

# Emulation Model in Architectural Education

Ö. Şenyiğit, A. Çolak

**Abstract**—It is of great importance for an architectural student to know the parameters through which he/she can conduct his/her design and makes his/her design effective in architectural education. Therefore; an empirical application study was carried out through the designing activity using the emulation model to support the design and design approaches of architectural students. During the investigation period, studies were done on the basic design elements and principles of the fall semester, and the emulation model, one of the designing methods that constitute the subject of the study, was fictionalized as three phased “recognition-interpretation-application”. As a result of the study, it was observed that when students were given a key method during the design process, their awareness increased and their aspects improved as well.

**Keywords**—Basic design, design education, design methods, emulation.

## I. INTRODUCTION

WHEN we look at the structuring in our region, we see that nature and objects constitute sources both semantically and formally for the form and function of architecture. Everything from the smallest cell organism in the nature to the designed objects in our environment can directly contribute to the form and function of architecture [1]. Therefore, the line or dimension of the infinite number of objects in our environment can shape architectural design; shapes can be designed in infinite variations through inspired objects, and any object can be evolved in different architectural forms. When we analytically observe the environment we can see these reflections on every output, on every object. Fictionalizing a design with an object, article or form is possible by having sufficient information on that. Therefore, understanding, then playing and even deforming and whatever we create and inspire, even emulate in a design is a process that requires more observation, work, and accumulation of knowledge [2].

## II. OBJECTIVE OF STUDY

Through the study, it was aimed to prepare substructure required for an architectural student to utilize to be able to read, internalize everything he/she sees, and reach to the design idea from everything he/she sees during the architectural education.

There is no doubt that the use of methods within the design process is not the singular solution of design. However, due to

the fact that basic design principles in architectural education are utilized in the design process with different approaches and methods, the seemingly instinctive design principles become enabled to be used intentionally. For this reason, different approach methods used in the shaping of the design fiction were investigated and the application studies were carried out.

With this study conducted in the scope of basic design process course which is being taught at the beginning of architecture and interior architecture education of Cukurova and Toros Universities; it is aimed for an architect candidate;

- a) To reveal the contextual and semantic relationship and communication of the design with the environment it is included in, b) To provide the contribution to and direct the design process through the selected approach model.

## III. SCOPE AND PROCESS OF STUDY

The study was performed with academic collaboration being formed within the scope of the basic design course of the 2016-2017 spring and fall semesters with Architecture Department students of Adana Cukurova University and with Architecture and Interior Architecture Department students of Toros University. The space fiction was attempted to be created using an emulation model.

In order for student to develop the methods of self-expression, “design elements such as point, line, plane, volume, color, texture, proportion-scale, and ordering principles such as symmetry-asymmetry, hierarchy, datum, rhythm-repetition, balance-unity, contrast” were given comprehensively in the first period basic design course, and relevant application studies were done.

In the second period, it was entered into the process of interpretation and creation. At this stage, visual presentations about the emulation model were made, and discussions were made through examples. In the creative process which is the next stage of the study; students’ studies were included in the discussion environment and the design processes were shaped by brain storming with visual materials that they found regarding what they wanted to do or that can be shaped.

## IV. CONCEPTS USED IN THE STUDY AND EMULATION MODEL

Derrida states that every design is actually an architecture of architecture, and design is a cycle [3], saying that “in the same way as there is not any new text or word, and every text is repeatedly written in the infinite loop throughout texts range existing throughout history”. Hence, the “shaping event” that constitutes the study was fictionalized as a. Perception-Recognition, b. Interpretation, c. Application processes, and “Emulation Model” was used in the study. The materials used in the study consist of all kinds of visual publications (graphic,

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nature, photo magazines, internet etc.).

#### A. Concepts that Constitute the Framework of the Study

**Perception-Recognition:** Perception is the process of acquisition of knowledge from the environment, and is an active process. Perception emerges as a previously perceived object, or as a copy of the event that emerged later in our conscious.

**Interpretation- Application:** It is to generate and develop a different meaning or a form from object, concept, line and / or form that have been found.

**The concept of living space:** It is the scene in which people establish relationships with each other [4], a unit that conveys meaning, and a representation in linguistic sense [5].

**The Story of Design:** The answers of the questions such as: Why did you design this place? What did you experience in this place? What excited you about this place?

