

## A study on graduate level education in architecture: Case of Turkey

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### Abstract

Today, there are 41 universities offering graduate education programs in architecture. Those programs cover a number of different topics including architectural conservation and restoration, architectural restoration, architectural design, informatics in architectural design, architectural planning and design, architecture history, architectural history and theory, architecture and built environment, digital design in architecture and production. The council of higher education presents that 2978 master theses submitted and approved by Council of higher education. In this study, the master theses submitted to the graduate programs have been investigated. Matrix has been developed regarding o the sex, language, topics, universities. The types of graduate school are natural science and social science. The results of the study show that the number of female students is higher than the male students. The number of theses in Turkish is increasing. The increasing number of theses investigating build technology builds physics and building and construction and computational design is of importance. It is possible to determine that the current and popular topics of Turkish graduate programs in Architecture are in parallel with the prevailing agenda of World architecture.

Key Words: theses in architecture, graduate level education, architectural education.

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## 1. Introduction

The system of graduate education consists of additional education that was created to benefit people who want to specialize in terms of professional after undergraduate education. This system is formed by two classes as thesis and non-thesis. Moreover, this education type defines upper stage in context of academic and is carried out by optionally. In this education, person presents own works to a jury which is consisting of 5 or 3 faculty members and; if case of successful, the graduate education system is going to be completed successfully (Mimarlık ve Eğitim Kurultayı: Mimarlık ve Eğitimi Yeniden Yapılanırken 2005, 2006).

The earlier graduates from graduate level education in Turkey were provided in 1961 by the department of mechanical engineering, Natural Sciences Institute, The Middle East Technical University. By the opening of more institutes, providing training for the increasing student population started. In this context, the graduate level education is educated in different departments of various institutes that depend on the universities of Turkey in today (ODTÜ, 2011).

In 1981, Council of Higher Education was established. The whole undergraduate and graduate education systems changed. The new system structured programs under separate administrative bodies of Graduate Schools, under which divisions and disciplines have been organized in a vertical hierarchy.

System changes were made in higher education by establishing the Council of Higher Education and the faculties that give under graduate level architecture education started to give education for 4 years. Following this, a program that depending on the Institute of Science and Institute of Social Sciences entered into force to give under graduate level architecture education for 2 years. However; the graduate level education in architecture had been seen as continuing of architecture education in early period. After that, this education transformed into program forms of expertise according to architectural science. The system restructured as form of programs of the department of Architecture in all universities and in each university's development level rate after establishing of the Council of Higher Education in 1981 (Mimarlık ve Eğitim Kurultayı: Mimarlık ve Eğitimi/Süreklilik ve Değişim 2007, 2008).

The Architecture Education in Turkey, as well as the other faculty's departments contains 4 years and the persons who studied in this system graduate as an architect (architecture title). In this context, architecture education has 30 ECTS per term in 4 years and in total, this system will be completed by 240 ECTS (Mimarlık ve Eğitim Kurultayı: Mimarın Formasyonu Nedir, Ne Olmalıdır? 2003, 2004).

In Turkey, the architecture graduate education depends on natural science institute in some of the universities and in others; this system is carried out in Social Sciences Institutes (ODTÜ, 2011).

Today, there are 41 universities offering master degrees in architecture in different programs, such as architecture and design, history, and building science. The graduate schools administrating the divisions and disciplines are varying according to the university. Mainly, there are two different graduate schools that offering degree in architecture: Graduate School of Natural Science and Graduate School of Social Science (YÖK, 2016).

Graduate School of Natural Science contains programs of Architecture and Design, Building Science and Restoration and Preservation of Historic Monuments; Graduate School of Social Science involves program of Architectural History.

In Turkey, there are different diversification on graduate level in architecture and this diversification could be defined as programs including Architectural Conservation and Restoration, Architectural Restoration, Architectural Design, Informatics in Architectural Design, Architecture, Architecture, Planning and Design, Architectural History, Architectural History and Theory, Architectural History, Theory and Criticism, Architecture and the Built Environment, Computational Design and Fabrication Technologies in Architecture. If necessary, education program could be opened by senate decision and proposal.

The thesis submission process and assessment procedure have to follow regulations issued by The Council of Higher Education and the individual criterion of the graduate schools. Each thesis has to be submitted to The Council of Higher Education. The Thesis Center of the council archives the theses, to which permission is granted by the author, to be accessed by the researches.

