a mission to re-establish the contact between art and the public, in his words; between living people and art as living (Munari, 1980). Bruno Munari as a designer was able to move the design practice into the field of art or, better, to move the industrial process towards art, where he was able to give a more artistic touch to his design products. His design approach is classified as didactic design because of his particular concern for children; moreover, travelling a lot in the Far Eastern countries like Japan, and having a strong influence from the Eastern cultures like the Zen Buddhist philosophy, Munari was interested in the process of 'making', but not only in the final product.

To draw the innovative concept carried by an industrial process, the story of the development of the "Falkland" lamp is important to identify the input of the creative approach of Munari. The creation of the lamp was a study of a spontaneous form which was achieved by an artificial material used for stockings. He described the formal components of the lamp as; the elasticity of the material used, the tension provided by metal rings of various sizes and the weight (Munari, 1980).

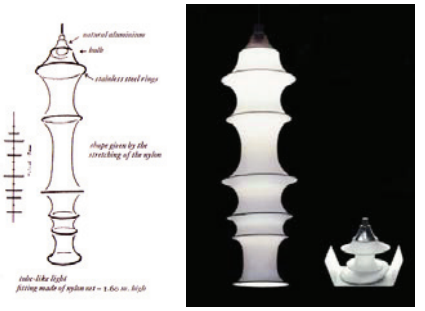

Figure 1. Falkland Lamp by Munari, 1964. (*Still in production as a design classic.)*

With this intensive research on design and visual experimentations, he has had a constant and fertile writing activity. He published essays and books on design, such as *Good Design* (1963), *Design and Visual Communication* (1968), *Art as a craft* (1966), *Design as Art* (1971), and *Obvious Code* (1971).

2.3. The Munari Method

For Munari, with his identity both as a designer and as an educator, the world of design represents a material aspect of a great amount of experimental investigations. His experimentations as games for children include keywords such as: trial and error, improvisation and autonomy (Branzi, 2007). The first educational project made by Bruno Munari in 1977 was a series of laboratories and ateliers for children, called 'Play with Art'. They were carried out both in Italy and abroad, and the didactic method was based on the concepts of 'make to understand' and 'tell how - and not what - to do'.

Figure 2. Bruno Munari during a workshop with children

Munari believed that anyone could produce objects of aesthetic value, given the proper technological advantages. One of his biggest teachings could be summed up as; *he taught the world to observe and recreate the nature.* In 2001, the Bruno Munari Association-*Associazione Bruno Munari (ABM)* was founded with the purpose to promote and to spread out the works and the *Metodo Bruno Munari*®, a patented educational method of teaching. Founders of this association are Alberto Munari, son of Munari and Donata Fabbri. Both of them are teachers in the field of educational psychology and learning at the Geneve University. The Aim of ABM is to promote and develop the method in the schools, museums, libraries and wherever an approach to develop creativity and design thinking is needed. ABM also established a master course for nurturing successors of the Metodo Bruno Munari® and in 2006, fifteen educators/curators from all over Italy received the certificate upon completion of this master course.

3. Conclusion and Recommendations

The need to innovate brings out the need to educate an innovative mindset. Innovation is a process, not a one time action, therefore the educational system that leads to nurture innovative mindset should be the main issue towards the necessity. From this contemporary context, the situation offers a new vision towards design education. Creativity is the major resource of innovation. Creative mind does not always have an innate characteristic, can be nurtured. Art and design education focuses on creativity; this makes the field a unique creative resource. We find out that the inter-relations between innovation-creativity-design and design education are integral. The influences of experimental approach to design thinking are a resource for innovative thinking. Experimental learning as sub content of experiential learning helps intrinsic idea development with its simultaneousness aspect. Free thinking exercises with no filter, with no boundaries as a research method keeps a great potential for new idea generation which can lead to sustainable innovate thinking. We can draw the basics of the rich creative world of Bruno Munari as a potential to be used as an innovation incubator:

(a) His analytical approach of perceiving and interpreting the world,
(b) His nature as a researcher to understand the relations between the natural and the artificial,
(c) The continuous research focusing on *the process* not on the final solution,
(d) Utilizing the curiosity of the nature of *to play* as a teaching method,
(e) Creative workshops based on the keywords: *trial and error, improvisation and autonomy.*

The case of Bruno Munari shows the bare relationship between creativity, design, design education and innovation. His art based experimental education system remains as a unique method of creative education.

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