#### B. Emulation Model

Emulation is defined as trying to make like and imitate something [6]. Aristotle says that art is an imitation, and Plato argues the same idea by saying that “an artist imitates the objects found in the world of the senses” [7]. Gur emphasizes the imitation that is, the method of emulation as the best learning method [8]. Shaping the form in an emulation model is to produce new forms considering a known, recognized event or form. Therefore, analogic, metamorphic, biomimetic methods are included in this model.

Two emulation ways emerge in order to be able to better express the active factors in the design process: Concrete and Abstract Emulations [2], [9], [10].

#### C. Concrete Emulations

It is all of the works put forward by rediscovering existing objects. So, it is the work of designer on reality-perceivable models. When we look at the environment, we can see that nature and objects can create resources for concrete emulation:

- a) Emulation Through Nature - Reflections – Traces; Nature has always been an inspiration to designers. The most common paradigm in the literature on learning through architecture and nature is the transfer of forms and structures in nature to the structure with an analogy.



Fig. 1 Emulation Through Nature [11]

- b) Emulation through Object is the transformation of the object into an architectural form. It is dynamic, interrupted, and continuous transformation. It is a very rich tool in terms of diversity.

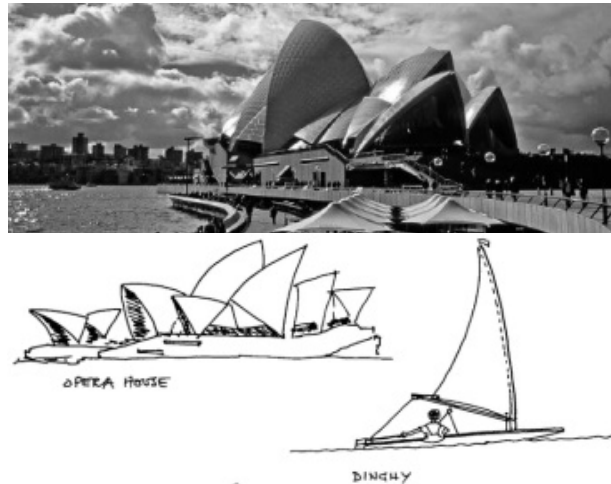


Fig. 2 Emulation from Object [12], [13]

#### D. Abstract Emulation

This emulation exists in the third dimension, and, is linear, graphical, or conceptual without a physical presence.

- a) Emulation through Concept: The concept constitutes the essence of the design-form, and therefore the conceptual aspect of the design leads to the study. As well as the concept can be a line or a form, it can also guide to shaping as a verbal expression [10].

As in the example of Sancak mosque designed by Architect Emre Arolat, who applied the conceptual emulation model which is far from the solidified form understanding to a mosque, the concept of “ESSENCE” was interpreted based on Hira Cave and shaped the mosque design [14].

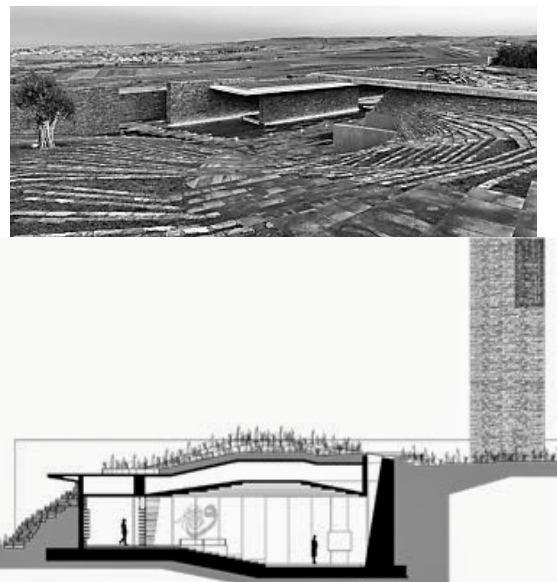


Fig. 3 Emre Arolat - Sancaklar Mosque [15]-[14]

#### V. STUDENT STUDIES

The student was expected to develop a discourse on his/her design in the shaping activity. In this context, by creating an

atmosphere of discussion with students and their discourse; we are beginning to study the question of *"WHAT ARE YOU DOING WITH?"* before asking the questions of "what are you doing?" "why are you doing it?" "how are you doing it?" "where are you doing it?" "who are you are doing it for?" During the 16-weeks study period, in four-hour meetings conducted once a week;

A student was expected to analyze the design methods in the framework of emulation model.