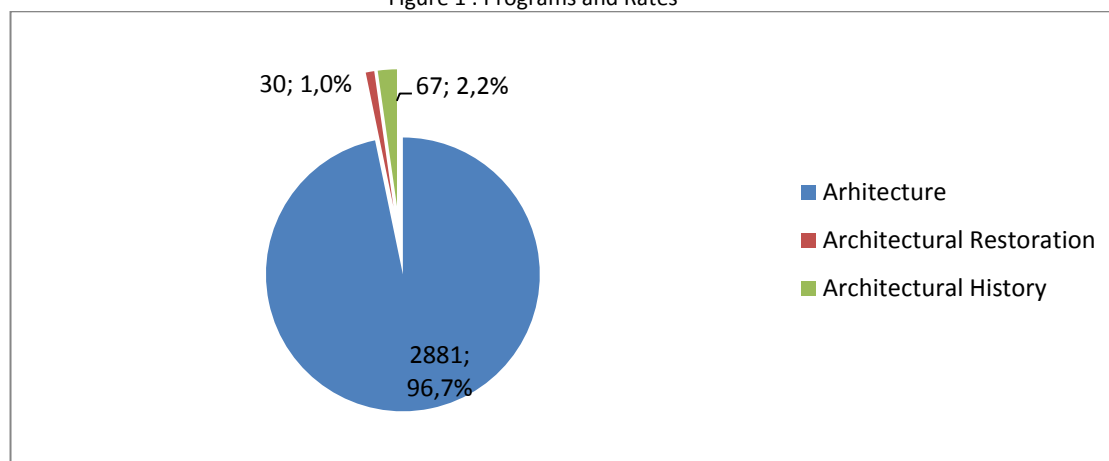
In this study, the master theses submitted to the graduate programs in architecture have been investigated according to the language, gender, Graduate School Type and programs. Following this examination, a matrix has been developed. It is possible to determine that the current and popular topics of Turkish graduate programs in Architecture are in parallel with the prevailing agenda of World architecture. That matrix would provide a topical and conceptual map of graduate education in Architecture. It is expected that this study would open a window for further studies that would determine the current tendencies in Turkey about graduate education in Architecture in to the global context.

There are 3 divisions about architecture in the Council of Higher Education. These divisions are Architecture, Architectural Restoration, and Architectural History. The distribution has been showed in the table 1 and Figure 1.

Table 1 . Programs and Numbers

Programs	Number
Architecture	2881
Architectural Restoration	30
Architectural History	67

Figure 1 . Programs and Rates



## 2. Evaluation of Analyses

### 2.1. Programs

It is possible to categorize programs under 5 different titles according to contents. They are Architecture and Design, Building Science, Restoration and Preservation of Historic Monuments, History of Architecture, Urban Design. It is possible to develop further subcategories as presented in the following figure.

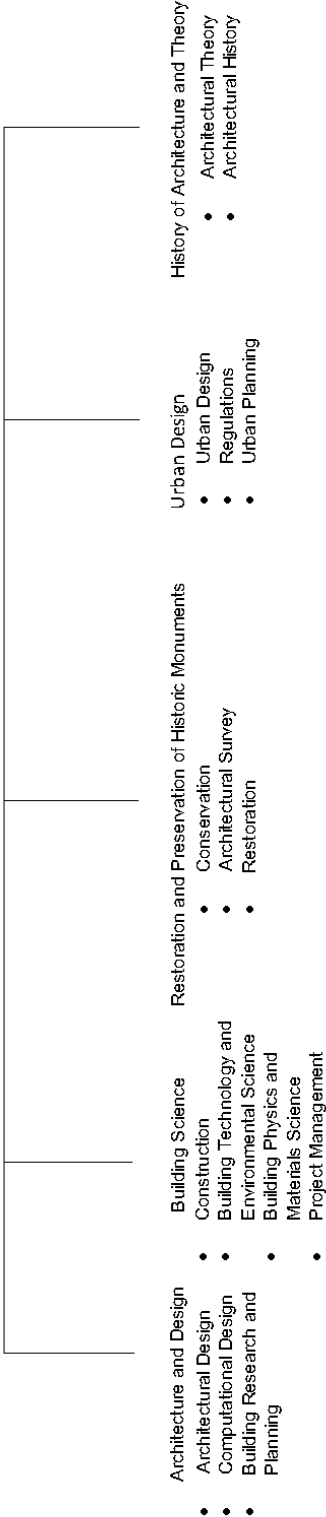
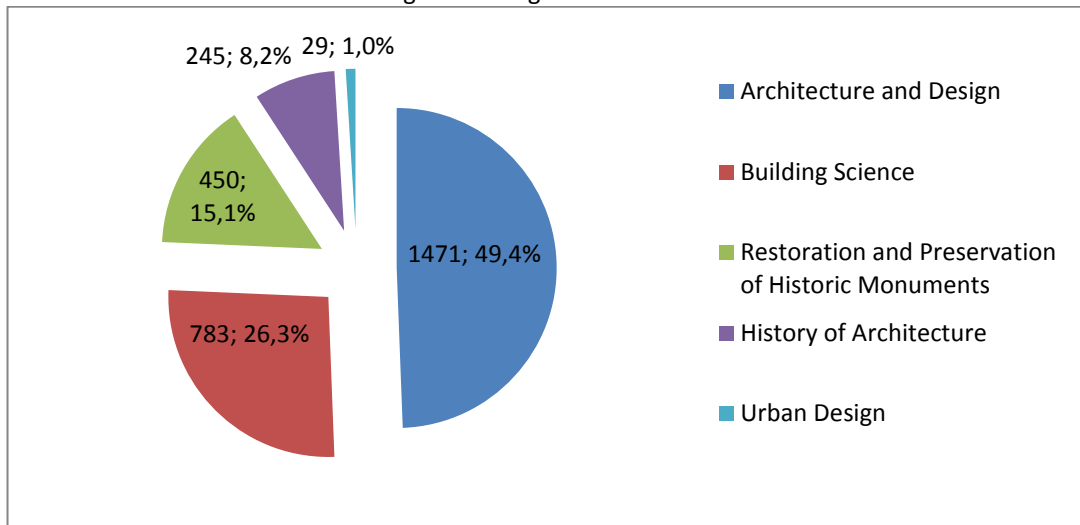


