ON PROGRAM AND PROGRAMMING IN HIGHER EDUCATION IN ARCHITECTURE IN TURKEY

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Abstract- The paper gives the panorama of the concepts program and programming within the master's level studies in higher education in Architecture in Turkey. It provides a representative view of master's studies and reviews the state of program and programming studies in them by using content analysis method - via NVivo software. Content analysis targets the analysis of the written material – in this case master's theses. Since the higher education represents the state of the art of existing research body in the field, we can mainly understand the place and role of program and programming in such level.
In the study, master's studies search was performed through their full contents and from their abstracts.

Index Terms- architectural education, architectural program and programming, research in higher education, master's theses in architecture

BACKGROUND/OBJECTIVES AND GOALS

Researches in higher education can give us in depth objective information about traditions within which these researches were embedded, as well as the conditions, problem situations, and needs of the day; namely the state of the research in a certain field. Research in higher education in Turkey has especially been gained pace during the recent years to accumulate into a body of research that is beginning to define lines of certain traditions. However possibly because of its short history there are very few attempts toward examining this body. This paper examines and questions the role of program and programming in architectural design studies in higher education (in master's studies) in Turkey.
Programming played an important role in developing discourses in architecture especially after the 50's. Today we see that there has been a notable shift of emphasis, evolution of patterns of correlation especially between programmatic concerns and literary, cultural, ethical and spatial reconsiderations of the phenomenon of space. The paper investigates the involvement of programming in design issues in master's studies in Turkey. Research questions were; what is the role of program-based approaches in master's degree higher education research in architecture in Turkey today? Is there a significant amount of researcher who studied program and programming? If so, how does it affect their studies– mainly at the levels of theory, model, problem formulation, topic, and method? How does programming affect our conception of research? What are the roles of program and programming in design especially at the organizational and operational levels? Do these studies represent a significant line of study, or school, which have influenced the architectural research atmosphere? and if so how. What is the role of program and programming in shaping the discursive characteristics of higher education master's level researches in architecture? Building upon such a foundation it also traces that is there any shift towards an inter/trans-disciplinarity in the area?

METHODS

The inquiry particularly focuses on 'architectural design' and "theory" masters. For reaching out dissertations, Counsel of Higher Education Theses Center digital archive was used. Study was conducted as a qualitative "content analysis" by using NVivo software.

EVOLUTION OF PROGRAM AND PROGRAMMING IN ARCHITECTURE

In the Merriam Webster's dictionary (1993, p.1812), the word "program" is defined as "public notice" of social performances and entertainment. In a further definition, program is described as "a plan of procedure: a schedule or system under which action may be taken toward a desired goal". Under another point, in reference to Sullivan, program is described as "a statement of an architectural problem and of the requirements to be met in offering a solution". It is this meaning that the word program penetrated the vocabulary of the modern architecture in the early twentieth century. On the other hand, as discussed in Ozten (2015) from another point of view, starting from the early 1970s, architectural program has changed over from the traditional form-function discourses to a programming-oriented rhetoric. Basic references of contemporary architectural programming discourse were established along a line of researchers who have considered this issue including Pena & Parshall (1969), Sanoff (1970), Duerk (1993), Kumlin (1995), Cherry (1999) and Hershberger (1999). The discourse is grounding on

the argument that architects should fix the mistakes that they made between the years 1945-1975 (Kumlin, 1995, 1). The issue has mostly discussed under the term "facility programming" in the sense of a methodological critique questioning the existing situation. The approach underlined that there is a strong need to be systematic to overcome the faults of the previous approaches to design. As such, programming studies have emerged as an embodiment of analysis-synthesis in architecture. Following the footsteps of the "scientific" method, it leads researchers to focus on the "facts", or in other words, the details of the user needs by decomposing design problem into its elements. The programming discourse as such is grounded on a clear understanding of a new technical professional analytical field called "programming." One step ahead of this conception there emerges a technology-based critical second step: the evolution of computational approach in programming.

As discussed in (Ozten, 2015) the term "digital design" refers to a unique phenomenon, an advanced computational position, which radically challenges traditional means of designing hence programing in architecture. The evolving digital design tradition studies the issue of program as guided by the idea of revolution under the influence of techno-utopian perspectives. In such a framework, program is based on a demand for a "cultural transformation of root design concepts" such as normative, static, and typological aspects by offering alternative proposals (Oxman, 2006, pp. 232-233). As part of such framework, digital design is described as a complex organizational system at the high end of digitally networked environment. Hence, the question of what the relation between digital design and program is largely understand as relations of networks and the role of the designer.

IMPLICATIONS OF PROGRAM AND PROGRAMMING IN HIGHER EDUCATION IN ARCHITECTUREIN TURKEY

The paper gives the panorama of the program and programming within the studies in higher education in Architecture in Turkey. It provides a representative view of master's studies and reviews the state of program-based approaches in Architecture in Turkey. The data of master's theses were exported from their full contents and from their abstracts.

For reaching out theses done in Architecture in Turkey, this study uses YOK (Counsel of Higher Education-CoHE) theses center digital archive. YOK theses center archive is the only source to access the full contents of the theses.

The raw data used in this study includes all the indexed theses in the field of architecture that were open to acsess - which means the contents of the 60 architectural master's studies dated from 1986 to 2016.