Every student was asked to design a meeting point where they fictionalized their own stories in the space in front of the design workshop using three different design methods.

With the work program, 3D designs (model) of the students were concluded with the discussions made as a result of systematic brain storming sessions with the instructors.

TABLE I  
STUDENTS' STUDIES FOR EMULATION THROUGH NATURE








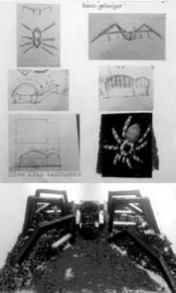
Fish		
Alligator		
Fire		
Spider		

TABLE II  
STUDENTS' STUDIES FOR EMULATION THROUGH OBJECT

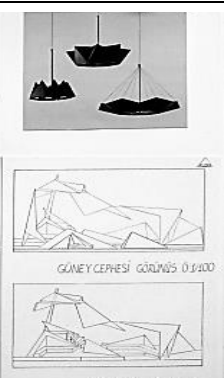





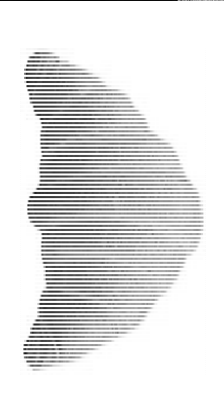
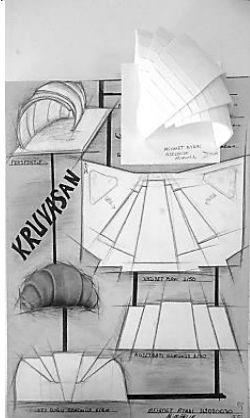
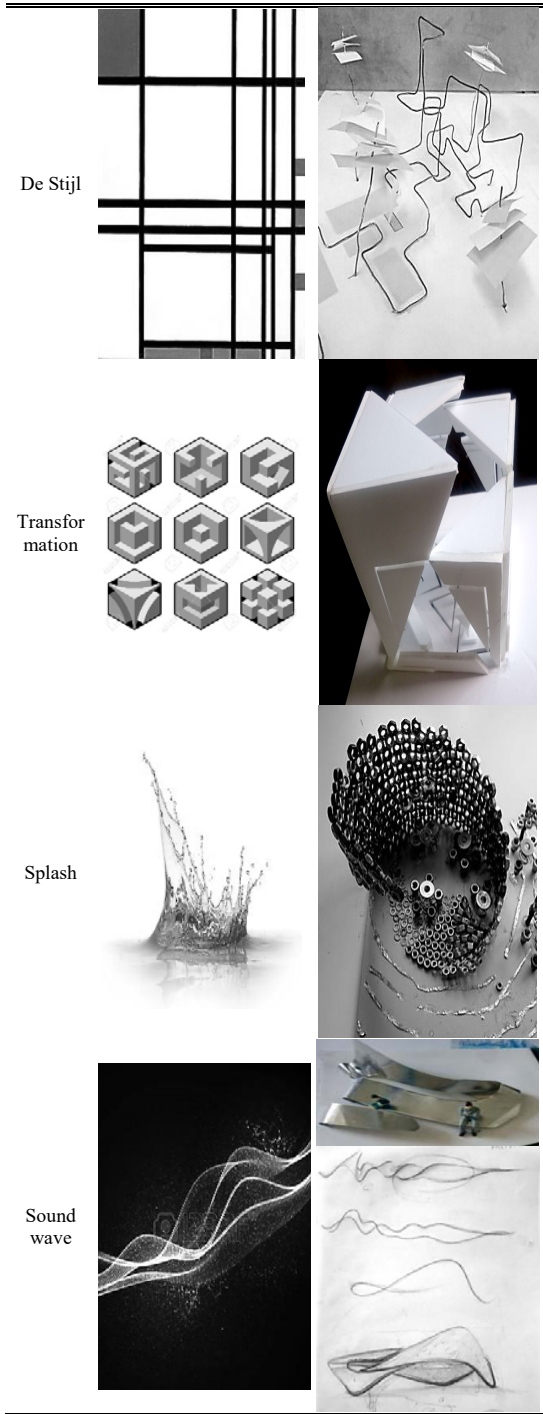
Triangle Lamp		
Notebook Sheet		
Ribbon		
Croissant		

TABLE III  
STUDENTS' STUDIES FOR EMULATION THROUGH CONCEPT



## VI. CONCLUSION

It is seen that these kind of studies done with different approaches and models in order for architectural students to improve their awareness and accordingly their viewpoints during the creation process, can help to evaluate the data collected in formal and fictional order. Hence, it was concluded as a result of the observations that when the

students were given a key method during the design process, they can approach to design with different aspects, and evaluate data with different approaches.