Figure 2 . Programs and Chairs

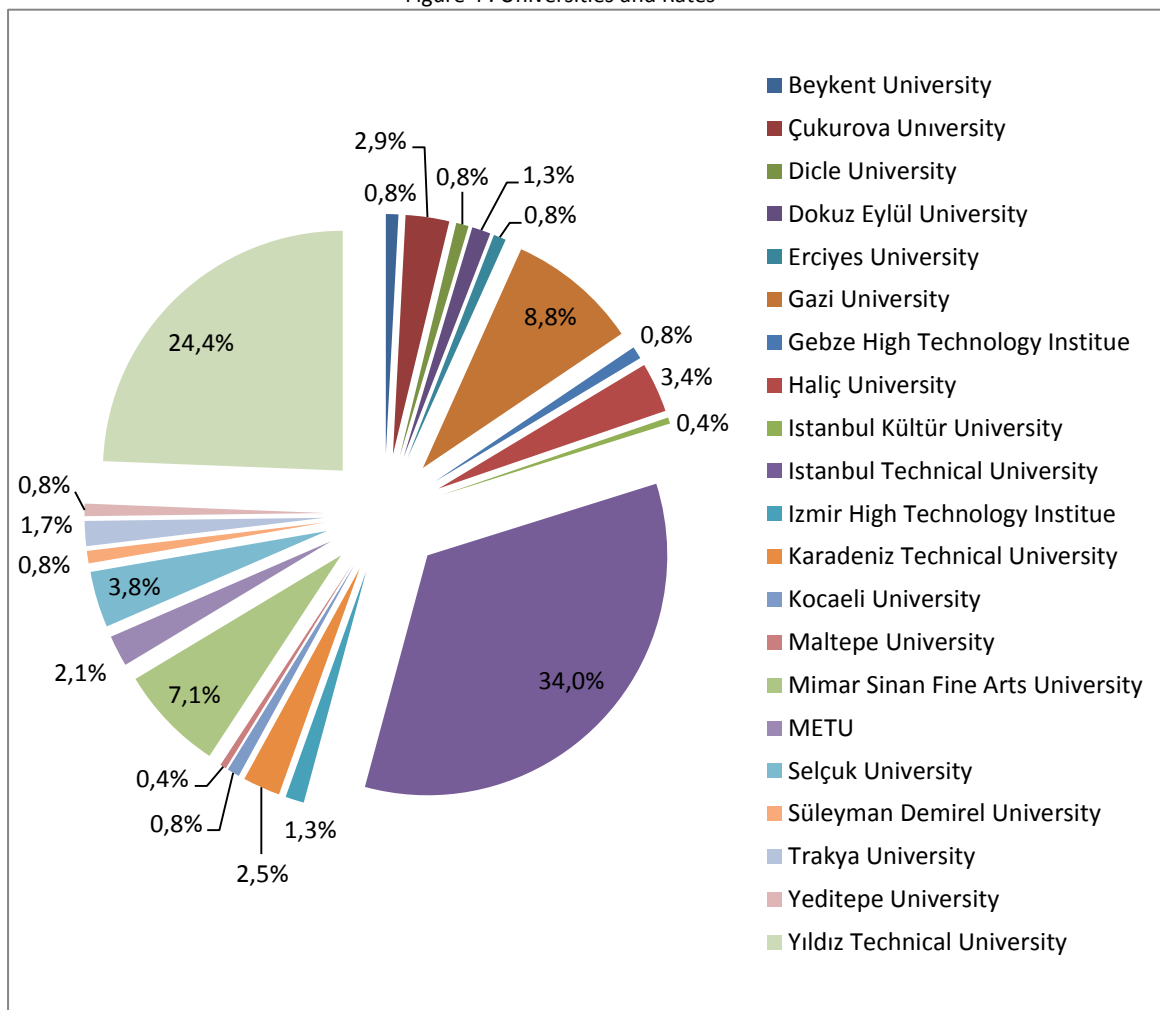
The distribution of the theses according to the programs is given in the following chart.