Program-focused Master's studies list between the years 1986-2016 was produced from 3 separate searches. They were searched according to the Turkish keywords "program", "programlama" and "ihtiyaç programı" (English counterparts of these words are "program" and "programming"). Studies that refer to the keywords in their abstracts, titles and keywords were selected. As expected, before the list was solidified, some work was needed to clean the raw data. For example, some theses appeared in the indexes of the YOK database more than one times. And some of them appeared in as the unfinished theses. They needed to be detected and modified to form a coherent final list. At the end of these procedures, we had (30+18+12=60) searchable digital formatted master's theses in the field of Architecture.

Related to the research population of the study it can be stated that a large proportion of master's studies come from Istanbul. Second largest group of study come from Ankara and then Izmir. It is not surprising that they have the largest theses population since these three cities lay the foundations of the country's university tradition. They produced around ninety-five percentage of the whole program-focused theses in Turkey. The distribution of the affiliated institutions of the authors can be found in (Table I.)

(Table I.) : Distribution of the institutions of the authors

Institutions	**Number of theses**
ITU	28
ODTU	13
YTU	6
GU	6
DEU	3
KTU	1
BU	1
SU	1
TU	1

(Table II.) : Distribution of the studies by year.

Periods	**Number of theses**	
1986-1989	(1986:1); (1988:1); (1989:1)	3
1990-1999	(1990:3);(1992:2);(1994:5); (1995:2);(1996:3);(1997:1); (1998:3); (1999:4)	23
2000-2009	(2000:1);(2001:3);(2002:1); (2003:4);(2004:3);(2005:1); (2006:4);(2007:2);(2008:2); (2009:2)	23
2010-2016	(2011:1);(2012:2);(2014:2); (2015:4);(2016:2)	11

(Table III.) : Distribution of the studies by Languages.

Language	Number of theses
Turkish	43
English	17

(Table II.) shows distribution of the studies by year. From the table, it is observed that after the beginning of the 1990's there is a meaningful increase in the theses population. However between the years 1990 and 2016, there is not a visible trend of decline or incline in the numbers of studies, the number of studies per year changes between 0 to 4 studies per year for the last 25 years. And finally, (Table III.) shows the distribution of the studies by language. In Turkey, the main language of higher education is Turkish. On the other hand, in some universities or some departments and /or programs education is performed in English, German or French. The table shows that compared to the overall theses population about the twenty-eight percentage of studies are written in English.

After a close reading it is seen that although the majority of the studies are belong to similar schools, their advisors were quite varied. As a result it can be inferred that the issue of program and programming in architecture cannot attributed to a particular group. The reason for this is likely to be due to the diversity of handling the issue in a wide variety of frameworks. In the theses, program and programming can be viewed as being studied in a broad spectrum ranging from the small object oriented scale to the large scale urban environments. The main focus area in them can also be varied resulting in a total four levels: education, urban, theory and design. Since the majority of the studies are analytic and applied in characteristic, typological analysis and operational organizational and managerial optimization studies and experimental form/layout generation scripting studies seem to be increasing in frequency. Studies which concentrate on cognitive and digital content of programming need to keep pace with the high end technology. Content analysis also shows that in recent years, program and programming studies evolved into understanding and generating the systems which are characterized by openness, flexibility, and adaptability.

The studies differ in terms of their approach on researching. Since their focus is on programmatic understanding of the world, they mainly concentrate on the transparency of the qualitative material. This attitude is largely operationalized through experimental research, case studies research, simulation and modelling research and correlational research. The first type can be described as "research on the performance of various building components" by Groat & Wang (2000), and the second and third one can be used by researchers after constructing a parametric framework/model. In such a situation researchers often analyze some local cases and/or generate simulations and models to understand, interpret and reinterpret the outer world. Finally the fourth type focuses on "exploring the relationship among two or more variables" (Groat & Wang, 2000). They all problematize establishing cause-effect relationship and clear measuring within a specified research setting. On the other hand, it is seen that research strategies such as interpretive-historical research and logical argumentation are the strategies that are not preferred by the target group.

Through a series of close readings of the textual material, some repeating concepts are observed. Those are: "program", "programming", "building program", "architectural program", "facility program", "facility design", analysis-synthesis", "organization," management," "space-syntax," "layout," "computer aided design", "computer environment", "digital design", knowledge-based systems," expert system," "expert design," " parametric model", "parametric", "shape grammar", "generation," "systems," data", automation," design criteria," norms," "principles", "criteria", modular", "potential", "performance", and "evaluation".

Above concepts are seen to shape the discourses of program and programming emerged in master's studies in architecture in Turkey within the last twenty five years. In total, they indicate that programmatic understanding of architecture is a dynamic structure that advances in relation to the objects it studies. On the other hand, it also reflects existence and evolution of a line of research tradition that was to a great extent positivistic.

CONCLUSION

In its nature, this research can be considered as an inventory and reflected contemporary situation of higher education research on architectural design and architectural theory in Turkey. From this valuable base, the object of this study gives us the state of program and programming in the master's level higher education in architecture in Turkey and guide planning of architectural programs in terms of fostering the discourse on programming with related methodologies. It will also provide a framework to understand the situation in Turkey according to the questions that have been addressed.

Throughout the evolution, first we saw program as a separate analytical pre-design stage, and then, as a meta-database and meta-scheduling mechanism to control the design process from the beginning to the end, and sometimes as a deterministic experimental model, a meta-algorithm for reaching out automated

design ideals (Ozten, 2015). Although at the beginning, the issue of programming in the world and in Turkey were not dependent on a temporal pairing, we see that evolution of master's studies in architecture in Turkey is largely sharing the same evolutionary pattern that is consistent with the established literature.

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