As a result, it is thought that the ability of students to create the design using different approaches can make an important contribution to the design education.

## REFERENCES

- [1] I. Mazzoleni, "Architecture Follows Nature Biomimetic Principles For Innovative Design," CRC Press, ISBN 978-1-4665-0609-1 (eBook), 2013.
- [2] O. Şenyiğit, G. Atay, A. Çolak, T. Uzun, "Deformation - Analogical – Metamorphic Approach To The Understanding Of Design With Architecture Students", International Journal of Arts & Sciences, CD-ROM. ISSN: 1944-6934: 07(02), 2014, p.27-34.
- [3] Yılmaz, A., B., "Jacques Derrida: Mimarlığın Felsefesi ya da Felsefenin Arkitektöniği", Mimarlık, Mimarlar Odası Dergisi, 315, 2004, p.35-37.
- [4] Krampen M., "A Possible Analogy Between (Psycho-Linguistic and Architectural Measurement- The Type- Token Ratio (TTR)", Psychology and The Built Environment Edited by David Canter&Terencelee, Architectural Press, 1974, p.87-95.
- [5] Şenyiğit, Ö., "Biçimsel Ve Anlamsal İfade Aracı Olan Cephelerin Değerlendirilmesine Yönelik Bir Yaklaşım:İstanbul'da Meşrutiyet Ve Halaskargazi Caddeleri'ndeki Cephelerin İncelenmesi", FBE Mimarlık Anabilim Dalı Mimari Tasarım Programı, Doktora Tezi, 2010, p.14.
- [6] NND Sözlük, Available online, <http://www.nedirmedemek.com/%C3%B6yk%C3%BCnme-nedir-%C3%B6yk%C3%BCnme-ne-demek>, Accessed 05 March 2017.
- [7] Felsefe, Available online, [http://www.felsefe.gen.tr/sanat\\_felsefesi/taklit\\_olarak\\_sanat\\_nedir.asp](http://www.felsefe.gen.tr/sanat_felsefesi/taklit_olarak_sanat_nedir.asp), Accessed 05 March 2017.
- [8] Gür, Ş., Ö., (2000), Mimarlıkta Temel Eğitim Dersi, Mimarlık Dergisi, 293.sayı, s:25-34.
- [9] Çolak, A., Ö. Şenyiğit, Uzun, T., Atay, G., "A Methodology On Form Improvement By Student In Architectural Design Process" International Journal of Multidisciplinary Thought, CD-ROM. ISSN: 2156-6992:05(04):395-400, 2015.
- [10] Çolak, A., Şenyiğit, Ö., Atay, G., "A Metamorphic Approach to Design Concept of Architecture Students", 8th International Symposium on Architect Sinan, Organized by Trakya University, 978-975-374-159-0, 2013, p.239-244.
- [11] Design Build Network, Available online, [https://www.designbuild-network.com/projects/national\\_stadium/](https://www.designbuild-network.com/projects/national_stadium/), Accessed 28 March 2017.
- [12] Gruber, P., "Biomimetics In Architecture Architecture Of Life And Buildings", Springer-Verlag, ISBN 978-3-7091-0331-9, 2011, p.62.
- [13] Hunt, T., "Tony Hunt's Structures Notebook", Architectural Press, Second Edition, ISBN 0- 7506-5897-5, 2003.
- [14] Arolat, E., "Öz", Gelenekten Geleceğe Cami Mimarisi Paneli, Çukurova University, Faculty Of Engineering And Architecture, Department Of Architecture, Adana/Turkey, 2013.
- [15] EAA Emre Arolat Architecture, Available online, <http://aasarchitecture.com/2013/10/sancaklar-mosque-by-emre-arolat-architects.html/sancaklar-mosque-by-emre-arolat-architects19>, Accessed 20 July 2016.

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