Figure 3 . Programs and Rates



The distribution of the theses according to the universities in Turkey is given in the following chart.

Figure 4 . Universities and Rates



When analyzing the distribution rate of universities, the most popular university is Istanbul Technical University and the following university is Yıldız Technical University. In 2011, the most popular university

is also Istanbul Technical University by 34%. The following university is Yıldız Technical University by 24,4% before Gazi University 8,8 % (YÖK, 2016).

There are 18 architecture graduate programs in 18 different universities in 2011. In the following year, this number decreases with 1 university. Thereby, this decrease causes an effect in respect to the number of theses in 2012. It is possible to indicate that there is an increase in theses after 2012.

Table 2 . Programs and Numbers (for the last 5 years)

Programs	2011	2012	2013	2014	2015
Architecture and Design	103	83	114	116	159
Building Science	70	61	44	7	58
Restoration and Preservation of Historic Monuments	49	37	34	46	34
History of Architecture	22	19	18	21	18
Urban Design	1	2	2	3	2

Figure 5. Programs and Rates of the Last 5 Years

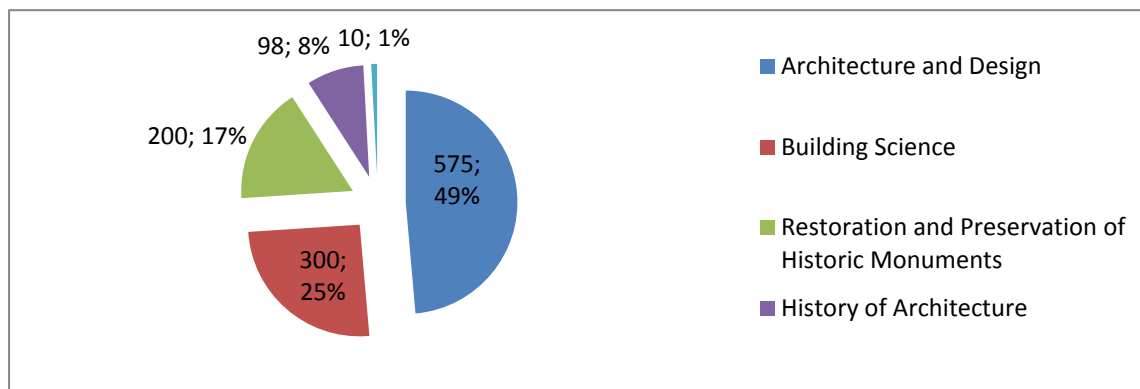


Table 3 . Programs and Numbers of the Last 5 Years

Programs	Number of Theses
Architecture and Design	575
Building Science	300
Restoration and Preservation of Historic Monuments	200
History of Architecture	98
Urban Design	10

### 2.1.1. Subcategorized Program 1

The analysis of theses in Architecture and Design Program with respect to subcategories demonstrates that architectural design is the most popular topic. It is followed by computational design and building research and planning.

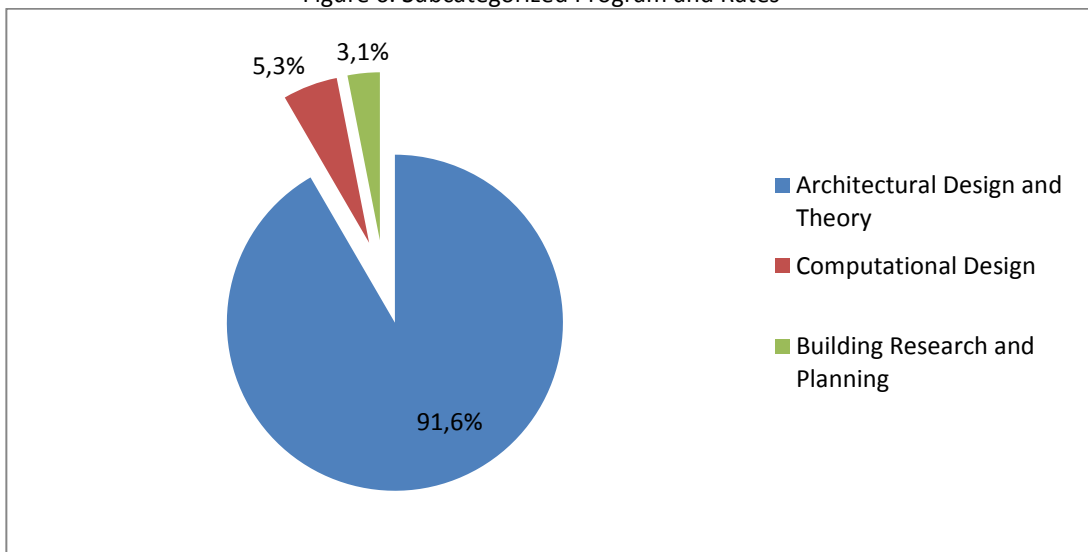
When analyzing topics in whole theses on Architecture and Design Topic, the most popular topic is Architectural Design by number of 1302 and 91,6 % (YÖK, 2016). The other subcategorized program is computational design and building planning. Computational Design is the following topic before topic of building planning by number of 44 and 3,1 %.

Table 4 . Subcategorized Program 1 and Numbers

Programs	Number of Theses
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Architectural Design and Theory	1302
Computational Design	75
Building Research and Planning	44

Figure 6. Subcategorized Program and Rates

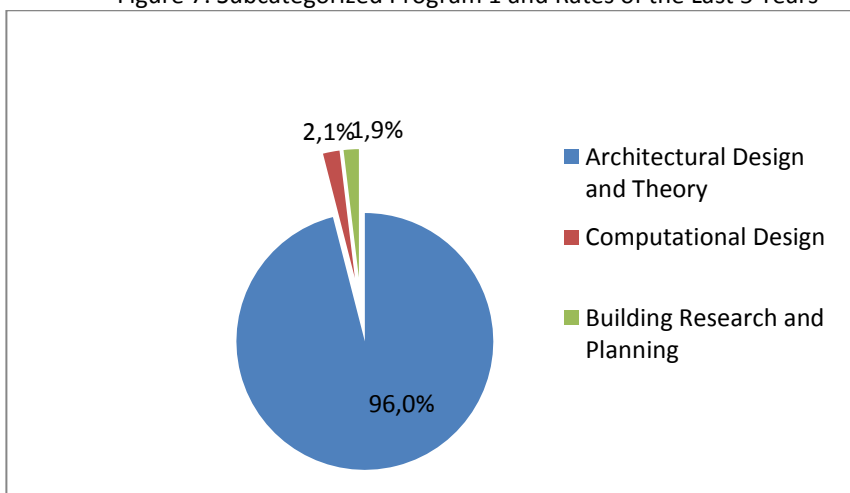


The analysis of theses in last 5 years shows that the most popular subcategorized topic is Architectural Design and Theory. It is followed by Computational Design and Building Research and Planning.

Table 5. Subcategorized Program 1 and Numbers

Programs	Number of Theses
Architectural Design and Theory	552
Computational Design	12
Building Research and Planning	11

Figure 7. Subcategorized Program 1 and Rates of the Last 5 Years

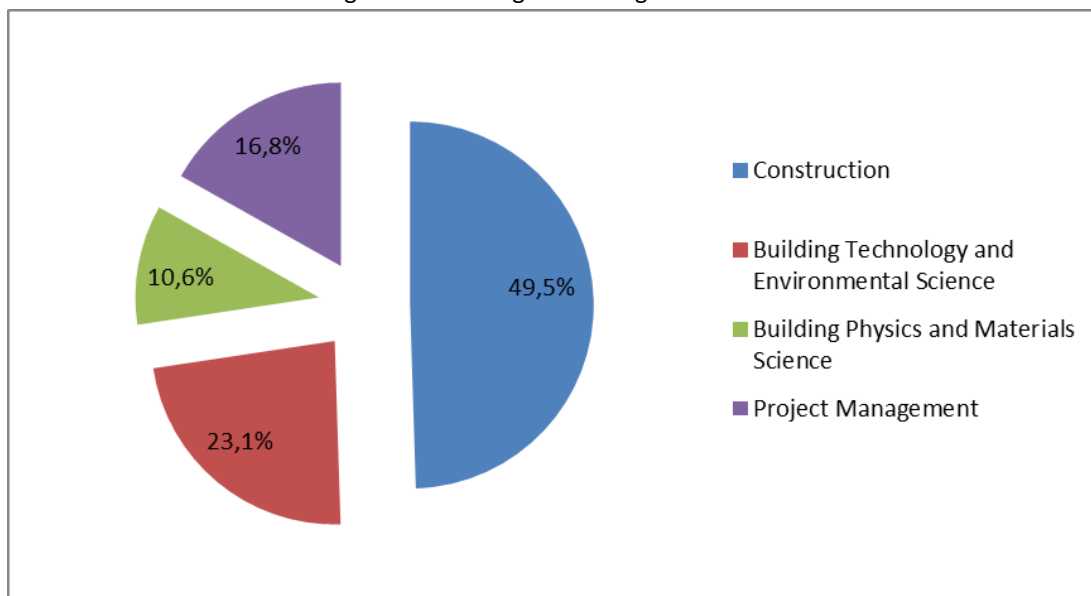


### 2.1.2. Subcategorized Program 2

Building Science program includes Construction, Building Technology and Environmental Science, Building Physics and Materials Science and Project Management. The rate of the theses on construction is higher than the others (YÖK, 2016).

Building Science that is the following main topic is classified as Construction, Building Technology and Environmental Science, Building Physics and Materials Science and Project Management. The first preferred subcategorized program is construction by number of 394 and 49,5 %.

Figure 8. Subcategorized Program 2 and Rates



The result of analyses shows that the rate of building technology and

environmental science increased in the last 5 years. The increasing numbers of theses investigating build technology build physics and building and construction and computational design is of importance. It is possible to determine that the current and popular topics of Turkish graduate programs in Architecture are in parallel with the prevailing agenda of World architecture.

### 2.2. Language

The other result of study is language. It was revealed that 87% of all theses is Turkish and the remaining theses are in English. In this context, it can be said that English that is the international language had not been preferred. The reason is that education language of several universities is English. The names of these universities are Middle East Technical University, Izmir Institute of Technology, Yeditepe University (Iztech, 2016).

It is possible to claim that the number of theses in Turkish is increasing because of the recently initiated universities and graduate programs. The rates in last 5 years are also given in the chart.

Table 6. Language and Numbers

Language	Number of Theses
English	387
Turkish	2589

Figure 9. Language and Rates



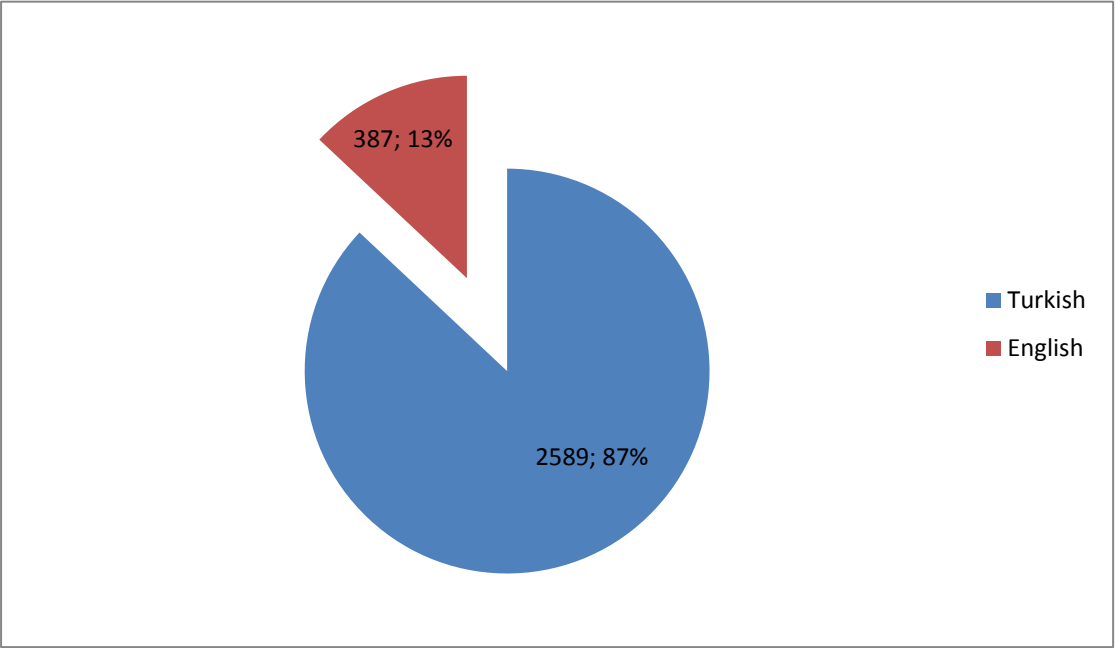
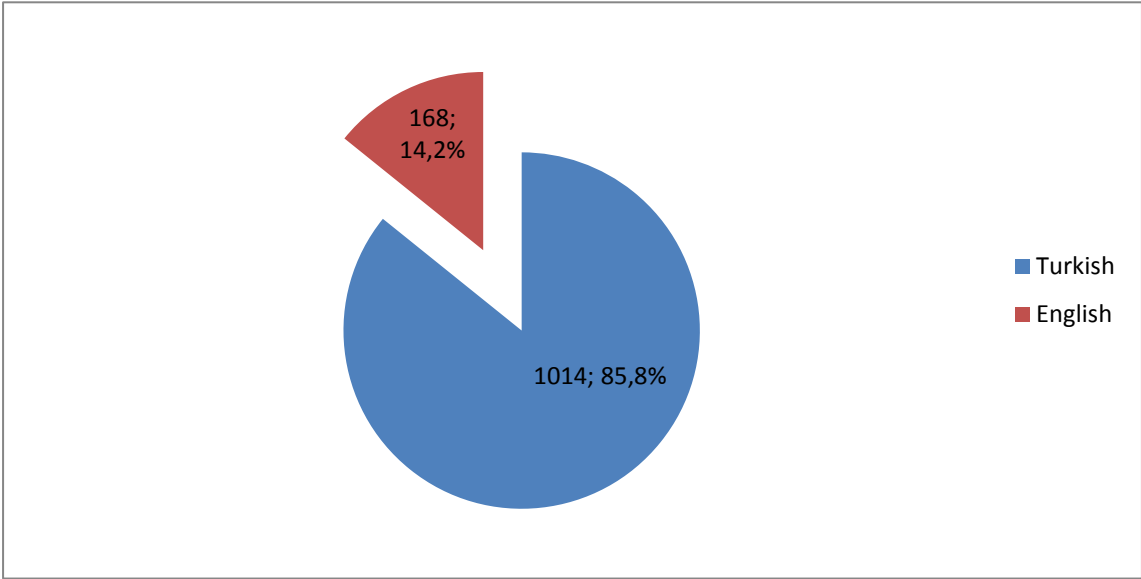


Figure 10. Language and Rates of the Last 5 Years



### 2.3. Gender

Results of the study show that the number of female students is higher than the male students in the studies. The results of last 5 years are also given in the table and chart.

Figure 11 . Gender and Rates

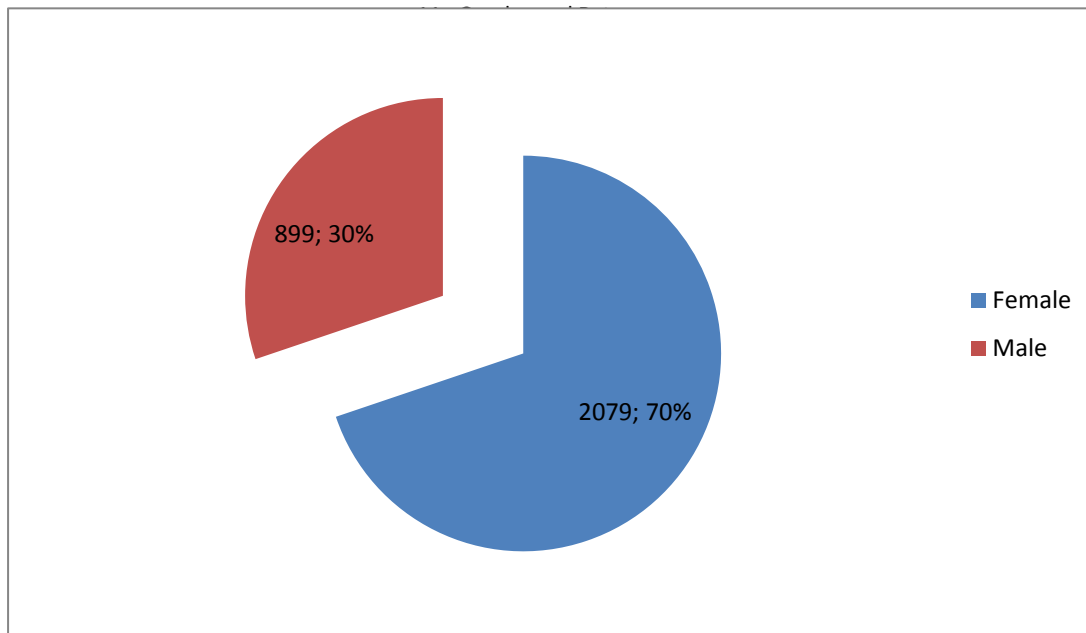


Table 7. Gender and Numbers of the Last 5 Years

Sex	Number of Theses
Female	880
Male	303

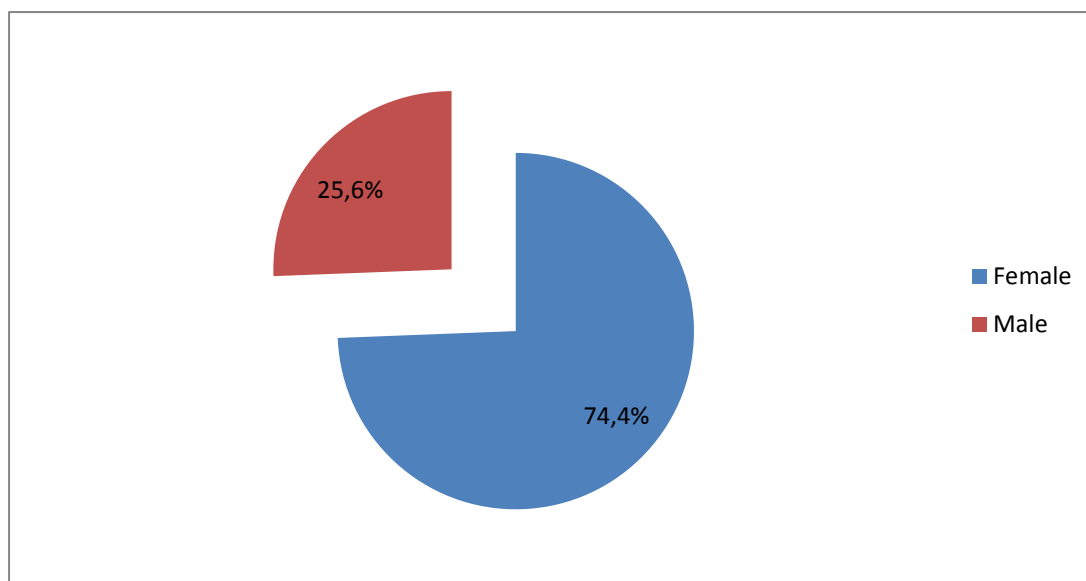


Figure 12. Gender and Rates of the Last 5 Years

### 3. Results

Based on the data analysis, two most important movements attract attention on all results. These are diversification and specialization. "Diversification movement" is effective on disciplines under department. This classification occurs because of different potential features in Department of Architecture. "Specialization movement" also processes due to these features. In this context, the disciplines emerge according to their own properties.

The analysis of the theses in 5-years period shows that there is significant diversification in the programs. This shows that the graduate programs in Turkey are in parallel progress with the over specialization in the profession and related disciplines. The analysis of theses in last 5 years shows that the most popular subcategorized topic is Architectural Design and Theory (YÖK, 2016). These improvements could be related to specialization in each department and disciplines in higher education. For example, it is possible to categorize programs under 5 different titles. They are Architecture and Design, Building Science, Restoration and Preservation of Historic Monuments, History of Architecture, Urban Design. In scientific terms, the analysis of theses in Architecture and Design Program with respect to subcategories demonstrates that architectural design is the most popular topic. It is followed by computational design and building research and planning. The other instance in respect to disciplines is that Building Science program includes Construction, Building Technology and Environmental Science, Building Physics and Materials Science and Project Management. The rate of the construction related theses is higher than the others.

The result of analyses refers that the rate of building technology and environmental science increased according to last 5 years. The increasing numbers of theses investigating build technology build physics and building and construction and computational design is of importance. It is possible to determine that the current and popular topics of Turkish graduate programs in Architecture are in parallel with the prevailing agenda of World architecture.

There is a tendency to encourage the universities to specialize in different subjects and programs. The outcome of this study will reveal the current situation with respect to the universities shall profit. On the other side, the outcomes will show the preference of subjects based on specific year period. Therefore, the unstudied subjects could be determined to evaluate in future research.

It would be possible to make future predictions based on the results of this study. The results would be helpful to develop education policies. These policies are created by science, philosophy and culture. In this context, the theses that were studied in Department of Architecture could be beneficial to specify education policies. The reason of this evaluation is that the mentioned theses usually include issues in respect to society in term of sociological, psychological and cultural values. In order to check and determine effectiveness of the policies, these studies should be the main focus during improvement of policy production.

Additionally, the number of female has been higher than males except between 1987-1990 (7 female and 11 male) (YÖK, 2016). The reason of these results could be thought as preference architectural education by female students. It shows the possibility of education of female characters. Additionally, this is an important example for that the education rate of educated women is increasing in each field of education. In fact; this evaluation shows that the role of female figure is extremely increasing such as in architectural issues in all fields in community. As it is known, there is not only one inference to be aware of the female figure in education. Moreover, in order to increase the act of female during design process is going to provide effectiveness of the female figure in the society.

Moreover, it is possible to claim that the number of theses in Turkish is increasing because of the recently emerging graduate programs and initiated universities. In this context, it is possible to infer that Turkish language became more effective in academic literature compared to past. Furthermore, professionals and students can benefit from choosing a proper school for their graduate education. They are going to have the current information and statistic data during the preference of studies. The improvable issues appear to determine the solution. On the other hand, studies are going to be strong in the mentioned field; and the students are going to advance in their career and scientific process. In each level, the field occurs to develop a point of view.

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